Perspectives on Domestic Natural Gas Supplies and Productive Capacity

Prepared for:
Workshop: “Growing the North American Natural Gas Production Platform”
Strategies for Addressing Infrastructure Constraints, Regulatory Risks and Trade Disputes

Hosted by:
EPRINC

Prepared By:
Vello Kuuskraa, President
Advanced Resources International, Inc.

Willard Hotel, Washington, DC
April 19, 2018
Introduction

The U.S. has large natural gas resources that have low-to-moderate “break-even” costs.* These resources include:

- Over 2,700 Tcf of proved plus technically recoverable unconventional gas resources (shale gas, tight gas and CBM), including significant volumes of associated gas from “tight oil”.

- Over 400 Tcf of remaining on-shore (L-48) conventional gas reserves and resources, with much of this resource located in smaller, higher-cost-to-develop fields.

- Nearly 200 Tcf of associated gas reserves and resources in deepwater Gulf of Mexico oil fields, with additional reserves and resources in Alaska.

With continuing gains in well performance and the “discovery” of new shale and “tight oil” plays, our understanding of the size of the ultimate U.S. natural gas resource base has increased steadily in the past two decades and will continue to do so in the future.

*We define “break-even” costs as full-cycle finding and development costs with a 15% (before tax) return on investment.
Status of U.S. Natural Gas Production

After declining to 72 Bcfd (dry) in 2016, natural gas production increased to 74 Bcfd in 2017. With a 4Q 2017 natural gas production rate of 76 Bcfd (dry), we look for natural gas production to have a second year of strong growth, averaging 80 Bcfd in 2018. Shale gas increases its role as the dominant source of natural gas production and growth.

U.S. Natural Gas Production (Dry)

<table>
<thead>
<tr>
<th></th>
<th>2016 (Bcfd)</th>
<th>2017 (Bcfd)</th>
<th>2018 (e) (Bcfd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unconventional Gas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shale Gas</td>
<td>42</td>
<td>45</td>
<td>52</td>
</tr>
<tr>
<td>Tight Gas</td>
<td>15</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>CBM</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>62</td>
<td>68</td>
</tr>
<tr>
<td>Conventional Gas*</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>72</td>
<td>74</td>
<td>80</td>
</tr>
</tbody>
</table>

*Includes L-48 onshore, offshore and Alaska.
Source: EIA; Advanced Resources Int. Shale Gas Database, 2014.
Outlook for U.S. Natural Gas Production

Led by significant increases from shales and associated gas from “tight oil”, we project domestic natural gas will reach 100 Bcf/d of “production capacity” by 2025.

- Production from Appalachian Basin’s Marcellus and Utica Shales, currently at 26 Bcf/d, will provide about a third of total natural gas production by 2025.

- Associated gas from “tight oil” (including shale oil and tight sands oil), currently at 17 Bcf/d, will provide about a quarter of total natural gas production by 2025.

- Production from the Haynesville Shale, after halting its past spectacular decline, is on the rise and is expected to be a major supply source for the next round of LNG plants.

- Emerging shale and tight gas plays, such as the Anadarko Basin’s Stack/Scoop and the DJ Basin’s sands and shales, will more than counter declines in the pioneering Antrim, Barnett, and Fayetteville shales.

- Active development of already discovered deepwater oil fields along with new discoveries will enable the Offshore Gulf of Mexico grow its associated gas production.
Changes in Rig Counts Help Identify Growing Shale/Associated Gas Basins

### Active Rig Count: Selected Basins

<table>
<thead>
<tr>
<th>Selected Basins/Plays</th>
<th>End of 2016</th>
<th>End of 2017</th>
<th>April 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Associated Gas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permian</td>
<td>264</td>
<td>398</td>
<td><strong>445</strong></td>
</tr>
<tr>
<td>Eagle Ford</td>
<td>46</td>
<td>70</td>
<td>75</td>
</tr>
<tr>
<td>Williston</td>
<td>33</td>
<td>47</td>
<td>55</td>
</tr>
<tr>
<td>Cana Woodford*</td>
<td>37</td>
<td>72</td>
<td>65</td>
</tr>
<tr>
<td>D-J Niobrara</td>
<td>25</td>
<td>26</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>405</strong></td>
<td><strong>613</strong></td>
<td><strong>664</strong></td>
</tr>
<tr>
<td><strong>2. Shale Gas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marcellus</td>
<td>39</td>
<td>48</td>
<td><strong>55</strong></td>
</tr>
<tr>
<td>Haynesville</td>
<td>27</td>
<td>46</td>
<td><strong>52</strong></td>
</tr>
<tr>
<td>Utica</td>
<td>20</td>
<td>28</td>
<td>25</td>
</tr>
<tr>
<td>Other**</td>
<td>27</td>
<td>30</td>
<td>27</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>113</strong></td>
<td><strong>152</strong></td>
<td><strong>159</strong></td>
</tr>
</tbody>
</table>

*Does not include Kingfisher Co., Oklahoma.

**Includes Barnett (3), Fayetteville (1), Ardmore/Arkoma (9), Miss Lime (2) and Granite Wash (12) in April, 2018.

**Associated Gas.** Rig utilization in five key “tight oil” plays (containing associated gas) has climbed from 613 at the end of 2017 to 664 today. The Permian with an increase of 47 rigs account for most of the gain.

**Shale Gas.** Rig utilization in other shale gas plays has rebounded from 152 at end of 2017 to 159 today. The Marcellus and Haynesville account for two-thirds of the shale gas rig fleet.
Appalachian Basin’s Shale Gas Production Surges

The Appalachian Basin has some of the lowest cost (at the wellhead) domestic shale gas resources.

Completion of Rover Phase I, the Leach Express, and the Access pipelines (among others) enabled natural gas production and delivery from the Appalachian Basin to increase by 2 Bcfd in 2017. Completion of additional pipelines (Rover Phase 2, SW Louisiana, and others) will support 3 Bcfd of natural gas production growth from Appalachian Basin in 2018.

However, access to regional markets and need to complete long distance pipelines to the Gulf will constrain near-term production.

