Understanding the Symbols

- Upward market pressure
- Flat market pressure
- Downward market pressure
2022 Summer Outlook: Outline

LOOKING AHEAD TO SUMMER 2022

Market Pressure Points

Economy | Weather | Demand | Production/Supply | Storage

Wild Card Factors

Summer Expectations

SUMMARY
### Demand: Economy

#### Summer Season

**Period-to-period change**

<table>
<thead>
<tr>
<th></th>
<th>Last Summer 2021 Actual</th>
<th>This Summer 2022 Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economy</td>
<td>Strong recovery underway</td>
<td>Growth slows Inflation concerns</td>
</tr>
<tr>
<td>GDP Growth</td>
<td>8.6%</td>
<td>3.4%</td>
</tr>
<tr>
<td>World GDP Growth (annual)</td>
<td>6.1%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>72%</td>
<td>77%</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>5.8%</td>
<td>3.6%</td>
</tr>
<tr>
<td>CPI</td>
<td>5.4%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Consumer Sentiment Index</td>
<td>83</td>
<td>65</td>
</tr>
</tbody>
</table>

#### Summer-to-summer pressure on natural gas prices

*Data Sources:* Moody's, Energy Ventures Analysis, Bureau of Labor Statistics, University of Michigan, Federal Reserve
Demand: Summer Cooling Season Weather (April-October)

Last Summer | 2021 ACTUAL

ACTUAL: 1,372 Cooling degree days  
Same as the 10-year average

This Summer | 2022 FORECAST

FORECAST: 1,299 Cooling degree days  
5% cooler than 2021 cooling season  
5% cooler than 10-year average

Data Source: National Oceanic and Atmospheric Administration, Energy Ventures Analysis.
## Demand: Customer Demand

### Summer Season

<table>
<thead>
<tr>
<th>Period-to-period change</th>
<th>Last Summer 2021 ACTUAL</th>
<th>This Summer 2022 FORECAST</th>
<th>PREVIOUS 3-YEAR SUMMER AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domestic Demand</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Power burn</td>
<td>33.0 Bcf/d</td>
<td>32.4 Bcf/d</td>
<td>33.4 Bcf/d</td>
</tr>
<tr>
<td>▪ Industrial</td>
<td>21.3 Bcf/d</td>
<td>22.0 Bcf/d</td>
<td>21.3 Bcf/d</td>
</tr>
<tr>
<td>▪ Residential/Commercial</td>
<td>11.2 Bcf/d</td>
<td>11.2 Bcf/d</td>
<td>11.4 Bcf/d</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>65.5 Bcf/d</td>
<td>65.6 Bcf/d</td>
<td>66.1 Bcf/d</td>
</tr>
<tr>
<td><strong>Exports</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Pipeline exports - Mexico</td>
<td>6.2 Bcf/d</td>
<td>6.7 Bcf/d</td>
<td>5.7 Bcf/d</td>
</tr>
<tr>
<td>▪ LNG exports</td>
<td>10.7 Bcf/d</td>
<td>12.7 Bcf/d</td>
<td>7.3 Bcf/d</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>16.9 Bcf/d</td>
<td>19.4 Bcf/d</td>
<td>13.0 Bcf/d</td>
</tr>
<tr>
<td><strong>Total Natural Gas Demand</strong>*</td>
<td>89.0 Bcf/d</td>
<td>91.7 Bcf/d</td>
<td>84.6 Bcf/d</td>
</tr>
</tbody>
</table>

### Growth sector

- Exports
- Industrial

### Summer-to-summer pressure on natural gas prices

+ 3%

*includes “Lease, Plant and Pipeline Fuel”

Data Source: Energy Ventures Analysis.
Power Burn Growth: Structural Growth vs. Economic Switching

Power Burn Increase
Summer Structural Growth vs. Economic Switching 2017-2022
(compared to baseline of summer 2015)

Data Source: Energy Ventures Analysis

Note: 2022 summer prices are NYMEX settlements as of 4/14/2022
## Focus: Industrial Demand Peak Growth Phase

### Natural Gas Spurring 22 Major Industrial Projects 2021-2024

<table>
<thead>
<tr>
<th>New Projects</th>
<th>Expansions</th>
<th>In addition to</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>3</td>
<td>53 COMPLETED Projects for additional $79 billion and 1.7 Bcf/d from 2016-2020</td>
</tr>
<tr>
<td>14 Petrochemical</td>
<td>2 Fertilizer</td>
<td>Projects</td>
</tr>
<tr>
<td>2 Steel</td>
<td>1 Steel</td>
<td>for additional $79 billion and 1.7 Bcf/d from 2016-2020</td>
</tr>
<tr>
<td>2 Fertilizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Re-start</td>
<td>1 Steel</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In addition to 53 COMPLETED Projects for additional $79 billion and 1.7 Bcf/d from 2016-2020.

