Natural Gas Industry in I.R. IRAN
Past, Present, Future
March, 2017
6 World’s Top Natural Gas Reserves Owners

- Russia (2)
- Iran (1)
- Qatar (3)
- Turkmenistan (4)
- Saudi Arabia
- The US (5)
South Pars: The World’s Biggest Independent Gas Reservoir

Iranian share: 14 TCM of NG+18 Billion Barrels of Condensate
The World’s Natural Gas Production in 2015: 3539 BCM

Ref: BP Statistical Review of World Energy 2015
The World’s Natural Gas Consumption in 2015: 3469 BCM

<table>
<thead>
<tr>
<th>Country</th>
<th>Consumption (BCM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The US</td>
<td>778</td>
</tr>
<tr>
<td>Russia</td>
<td>392</td>
</tr>
<tr>
<td>China</td>
<td>197</td>
</tr>
<tr>
<td>Iran</td>
<td>191</td>
</tr>
<tr>
<td>Japan</td>
<td>113</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>106</td>
</tr>
<tr>
<td>Canada</td>
<td>103</td>
</tr>
<tr>
<td>Mexico</td>
<td>83</td>
</tr>
<tr>
<td>Germany</td>
<td>75</td>
</tr>
<tr>
<td>The UK</td>
<td>68</td>
</tr>
</tbody>
</table>
NATURAL GAS TRANSMISSION SYSTEM

IGAT 1
IGAT 2
IGAT 3
IGAT 4
IGAT 5
IGAT 6 & Export Lines to Iraq
IGAT 7 & Export Lines to Pakistan, Oman
IGAT 8
IGAT 9 & export line (Europe)
IGAT 10
North & North-East 2nd line
IGAT 11
Sarakhs-Neka-Rasht
Export line (Turkey)
Export line (Armenia)
Under Construction Lines
KEY Indices of NIGC in 2015

- NG Production: 210 BCM
- NG Treatment: 176 BCM
- NG Distribution: 180 BCM
- High Pressure Transmission Pipelines (Jan 2017): 37400 km
- Gas Distribution Network (Jan 2017): 306113 km
- Power Plants (Jan 2017): 79
- No of Cities Fueling by NG (Jan 2017): 1082
- No of Villages Fueling by NG (Jan 2017): 22655
- Share of NG in National Energy Mix: 75%
- Export: 8.6 BCM
- Import: 9 BCM
Natural Gas Distribution Between Sectors

- Residentia, Commercial, Industries: 89; 46%
- Power Plants: 58; 30%
- Bulk Industries: 33; 17%
- Injection: 4,4; 2%
- Export: 8,6; 5%

0%
National Energy Mix in 2015: 2067 MTOE

- Natural Gas: 172.1
- Hydro-Electricity: 4.1
- Oil: 88.9
- Nuclear Energy: 0.8
- Coal: 1.2
- Renewables: 0.1

BP, Statistical review of world energy, 2016
Iran population: 80 Million

More than 70% of total Iran energy needs is provided by Natural gas (Directly and Indirectly)

Overall natural gas coverage: 90% of Iran population now, 95% in 2018

Urban areas Natural gas Coverage: 97%

Rural areas natural gas Coverage: 70%

Iran Gas production = 210 billion Cubic meter/year now, future: 360 BCMY
NATURAL GAS TRADE
Growth Rate of Energies Until 2035

- Coal: 0.8
- NG: 1.9
- Oil: 0.8
- Renewables: 6.3
- Nuclear: 1.8
- Hydroelectricity: 1.7
## Iran’s Active Gas Contract

<table>
<thead>
<tr>
<th>Starting Date</th>
<th>Contract Situation</th>
<th>Capacity (BCM/Y)</th>
<th>Trade Partner</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>Existing</td>
<td>7-10</td>
<td>Turkey</td>
<td>Export</td>
</tr>
<tr>
<td>2005</td>
<td>Existing</td>
<td>0.3-0.7</td>
<td>Aerbaijan</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>Existing</td>
<td>1.1-2.3</td>
<td>Armenia</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>Existing</td>
<td>8</td>
<td>Turkmenistan phase 1</td>
<td>Import</td>
</tr>
<tr>
<td>2007</td>
<td>Existing</td>
<td>Up to 14</td>
<td>Turkmenistan phase 2</td>
<td></td>
</tr>
</tbody>
</table>
## Finalized Export Contracts