Appalachian Basin’s Shale Gas Production (Dry)

<table>
<thead>
<tr>
<th>Shale Play</th>
<th>2016 (Bcfd)</th>
<th>2017 (Bcfd)</th>
<th>2018 (Bcfd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marcellus</td>
<td>16.4</td>
<td>17.7</td>
<td>20.0</td>
</tr>
<tr>
<td>Utica</td>
<td>3.8</td>
<td>4.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Other</td>
<td>0.4</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>20.6</td>
<td>22.7</td>
<td>26.0</td>
</tr>
</tbody>
</table>
Associated Gas from “Tight Oil”

Associated gas from “tight oil” — the Bakken, Eagle Ford, Permian Stack/Scoop, Denver’s Niobrara (among others) — has provided about half of the recent increases in natural gas supplies.

<table>
<thead>
<tr>
<th>&quot;Tight Oil&quot; Play</th>
<th>Associated Gas Production (Dry) (Bcfd)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2016</td>
</tr>
<tr>
<td>Bakken</td>
<td>1.1</td>
</tr>
<tr>
<td>Eagle Ford*</td>
<td>4.0</td>
</tr>
<tr>
<td>Permian (TX/NM)</td>
<td>3.4</td>
</tr>
<tr>
<td>Anadarko</td>
<td>2.3</td>
</tr>
<tr>
<td>Denver</td>
<td>1.3</td>
</tr>
<tr>
<td>Other</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12.8</strong></td>
</tr>
<tr>
<td><strong>Subtotal Shale</strong></td>
<td>9.3</td>
</tr>
</tbody>
</table>

*The Eagle Ford Shale and the STACK/SCOOP also contains non-associated gas plays not dependent on “tight oil” development or economics.

- With higher oil prices, associated gas production from “tight oil” increased notably in 2017 and will increase further in 2018.
- Because associated gas from “tight oil” is a by-product of oil production, at strong oil prices production of associated gas becomes essentially a “free good.”
Natural gas production from the Permian Basin provided 8.1 Bcfd (wet) of natural gas production in 2017, up from 2016. We project the Permian will provide 10 Bcfd in 2018.

- Associated gas (wet) from “tight oil” of 5.7 Bcfd in 2017, increasing to 7.8 Bcfd in 2018, is the engine of production growth in the Permian Basin.*

- The “discovery” of “Alpine High” in the Delaware Basin portion of the Permian Basin introduces a major new wet gas play.

*Dry associated natural gas production from “tight oil” would be approximately 25% lower, estimated at 4.2 Bcfd in 2017 and 6.0 Bcfd in 2018.
A major question governing the outlook for natural gas production is: 
*To what extent will future natural gas “break-even” costs encourage or stymie gas demand and competitively priced LNG exports?*

Improvements in well productivities and development efficiencies have reduced today’s “break-even” costs for shale gas.

*Will more intensive well completion practices (longer laterals, more frac stages, and higher proppant volumes) improve well productivity sufficiently to counter increases in oil field service costs?*

To examine this question, we selected the “core” area of the Haynesville Shale to look at future “break-even” costs.
Perspectives on Domestic Natural Gas Supplies and Productive Capacity

Our shale gas model uses well performance and cost adjustment factors to link changes in development practices and oil field service costs to future “break-even” costs.

Use of more frac stages (33), higher proppant volumes (2,500 lbs/ft), and somewhat longer laterals (8,500 ft) will improve Haynesville Shale Play #1’s well productivity from 18.4 Bcf in 2017 to 21.2 Bcf in 2025.

Improving well performance and greater drilling efficiencies will help counter increases in service costs as well as the costs of more intensive development, limiting Year 2025 “break-even” costs to $2.60/Mcf compared to $2.50/Mcf in 2017.
The domestic natural gas resource base is large and yet to be fully defined.

Increases in well productivities and development efficiencies will counter increases in oil field service costs, helping maintain domestic natural gas as a low-to-moderate cost resource.

Canadian natural gas resources, led by the Montney Resource Play (Canada’s Marcellus), further support a positive outlook for North American natural gas supplies.

With the change in the natural gas paradigm from “scarcity to plenty”, the emphasis now shifts to “productive capacity” and the need for transportation infrastructure and new markets.
Issues

Permian Basin Production and Looming Issues

TRISHA CURTIS, PRESIDENT AND CO-FOUNDER, PETRONERDS
TRISHA@PETRONERDS.COM
April 19, 2018

FOR THE ENERGY POLICY RESEARCH FOUNDATION, INC.
Source: Extraction Rig, September 2017
Completion Design Changes and the Impact of US Shale Well Productivity


"Completion Design Changes and the Impact of US Shale Well Productivity"
Extraction of oil and gas. September 2017

Spud to Total Depth in Less than Three Days
Permian Basin Production

- Water – 15 mbd
- Gas – 9 plus Bcf/d
- Oil – 2.9 mbd

Total Water Production
Total Gas Production
Total Liquid Production
Permian Problems

With crude oil comes associated natural gas and produced water. Gassy reservoirs can help drive oil production—at least in the Permian’s case. Gas attacks oil and well productivity (IPs and well productivity). High intensity completions have done wonders for oil production and even more for gas production. Ultra Petroleum—Pinedale, Wyoming. It isn’t just the Permian that is the problem...gas...gas...gas...gas. Marcellus Reservoir Decline Curve

11,300 mcf/d

Source: PetroNerds, DrillingInfo data
The Permian Basin has a vast amount of stacked payzones that are actively being drilled and further delineated for the best spacing and completion plans. The Permian Basin Geology and Stratigraphy.
Still Early in the Game

This is a highly layered mix of conventional and unconventional reservoirs. Interbedded shales, sandstones, and carbonates

Intense layering

Optimal spacing and completion design (frac) is key

Land rush, Wall Street push, and high acreage costs

Stringent leasing requirements in the Permian Basin often prevent optimal asset delineation work and a lot of capital

Now operators are trying to delineate, develop, and maintain leasing requirements all at the same time. Cost inflation also causing problems with so much activity in the Permian Basin has a tremendous amount of potential in terms of stacked pay, but successfully developing these stacked payzones will take a lot of work and a lot of capital.