- **$32 Billion Investment to Build**
- **Increase of 1.0 Bcf/d by 2024**

Data Source: Energy Ventures Analysis, September 2021
Photo Courtesy: Chevron U.S.A. Inc., 2017 (Pascagoula)
U.S. LNG Exports: Steady Growth Expected to Continue

U.S. LNG Export Capacity vs. Feedgas Deliveries

- Sabine Pass
- Cove Point
- Elba Island
- Cameron
- Freeport
- Calcasieu Pass
- Corpus Christi
- Feedgas Deliveries

Data Source: Energy Ventures Analysis, EIA
## Supply: Summer Production and Imports

<table>
<thead>
<tr>
<th>Summer Season</th>
<th>Last Summer 2021 Actual</th>
<th>This Summer 2022 Forecast</th>
<th>3-Year Summer Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer average production (Lower 48)</td>
<td>92.9 Bcf/d</td>
<td>96.6 Bcf/d</td>
<td>91.3 Bcf/d</td>
</tr>
<tr>
<td>Canadian imports (net)</td>
<td>4.8 Bcf/d</td>
<td>4.8 Bcf/d</td>
<td>4.4 Bcf/d</td>
</tr>
<tr>
<td>LNG imports</td>
<td>0.0 Bcf/d</td>
<td>0.1 Bcf/d</td>
<td>0.1 Bcf/d</td>
</tr>
</tbody>
</table>

### Summer-to-summer pressure on natural gas prices

Data Source: Energy Ventures Analysis.
Production Trends: Strong Growth from Associated Gas Bolstered by Modest Growth from Non-associated Gas

Production Growth by Basin, 2021 vs. 2020 (through August)

Non-associated Gas Production Growth
1.31 BCFD

Associated Gas Production Growth
3.39 BCFD

Data Source: EIA, Energy Ventures Analysis.
Production Growth Reflected by Rig Count Increase and Continued Steady Completion of “DUCs”

Drilling Uncompleted Wells (DUC) Inventory in Major U.S. Producing Areas

- Anadarko
- Appalachia
- Bakken
- Eagle Ford
- Haynesville
- Niobrara
- Permian
- Total Rig Count

New Gas Supply Source Growth Indicators: DUC vs Rig

- Depletion rate of DUC inventory
- Growth of New Rigs

Data Source: EIA; Energy Ventures Analysis
Cancelled, Delayed Pipelines Reflect Difficulty of Siting Infrastructure in the Northeast

TOTAL OF 7.1 BCFD OF PIPELINE CAPACITY CANCELLED OR PUT ON HOLD IN NORTHEAST /MID-ATLANTIC SINCE 2018 – BUT ONLY 2.3 BCFD ADDED

Cumulative Proposed Capacity

Cumulative Operational Capacity

15.7 BCFD
New Pipeline Capacity in Permian Has Improved Supply, Potential for More to Come

Permian Production Takeaway Capacity

- Bakersfield Compressor Station
- Permian North Expansion-El Paso
- Gulf Coast Express
- Permian Highway Pipeline
- Whistler
- WT-1 Compressor Station Modification
- North Texas
- El Paso South Mainline Expansion
- Agua Blanca Expansion
- Potential additional capacity

Data Source: OPIS PaintLogic, Energy Ventures Analysis.
# Summer Storage

## Summer Season
Period-to-period change

<table>
<thead>
<tr>
<th></th>
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<th>This Summer 2022 FORECAST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer starting point</td>
<td>1,777 Bcf</td>
<td>1,382 Bcf</td>
</tr>
<tr>
<td>Average daily injections</td>
<td>8.6 Bcf/d</td>
<td>9.8 Bcf/d</td>
</tr>
<tr>
<td>End of injection season</td>
<td>3,634 Bcf</td>
<td>3,478 Bcf</td>
</tr>
</tbody>
</table>

**Summer-to-summer pressure on natural gas prices**

Data Source: Energy Information Administration and Energy Ventures Analysis.
Summer Outlook: Wild Cards

Global

Weather

COVID
## This Season’s Summer Outlook

<table>
<thead>
<tr>
<th>Summer Season</th>
<th>Period-to-period change</th>
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</tr>
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<tbody>
<tr>
<td>Economy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td></td>
<td>![Upward Arrow]</td>
</tr>
<tr>
<td>Weather</td>
<td></td>
<td>![Downward Arrow]</td>
</tr>
<tr>
<td>Overall demand</td>
<td></td>
<td>![Upward Arrow]</td>
</tr>
<tr>
<td>Summer supply</td>
<td></td>
<td>![Downward Arrow]</td>
</tr>
</tbody>
</table>

**Summer-to-summer pressure on natural gas prices**
Production growth rising to challenge

- Production up 10% since summer 2020; up 4% since last summer
- DUCs enabling production to get to market faster as new drilling ramps up
- Regulatory uncertainties about infrastructure

Natural gas pivotal this summer

- Essential to power grid reliability and backstopping renewables
  - Coal retirements, delays in new renewable capacity, Western drought
- Critical to industrial customers to compete globally
- U.S. LNG indispensable to Europe and Asia for energy security, reliability, climate action
About NGSA

- Represents major producers and suppliers of domestic natural gas
  - Integrated and independent companies: 7 members
  - Founded in 1965

- Only national natural gas association representing producers and suppliers with a dedicated focus on downstream issues

- Promotes benefits of competitive natural gas markets

- Combined with the Center for LNG
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