<table>
<thead>
<tr>
<th>STARTING DATE</th>
<th>SITUATION</th>
<th>Capacity (BCM/Y)</th>
<th>PROJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>GSPA Finalized</td>
<td>7.8</td>
<td>pakistan</td>
</tr>
<tr>
<td>2016</td>
<td>GSPA Finalized</td>
<td>5.4</td>
<td>Iraq – phase 1</td>
</tr>
<tr>
<td>2017</td>
<td>GSPA Finalized</td>
<td>4.4</td>
<td>Iraq – phase 2</td>
</tr>
<tr>
<td>2017</td>
<td>SWAP Contract Finalized</td>
<td>5.8</td>
<td>Turkmenistan - Azerbaijan</td>
</tr>
<tr>
<td>STARTING DATE</td>
<td>SITUATION</td>
<td>Capacity (BCM/y)</td>
<td>PROJECT</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------</td>
<td>------------------</td>
<td>---------</td>
</tr>
<tr>
<td>2017</td>
<td>Negotiating</td>
<td>10.9</td>
<td>INDIA</td>
</tr>
<tr>
<td>2016</td>
<td>Basic Conditions Signed</td>
<td>10.2</td>
<td>OMAN</td>
</tr>
<tr>
<td>2017</td>
<td>Negotiating</td>
<td>3.1</td>
<td>KUWAIT</td>
</tr>
<tr>
<td>2015</td>
<td>HOA Signed</td>
<td>0.5-3</td>
<td>TURKEY– 2nd Phase</td>
</tr>
</tbody>
</table>
NG Trade Opportunities with Neighboring Countries

- Turkey, EU
- Armenia, Azerbaijan
- Caspian Sea
- Turkmenistan
- Iraq
- Afghanistan
- Kuwait
- Persian Gulf
- Oman, UAE
- Pakistan, India, China
- The World’s 3rd NG Producer

- Getting 10 Percent of NG Traded Internationally

- Pioneer of the NG Technologies in the Region
NG Supply Until 2021 (BCM/Y)

- RICH GAS Deliverable to NIGC
- IMPORT
- PRODUCTION+IMPORT

Year: 2016, 2017, 2018, 2019, 2020

- 2016: RICH GAS Deliverable to NIGC = 241
- 2017: RICH GAS Deliverable to NIGC = 309, IMPORT = 235
- 2018: RICH GAS Deliverable to NIGC = 298, IMPORT = 332
- 2019: RICH GAS Deliverable to NIGC = 318, IMPORT = 358
- 2020: RICH GAS Deliverable to NIGC = 342, IMPORT = 385

Total: RICH GAS Deliverable to NIGC = 1420, IMPORT = 1420, PRODUCTION+IMPORT = 1420
NG Demand Until 2021 (BCM/Y)
## DEVELOPMENT PERSPECTIVE IN 2020

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trunkline &amp; Provincial Pipeline Construction (KM/Y)</strong></td>
<td>727</td>
<td>1154</td>
<td>1840</td>
<td>2288</td>
<td>3105</td>
</tr>
<tr>
<td><strong>Gas Compressor Stations</strong></td>
<td>6</td>
<td>2</td>
<td>9</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td><strong>New Families Connected to NG – thousands/y</strong></td>
<td>729</td>
<td>800</td>
<td>850</td>
<td>790</td>
<td>900</td>
</tr>
<tr>
<td><strong>No of New Cities/y</strong></td>
<td>5</td>
<td>8</td>
<td>18</td>
<td>46</td>
<td>48</td>
</tr>
<tr>
<td><strong>No of New villages/y</strong></td>
<td>2520</td>
<td>2533</td>
<td>2832</td>
<td>3507</td>
<td>3691</td>
</tr>
<tr>
<td><strong>% of urban families</strong></td>
<td>99</td>
<td>97</td>
<td>97</td>
<td>97</td>
<td>96</td>
</tr>
<tr>
<td><strong>% of rural families</strong></td>
<td>90</td>
<td>85</td>
<td>80</td>
<td>75</td>
<td>70</td>
</tr>
</tbody>
</table>
INVESTMENT PERSPECTIVE IN NG Value Chain (Upstream & Treatment Excluded) : 2016-2020 (Billion US$)