Still early in this ball game

Well density, parent child problems, all coming into focus

Inventory

Stringent leasing requirements in the Permian Basin often prevent optimal asset delineation work and a lot of capital

Now operators are trying to delineate, develop, and maintain leasing requirements all at the same time. Cost inflation also causing problems with so much activity in the Permian Basin has a tremendous amount of potential in terms of stacked pay, but successfully developing these stacked payzones will take a lot of work and a lot of capital.

Still Early in the Game
Pioneer – Then and Now

Midland Basin: Stacked Play Potential

Unlocking acreage value

Source: Pioneer Natural Resources April 2018 Investor Presentation

Source: Pioneer Natural Resources Oct 2013 Investor Presentation
Associated Gas and Produced Water

Source: PetroNerds, DrillingInfo data
Gas to Oil Ratio in the Permian Basin

Source: PetroNerds, DrillingInfo data.
API Gravity in the Permian Basin

Source: PetroNerds, DrillingInfo data
Production by API Gravity

Source: PetroNerds, DrillingInfo data
 Permian Basin Decline Curve

# of Wells Included in Month 1

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Source: PetroNerds, DrillingInfo data
Measuring Productivity

Average Lateral Length

First 6 Month Cumulative Production Per Lateral Foot

Source: PetroNerds, DrillingInfo data
Bone Spring Reservoir Decline Curve

Source: PetroNerds, DrillingInfo data
### Top Permian Basin Operators by Production

<table>
<thead>
<tr>
<th>Operator</th>
<th>Daily Liquids b/d</th>
<th>Daily Gas mcf/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occidental Energy Company Inc.</td>
<td>276,024</td>
<td>556,347</td>
</tr>
<tr>
<td>Pioneer Natural Resources Company</td>
<td>210,694</td>
<td>461,204</td>
</tr>
<tr>
<td>Concho Resources Inc.</td>
<td>197,709</td>
<td>659,170</td>
</tr>
<tr>
<td>EOG Resources Incorporated</td>
<td>131,031</td>
<td>407,233</td>
</tr>
<tr>
<td>Apache Corporation</td>
<td>102,584</td>
<td>477,368</td>
</tr>
<tr>
<td>Exxon Mobil Corporation</td>
<td>91,408</td>
<td>285,160</td>
</tr>
<tr>
<td>Anadarko E&amp;P Onshore LLC</td>
<td>88,790</td>
<td>295,583</td>
</tr>
<tr>
<td>Diamondback E&amp;P LLC</td>
<td>83,932</td>
<td>123,888</td>
</tr>
<tr>
<td>Chevron U.S.A. Inc.</td>
<td>82,071</td>
<td>397,068</td>
</tr>
<tr>
<td>Encana Corporation</td>
<td>72,643</td>
<td>157,580</td>
</tr>
<tr>
<td>Parsley Energy Operations LLC</td>
<td>71,987</td>
<td>184,253</td>
</tr>
<tr>
<td>Enbridge Energy Corporation</td>
<td>68,566</td>
<td>234,231</td>
</tr>
<tr>
<td>Cimarex Energy Company</td>
<td>64,035</td>
<td>477,567</td>
</tr>
<tr>
<td>Kinder Morgan Inc.</td>
<td>51,368</td>
<td>158,186</td>
</tr>
<tr>
<td>RSP Permian LLC</td>
<td>49,326</td>
<td>104,704</td>
</tr>
<tr>
<td>Mewbourne Holdings Inc.</td>
<td>48,960</td>
<td>202,757</td>
</tr>
<tr>
<td>RD Shell</td>
<td>47,638</td>
<td>117,148</td>
</tr>
<tr>
<td>Devon Energy Corporation</td>
<td>45,105</td>
<td>177,719</td>
</tr>
<tr>
<td>Surge Operating LLC</td>
<td>44,011</td>
<td>42,721</td>
</tr>
<tr>
<td>SM Energy Company</td>
<td>40,563</td>
<td>73,676</td>
</tr>
<tr>
<td>Laredo Petroleum Inc.</td>
<td>37,173</td>
<td>214,359</td>
</tr>
<tr>
<td>Centennial Resource Production LLC</td>
<td>35,086</td>
<td>81,964</td>
</tr>
<tr>
<td>RKI Exploration &amp; Production LLC</td>
<td>35,030</td>
<td>185,845</td>
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<tr>
<td>Jagged Peak Energy LLC</td>
<td>30,546</td>
<td>50,148</td>
</tr>
<tr>
<td>Endeavor Energy Resources LLC</td>
<td>30,464</td>
<td>63,261</td>
</tr>
</tbody>
</table>

Source: PetroNerds, DrillingInfo data
Flurry of investor concerns about capacity constraints as basis swaps.
Operators can protect themselves against capacity constraints for both oil and gas through outright derivative hedges as well as basis swaps.

Why Everyone Now Cares about "Basis Swaps"
Midland Basis Swaps: Q4 2016 vs Q4 2017

Source: PetroNerds, HedgeAware. Survey of 41 publicly traded E&Ps.
Natural Gas: A Role for Public Lands?

The Institute for Energy Research
Tom Pyle, President — @TomJPyle
- We have more gas than we know what to do with.
- 1980 DOE estimate: U.S. had 35 years' worth of natural gas.
- Today, 37 years later, DOE estimate: 100 years.
What role have federal lands played?
What role have federal lands played?
Federal Offshore Gas Production Volume (mcf)
Why the Production Gap?

Private Land Ownership

Nearly 12% of Texas, about 32,000 square miles, is owned by the General Land Office. Most of this land is in the western part of the state. Unlike most Western states, the General Land Office manages the land. Nearly 2% of the land is managed for primary, secondary, and higher education in Texas. Parts of this land and general million dollars for public education. Valuable mineral leases on lands managed by the General Land Office account for millions of dollars each year. The General Land Office has more than 1% of land in the state.
This trend didn't begin with the Obama Administration.
What are we leaving on the table?
### Economic Benefits of Federal Lands Production

<table>
<thead>
<tr>
<th>Region</th>
<th>Value of Oil &amp; Gas Reserves ($billions)</th>
<th>Value of Oil &amp; Gas Producing (oil)</th>
<th>Value of Oil &amp; Gas Producing (gas)</th>
<th>Value of Oil &amp; Gas Producing (coal)</th>
<th>Value of Oil &amp; Gas Producing (other)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>3.3934</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

#### Table A2: Value of Oil and Gas Reserves and Investment

<table>
<thead>
<tr>
<th>Region</th>
<th>Value of Oil &amp; Gas Reserves ($billions)</th>
<th>Value of Oil &amp; Gas Producing (oil)</th>
<th>Value of Oil &amp; Gas Producing (gas)</th>
<th>Value of Oil &amp; Gas Producing (coal)</th>
<th>Value of Oil &amp; Gas Producing (other)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic</td>
<td>0.1973</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Gulf</td>
<td>0.1973</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Pacific</td>
<td>0.1973</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Eastern Gulf</td>
<td>0.1973</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

#### Note

- Values in billions of dollars.
- Calculation of benefits includes all states and regions.
- Production data reflects estimated values of oil, gas, coal, and other energy resources.
What's the proper perspective on the role of public land?
Solutions

- Divestment
- State Management
- Streamline Permitting Process
- Accurate Inventory of Resource Base
- Revenue Sharing with States
It's tough to make predictions, especially about the future...
but there will always be a role for public lands.
Importance of Infrastructure for LNG Export
Cautionary statements

The information in this presentation includes "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements other than statements of historical fact are forward-looking statements. The words "anticipate," "assume," "believe," "budget," "estimate," "expect," "forecast," "initial," "intend," "may," "plan," "potential," "project," "should," "will," "would," and similar expressions are intended to identify forward-looking statements. The forward-looking statements in this presentation relate to, among other things, anticipated supply, demand and other factors that may affect the LNG industry and Driftwood Holdings, including the financing of Driftwood Holdings.

Our forward-looking statements are based on assumptions and analyses made by us in light of our experience and our perception of historical trends, current conditions, expected future developments, and other factors that we believe are appropriate under the circumstances. These statements are subject to numerous known and unknown risks and uncertainties, which may cause actual results to be materially different from any future results or performance expressed or implied by the forward-looking statements. These risks and uncertainties include those described in the "Risk Factors" section of our Annual Report on Form 10-K for the year ended December 31, 2017 filed with the Securities and Exchange Commission (the "SEC") on March 15, 2018 and other filings with the SEC, which are incorporated by reference in this presentation. Many of the forward-looking statements in this presentation relate to events or developments anticipated to occur numerous years in the future, which increases the likelihood that actual results will differ materially from those projected.

RESERVES AND RESOURCES

Estimates of non-proved reserves and resources are based on more limited information and are subject to significantly greater risks of not being produced than are estimates of proved reserves. Forward-looking statements in or in connection with this presentation speak only as of the date hereof. Although we may from time to time voluntarily update our prior forward-looking statements, we do not commit any obligation to do so except as required by securities laws.
Global call on U.S. natural gas and global demand pull

...and global demand pull
New infrastructure required

Implications for the U.S.

<table>
<thead>
<tr>
<th>Required future investment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least 7 Bcf/d export capacity</td>
</tr>
<tr>
<td>~$170 billion</td>
</tr>
</tbody>
</table>

* Pipeline capacity required: 
  - ~$100 billion Bcf/d less ~7 Bcf/d under construction
  - Up to 100 mtpa: 13 Bcf/d (20)

* LNG export capacity required: 
  - ~$100 billion

* LNG liquefaction terminal operating/under construction:
  - ~8 Bcf/d

Total estimated 2017-2025 production growth, Bcf/d:
- 20

Source: EIA; ARI; Tellurian analysis

Notes:
(1) $1,000/tonne average

Additional text:
- LNG liquefaction terminal
- Export capacity
- Future construction
- Operating/under construction
- ~13 Bcf/d
- At least 7 Bcf/d export capacity
- ~$170 billion
- Required future investment:
Continued shale revolution productivity improvements

Sources: DrillingInfo; Tellurian analysis

Delaware Basin vintage type curves

Average Delaware Basin peak month production mcf/d

Year completed

Months on production
Permian gas projections

Notes:
1. Assumes 80% wet gas to dry gas conversion

Alternative sources:
- BTU analytics
- RBN
- IHSMarkit

Well productivity improvement scenarios:
- None
- Low
- Mid
- High

Wet gas volume, Bcf/d:
- 2017: 9.1
- 2022: 16.0
- CAGR: 7-12%

Growth to 2025:
- High: 18.4
- Mid: 17.6
- Low: 16.0
- None: 15.2

Bcf/d:
- EoY 2017: 7.3
- Forecast: 5.5

Additional sources: Bcf/d
### Driftwood Pipeline
- **Capacity (Bcf/d):** 4.0
- **Cost ($ billions):** 2.2
- **Length (miles):** 96
- **Diameter (inches):** 48
- **Compression (HP):** 274,000
- **Status:** FERC approval pending

### Haynesville Global Access Pipeline
- **Capacity (Bcf/d):** 2.0
- **Cost ($ billions):** 2.0
- **Length (miles):** 200
- **Diameter (inches):** 42
- **Compression (HP):** 23,000
- **Status:** Open season: 2/21/18

### Permian Global Access Pipeline
- **Capacity (Bcf/d):** 2.0
- **Cost ($ billions):** 3.7
- **Length (miles):** 625
- **Diameter (inches):** 42
- **Compression (HP):** 258,000
- **Status:** Open season: 3/20/18
Demand outlook

Sources: Wood Mackenzie, Tellurian Research.

Notes:
(1) Assumes 85% utilization rate.
(2) Based on assumption that LNG demand grows at 4.5% p.a. post-2020.

8
127 mtpa of new liquefaction required by 2025

107 mtpa in operation

Under construction

107 mtpa of new liquefaction capacity required by 2025
Margins and price signals

2018 JKM forward prices up $2.50 since July 2017

Notes:
(1) Forward prices for 2018 assuming $1.79/mmBtu shipping cost from USGC to East Asia using Platts JKM.

(2) Platts Gulf Coast Marker.

2018 JKM price up 42% this year

Driftwood LNG FOB USGC $3.00/mmBtu

$5
$6
$7
$8
$9
$10
$11

2018
Q1
2018
Q2
2018
Q3
2018
Q4

Mar
-18
Nov
-17
Jul
-17
Mar-18

Sources: Platts, CME, Tellurian Research.
Driftwood LNG terminal

- **Land**: ~1,000 acres near Lake Charles, LA
- **Capacity**: ~27.6 mtpa
- **Trains**: Up to 20 trains of ~1.38 mtpa each
- **Storage**: 3 storage tanks of 235,000 m³ each
- **Marine**: 3 marine berths
- **EPC Cost**: ~$15.2 billion
  - ~$550 per tonne

Artist rendition of the Driftwood LNG terminal.
Plentiful, cheap U.S. gas endowment
As a result, industry built new pipelines, reversed old ones and developed the first wave of LNG export projects.

Source: EIA; Wood Mackenzie, RBN, Tellurian analysis.
The number of LNG market participants has grown rapidly, with the number of LNG market participants expanding rapidly. FSRU technology is rapidly expanding the number of countries consuming LNG, providing emerging markets with a faster and often cheaper option than land-based terminals to begin importing LNG. By year-end 2017, 40% of import markets utilized FSRUs, and IHS forecasts that over 50% of import markets will utilize FSRU terminals by 2025.
Today’s LNG market exhibits remarkable similarities to the global oil market of late last century.

**Global Gas Commoditizing**

- Rapidly commoditizing
- Commoditized and Inflexible
- Vertically Integrated and Inflexible
- Vertically Integrated and Flexible

1959: First LNG cargo shifts from Algeria

2017: JKM financial swaps volume quadruples year on year

2004-2005: BG builds 14 mtpa net long builds

2011: Fukushima increases Japanese demand for LNG

2012: Cheniere makes FID on Sabine Pass LNG – all volumes destination flexible

2010: Cheniere makes FID on Sabine Pass LNG

1970s-80s: Emergence of crude oil markers: WTI, Brent, Forties, etc.

2011: Fukushima increases Japanese demand for LNG

2012: Cheniere makes FID on Sabine Pass LNG

1973: Oil price shock – oil spot prices climb

1980s: Oversupply – physical trade dwarfing financial trading

1990s: Financial trading grows to 500 million barrels per day – dwarfing physical trade

1950s: Vertically integrated IOCs dominate internal oil market

1960s: Vertically integrated and inflexible

1970s: North Sea becomes one of the first fields without dedicated downstream market

1980s: Emergence of hedging/price risk management products

1990s: Commoditized and flexible

2000s: Financial trading grows to 500 million barrels per day – dwarfing physical trade

2010s: Optionality provided – physical trades linked to Henry Hub

Sources: SPE; https://www.e-government.psu.edu/eme801/node/455

Today’s LNG market exhibits remarkable similarities to the global oil market of late last century.
LNG Storage - 2017

Japan + Korea Terminals: 63 Bcf

LNG Storage - 2017

Legend

LNG Carrier - Laden
LNG Carrier - Unladen

Daily LNG supply readily available across the globe
Growing LNG supply availability in all regions

Emergence of a liquid LNG market

By region

<table>
<thead>
<tr>
<th>Region</th>
<th>2017</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic Basin</td>
<td>170</td>
<td>190</td>
</tr>
<tr>
<td>Pacific Basin</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Middle East</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

# of cargoes loaded per day

(1) one cargo represents ~3 Bcf of LNG

**Driftwood Holdings’ operating costs**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost ($/mmBtu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drilling and completion (1)</td>
<td>$0.88</td>
</tr>
<tr>
<td>Operating</td>
<td>$0.36</td>
</tr>
<tr>
<td>Gathering, processing and transportation (2)</td>
<td>$0.79</td>
</tr>
<tr>
<td>Contingency cost</td>
<td>$0.22</td>
</tr>
<tr>
<td>Delivered cost</td>
<td>$2.25</td>
</tr>
<tr>
<td>Liquefaction cost</td>
<td>$0.75</td>
</tr>
<tr>
<td>Total anticipated cost of $3/mmBtu locks in low cost of supply</td>
<td>$3.00</td>
</tr>
</tbody>
</table>

Sources: Wood Mackenzie, Tellurian Research.

Notes:
1) Drilling and completion based on well cost of $10.2 million, 15.5 Bcf EUR, and 75.00% net revenue interest (NRI). (8/8ths).
2) Gathering, processing and transportation includes transportation cost to Cushing pipeline terminal.
Mexico’s Demand: Risks Amid an Evolving Energy Landscape

Emily E. Medina
Energy Reform: Mexico’s energy transformation

A brief history of PEMEX

PEMEX was created in 1938 by then-Mexican President Lazaro Cardenas.

Objectives of the energy reform

- Open energy sector (exploration and production) to domestic and foreign private companies
- Legislation in August 2014
- Approved in December 2013 and passed secondary legislation

The creation of the energy reform

- Decline on PEMEX’s productivity
- National symbol
- PEMEX was ceased in 1938 by then-Mexican President Lazaro Cardenas.

Objectives of the energy reform

- Transform natural gas model to enhance energy security
- Promote infrastructure development
- Open access to producers and users and provide for competitive gas pricing

The main objectives of the energy reform are to transform the natural gas model to enhance energy security, promote infrastructure development and open access to producers and users, and provide for competitive gas pricing.
Energy trade between Mexico and the US

Mexico accounts for 60% of U.S. gasoline exports and 65% of U.S. natural gas exports. United States were 4.6 Bcf/d in 2017. Mexico is the United States’ second-largest export market (after Canada) and third-largest trading partner (after Canada and China). In 2017, two-way trade in goods and services totaled $623 billion.
Overview of Mexico’s energy mix

Mexico has significantly increased natural gas imports from the US driving an all-to-gas fuel switch in the power sector, which is helping the country meet its GHG emission reduction targets.

Source: EIA, Mexico energy outlook 2016

Figure 1.4 - Electricity generation by fuel

Shrinkage de información granted. Source:

Note: TWh = Terawatt-hours. Other renewables include Geothermal, solar PV, and wind.
Natural gas in Mexico has been and will continue to be in demand. The Ministry of Energy’s projects a 3.8 percent increase in average annual demand for the next 14 years due to electricity generation demand.

Factors driving natural gas demand include:

- **Resid. & Com.:** Increased usage in residential and commercial sectors.
- **Petroleum:** Shifts in petroleum demand and usage.
- **Industrial:** Expansion of industrial sectors requiring natural gas.
- **Electricity:** Growth in electricity generation and demand.

The chart illustrates the projected demand for natural gas by sector, with a total demand of 7.5 Bcf/d by 2030, up from 2.3 Bcf/d in 2016. The Ministry’s projections indicate a steady increase in natural gas demand over the next 14 years.
Mexico's domestic pipeline network expansion plan includes 12 additional pipelines (3,200 miles) with a total capacity of 9.7 Bcf/d.

- PEMEX is required to release 70% of the volume of its gas supply portfolio.
- PEMEX could charge for natural gas. On June 16, 2017 it removed the price cap that was 10.068 km.
- The CRE is creating a transparent and price-transparent market.
- On June 16, 2017 it removed the price cap that PEMEX could charge for natural gas.
- ON June 16, 2017 it removed the price cap that PEMEX could charge for natural gas.
- On June 16, 2017 it removed the price cap that PEMEX could charge for natural gas.
- On June 16, 2017 it removed the price cap that PEMEX could charge for natural gas.
Main risks facing Mexico’s natural gas projects

- Political situation, Mexico’s presidential elections
  - AMLO, frontrunner in polls Left-wing party MORENA

- Security concerns
  - NAFTA
  - Nationalist views
  - Cut on energy imports
  - Process of mediation and consulta previa
  - Irregularity in land titles
  - Process of mediation and consulta previa

- Land rights
  - Increase in Mexico’s domestic natural gas production
  - CREs requirements do not match Mexico’s reality

- Infrastructure build-out challenged by non-state actors
  - Stiffening of fuel in pipelines by non-state actors
  - Violence most prominent around shale oil and gas

- Elections
  - Political situation, Mexico’s presidential elections
Opportunities for the US in Mexico’s midstream build-out

The success of Mexico’s energy reform going forward is to some degree dependent on:

- The realization of North American energy independence
- Favorable geography and logistics
- Mexico's demand growth over the next decade
- Access to Mexico's liberalized energy market

Meghan L. O'Sullivan, securing North American energy independence “Mexico’s success will mean American success,”...
Understanding the Future Evolution of Asian Gas Markets: China and India

Washington DC, USA
April 19th, 2018

Lucian Pugliesei, EPRINC
Ashutosh Shastri, EnerStrat Consulting, UK

Growing the American Natural Gas Production Platform

EPRINC Workshop
HISTORICAL PROGRESSION OF THE CHINESE OIL & GAS INDUSTRY

1949 - 1959

5th Division of PLA Army formed into an “Oil Corps”

1950 - 1959

Oil Self-sufficiency viewed as critical to national security

1960 - 1978

Oil & Gas production picks up but relations with Russia start to strain

1979 - 1991

Oil imports rise

1992 - 1998

China launches its economic liberalisation policy (1978)

1998 - 2008

China’s Big Bang industry reform (1998)
Historical Progression: Indian Oil & Gas Industry

2004-2016

2003

1999-1990

1994-1986

1991-1974

1975-1990

1949-1960

Today

1993:
- Oil Industry Development Board
- BPC
- HPCL
- GAIL
- Petronet LNG

1991:
- Balancing of Payment
- Balance of Payment crises in India (1991)
- ONGC leads the pack
- Indian companies bear the brunt of the oil crises
- Oil Companies exit India
- IOC exits India
- IOCL is created as a national marketing company

1974:
- Oil crises shapes the debate on strategic security
- Suspicion of foreign companies heightened
- Russian Technical Cooperation Programme starts
- Conflicts with former imperial companies rise due to concerns of monopolies

1973:
- Oil crises
- Oil Industry nationalisation begins
- ONGC leads the pack
- Foreign companies begin to show interest in Indian oil and gas industry

1972:
- OIL fields act 1948
- First LNG arrives in India
- Gas discoveries
- New National companies are created from the oil industry nationalisation initiative

1971:
- Policy announced
- Sector participation in infrastructure starts
- The Reliance PSCL saga plays out
-payment

1970:
- New gas discoveries
- The Reliance PSCL saga plays out
- Balance of payment crises in India (1971)

1961-1990:

1960:
- Formation of ONGC

1959:
- Oil crises
- IOCs exit India
- A period called "The golden age of national oil industry" begins
- Petroleum and Natural Gas Rules
- Russian Technical Cooperation Programme starts
- Conflicts with former imperial companies rise due to concerns of monopolies

1955-1974:
- Russian Technical Cooperation Programme starts
- Conflicts with former imperial companies rise due to concerns of monopolies
- IOCs exit India
- A period called "The golden age of national oil industry" begins
- Petroleum and Natural Gas Rules
- Oil crises

1949-1960:
- Gaura, the first oil field
- First oil wells are operational
- Oil industry begins

Source: EnerStrat Analysis
Growing significance of "gasification" in Asia
Most volume risk from India
LNG demand in India jumped up in 2016.

The share of long-term contract is reduced to almost half, and many of the incremental import was spot purchase.

Major area of LNG use is refinery and industrial fuel.

LNG is still less competitive in power sector.

Use of LNG and India

India’s LNG Import by Country
Source: IEJ - EPRI NC "Future of Asian LNG" 2017

ASEAN - LIQUEFACTION and REGAS Capacity -- 2017
CICG Network of India - The Next Wave

Source: Energy Analysis

- Proposed 56 Cities
- 23 Cities Connected
- Proposed to Be Connected - 56 Cities

[Image of map with various regions and proposed locations]
CHINA GAS SUPPLY TO 2040 – EIA


Commission, China Customs, China Development and Reform

(billions of cubic feet/day)
Term Contracts Signed by Independent Entities Since 2015

Source: S&P Global Platts
China: Historical and Future Natural Gas Demand from Various Sources

Source: Howard Rogers, OIES, various sources, 2015 forecast

Actual for 2017, 258 BCM
## Key Differences

### China & India: Similarities and Differences

<table>
<thead>
<tr>
<th>Key Similarities</th>
<th>Key Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum and Gas sectors in both countries are viewed as &quot;victims&quot; of the mixed economy model — the no man's land between planned/centralised government dominated industry and a free market economy.</td>
<td>Important differences in industry structure: while China has vertically integrated regional monopoly structures, India has specialized and nationally operating monopoly structures.</td>
</tr>
<tr>
<td>Both countries have plans to develop their own unconventional resources.</td>
<td>Both countries are keen to reduce consumption of high emission fossil fuels, develop renewable energy systems.</td>
</tr>
<tr>
<td>Both countries are talking the talk: both are &quot;talking the talk&quot; clean burning natural gas - both are &quot;talking the talk&quot;</td>
<td>Important differences in the operational style of policy makers and issues of policy transparency - clear signals to shift coal fired generation to gas and at scale.</td>
</tr>
<tr>
<td>Both countries have plans to develop their own unconventional resources.</td>
<td>Important differences in the operational style of policy makers: especially while Chinese institutions appear reticent to openly discuss [pricing reform] the Indian demand aggregators: buyers whereas Indian state owned entities are playing role of large industrial buyers in China are emerging as direct international buyers.</td>
</tr>
<tr>
<td>Both countries post themselves as large consumers of clean burning natural gas - both are &quot;talking the talk&quot;</td>
<td>China with significant international pipeline interconnection has the opportunity to play off pipeline gas and LNG, whereas India will be a LNG driven play.</td>
</tr>
<tr>
<td>Important differences in industry structure: while China has vertically integrated regional monopoly structures, India has specialized and nationally operating monopoly structures.</td>
<td>Important differences in industry structure: while China has vertically integrated regional monopoly structures, India has specialized and nationally operating monopoly structures.</td>
</tr>
</tbody>
</table>

Source: EnerStrat Analysis
and will be at the center of the natural gas market growth.

Asia accounts for most of current consumption growth.
LNG Demand for Asian region

- LNG demand for Non-OECD Asian region in 2030 is expected to be 3 to 4 times more than it was in 2015.
LNG market potential in South East / South Asia

- Competition with coal and renewable
- 25~35% in power generation mix
- Development of related LNG infrastructure
- LNG Import Terminal-Proposed (only)

Legend:
- Sri Lanka
- Myanmar
- Vietnam
- Philippines
LNG market potential in South East / South Asia

Country Risk Assessment of Selected Asian Countries

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Risk Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Pakistan</td>
<td>High Risk</td>
</tr>
<tr>
<td>6</td>
<td>Sri Lanka</td>
<td>High Risk</td>
</tr>
<tr>
<td>6</td>
<td>Myanmar</td>
<td>High Risk</td>
</tr>
<tr>
<td>6</td>
<td>Cambodia</td>
<td>High Risk</td>
</tr>
<tr>
<td>5</td>
<td>Vietnam</td>
<td>High Risk</td>
</tr>
<tr>
<td>5</td>
<td>Bangladesh</td>
<td>High Risk</td>
</tr>
<tr>
<td>3</td>
<td>Thailand</td>
<td>Low Risk</td>
</tr>
<tr>
<td>3</td>
<td>Philippines</td>
<td>Low Risk</td>
</tr>
<tr>
<td>3</td>
<td>Indonesia</td>
<td>Low Risk</td>
</tr>
<tr>
<td>2</td>
<td>India</td>
<td>Low Risk</td>
</tr>
<tr>
<td>2</td>
<td>Malaysia</td>
<td>Low Risk</td>
</tr>
<tr>
<td>2</td>
<td>China</td>
<td>Low Risk</td>
</tr>
<tr>
<td>0</td>
<td>Singapore</td>
<td>Low Risk</td>
</tr>
</tbody>
</table>

Legend:
- Financial support by ECAs and MDBs
- High country risk
- Started to import LNG + Domestic Gas production
- FSRU (Operating/construction), Long-term contract

• Bangladesh
• Pakistan
LNG market potential in South East / South Asia

- Create more business opportunities
- Expected large LNG market in the near future
- Stable business environment
- LNG Import Terminal (Operating)

Legend:
- Thailand
- Indonesia
- Malaysia

(IEE-EPRING)
1. Developing more liquid and flexible LNG market

- Developing capacity building
- Financial Support for infrastructure development by export credit agencies
- Developing and reforming policies and regulations in Asia

3. Supporting the expansion of the Asian LNG market

- Improving accessibility of the Panaman Canal
- Streamlining of regulatory processes, including LNG export approval process
- Enhancing competitiveness of US LNG export

2. Preparing for expansion of US LNG production and export

- Hold close dialogue between producers and consumers to share long-term market outlook and to promote cooperation and LNG growth
- Removal of LNG destination restrictions in LNG contracts to stimulate spot market
- Enhanced competitiveness of US LNG export


The policy recommendations from IEEJ/EPRINC were reported to both governments.
The 6th Conference was held on October 18th, 2017 with the attendance of 12 ministers from consuming and producing countries.

Minister Seko announced Japan’s contribution and commitment ($10 billion financing and 500 people capacity building) to expand Asian LNG market.

- 500 people capacity building (to expand Asian LNG market)
- $10 billion financing

New LNG Measures Utilization

Markets Liquid LNG

International Consensus on the benefits of LNG

Finance $10 billion of investment by Japan’s public and private sectors

500 people Capacity Building

Japan’s Promise

In 5 Years
US-Japan Energy/Infrastructure Cooperation

• US-Japan agreed to promote cooperation on the following at the US-Japan Summit (Nov 6, 2017)

1) To promote Japan-US Strategic Energy Partnership (JUSEP)
2) To collaborate on Infrastructure cooperation in third countries through financial cooperation under the Japan-US Economic Dialogue
3) MOU b/w METI and USAID, (2) MOU b/w NEXI/JBIC and OPIC
4) Global market for natural gas
5) Advanced nuclear technology, including CUS
6) HELE coal technology, including CCS
7) To promote JUSEP

<Principles>
1) Open and competitive energy market are indispensable to ensuring secure energy supply and increase global security
2) Universal access to affordable and reliable energy is needed to help eradicate poverty, fuel economic growth, and increase global security
3) Geographic regions
   1) Southeast Asia
   2) Sub-Saharan Africa
   3) South Asia
   4) Energy Infrastructure

<Priorities>
1) Advanced nuclear technology
2) HELE coal technology, including CCS
3) Global market for natural gas
4) Energy infrastructure
5) JUSEP
The Mission of JBIC

JBIC's mission is to contribute to the sound development of Japan and international economy

Promoting the overseas development and security of resources which are important for Japan

Maintaining and improving the international competitiveness of Japanese industries

Promoting the overseas business having the purpose of preserving the global environment, such as preventing global warming

Preventing disruptions to international financial order or taking appropriate measures with respect to damages caused by such disruption (Market Stability)

Preventing global warming

Profile: Japan's official ECA (export credit agency)

Name: Japan Bank for International Cooperation (JBIC)

Outstanding (Loans and Equity): US$135 billion

Capital: US$15.5 billion

FY2016

* Disbursement amount: US$22 billion
To efficiently and effectively conduct insurance business of covering risks which arise in foreign transactions and which are not covered by commercial insurance.

**Purpose**

1) To conduct trade and investment insurance business operations complying with the provision of Chapter III of the Trade and Investment Insurance Act of Japan.

2) To conduct business incidental to the business stated in 1) above.

**Scope of Business (abstract)**

To conduct trade and investment insurance business operations.

**Profile - Nippon Export and Investment Insurance (NEXI)**

- Name: Nippon Export and Investment Insurance ("NEXI")
- Capital: US$1.5 billion
- Outstanding Commitment: US$145 billion
- Written Amount: US$ 65 billion

*FY2016*
Cameron LNG Project

Project Description: Construct a new liquefaction plant in an existing LNG receiving base to produce 12 million tons of LNG per annum. Cameron LNG, a Japanese energy company, is working with other US/Japanese companies: Kaisa, Nippon Yusen Kabushiki, Mitsubishi Corporation and ENGIE, Mitsubishi & Co., Ltd.

Location: Louisiana, the United States

Local Companies: Cameron LNG, LLC incorporated in the United States

Sponsors: Sempra Energy, Gates

Loan Signing: August 6, 2014

other LNG companies

Japa
CO2-EOR Project

**Project Description:**

Enhanced Oil Recovery (EOR) technologies which inject CO2 into exhaust gas from a coal-fired power plant to increase crude oil recovery through an oil well. A CO2 recovery plant collects the exhaust gas and injects it into an oil field.

**Location:** United States, Texas Coastal Ventures, LLC

**Sponsors:** NRG Energy, Inc.

**LOAN Signing:** July 14, 2014

**Project Company:** Texas Coastal (CCS)

**USD 75 million: NEXI Insurance Amount**

**USD 175 million: JIBC Loan Amount**

**USD 250 million: Total Co-Financing Amount**

**LTD**

**Mitsubishi Heavy Industries**

**Hitcor Energy Company**

**Exploration Corporation**

**Other US/Japanese Companies**

**2X Nippon Oil & Gas**
Way Forward: Our Plan in 2018

LNG Producer and Consumer Conference

- Gas master plan development for Myanmar
- Research on LNG receiving or utilizing projects in ASEAN
- ERIA (Economic Research Institute for ASEAN and East Asia) Projects

ERIA

US-Japan Joint Research Workshops

Three Workshops on US-Japan LNG cooperation in Asia in 2018

- July 1
- August 2
- September 3

US-Japan Joint Research / Workshops
Thank you!

Takeshi SODA

(email)
soda-takeshi@meti.go.jp
Annual Benefits of US LNG Exports

**GDP**
- $47.2 billion (low)
- $53.1 billion (medium)
- $59.2 billion (high)

**Jobs**
- 205,400 (low)
- 270,100 (medium)
- 432,900 (high)

**Jobs**
- $47.2 billion (low)
- $53.1 billion (medium)
- $59.2 billion (high)

*Average annual direct, indirect, and induced impacts from 2013-2050, calculated by ICF for LNG Allies.*
Cumulative Benefits of US LNG Exports*

GDP
$1.66 Trillion (low)
$1.89 Trillion (medium)
$3.26 Trillion (high)

Job-Years
7.35 Million (low)
9.68 Million (medium)
15.46 Million (high)

*Cumulative direct, indirect and induced impacts from 2013-2050, calculated by ICF for LNG Allies based on Feb. 2018 EIA scenarios.
IPAA

VP - Economics & International Affairs
Frederick J. Lawrence
Rig Count – More with Less

Source: Baker Hughes
<table>
<thead>
<tr>
<th>Country</th>
<th>2017 OCTG</th>
<th>2017 LP</th>
<th>2017 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. Korea</td>
<td>697,086</td>
<td>1,062,178</td>
<td>1,759,264</td>
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<tr>
<td>Mexico</td>
<td>160,131</td>
<td>454,659</td>
<td>614,790</td>
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<td>India</td>
<td>392,950</td>
<td>8,900</td>
<td>401,850</td>
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<td>175,442</td>
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<td>Germany</td>
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<td>58,617</td>
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<td>Japan</td>
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<td>89,930</td>
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</tbody>
</table>