Understanding the Symbols

- Upward market pressure
- Flat market pressure
- Downward market pressure
LOOKING AHEAD TO SUMMER 2023

Market Pressure Points

- Production/Supply
- Weather
- Economy
- Demand
- Storage

Summer Expectations

Wild Card Factors

SUMMARY
Supply: Projected Record Production 3% More Than Last Summer

Total Supply Forecast: 106.7 Bcf/d
Previous 3-year average: 98.1 Bcf/d  2022 Summer average 103.6 Bcf/d

<table>
<thead>
<tr>
<th></th>
<th>Dry Production</th>
<th>Net Canadian Imports</th>
<th>LNG Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>3yr Summer Avg</td>
<td>93.2</td>
<td>4.8</td>
<td>0</td>
</tr>
<tr>
<td>2022 Summer</td>
<td>98.1</td>
<td>5.4</td>
<td>0</td>
</tr>
<tr>
<td>2023 Summer</td>
<td>101.3</td>
<td>5.3</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Summer-to-summer pressure on natural gas prices

Data Source: Energy Ventures Analysis, Inc.
Rebound in Non-associated Gas Adding to Continued Growth of Associated Gas

Production Growth by Basin: Comparison of Two Recent Winters (2021-2022 Winter vs. 2022-2023 Winter)

Non-associated Gas Production Growth 1.59 BCFD

Associated Gas Production Growth 3.89 BCFD

Source: EIA, Energy Ventures Analysis
Efficiencies Buoy Record Production As Rigs Decrease and “DUC” Inventory Levels Out

Rigs and Drilled Uncompleted (DUC) Wells Keep Natural Gas Output High

Data Source: EIA; Energy Ventures Analysis
Weather: Summer Cooling Season (April-October)

Last Summer | 2022 ACTUAL

**ACTUAL**: 1,372 Cooling degree days
Same as 10-year average April-October
But June-Aug was 3rd hottest on record

This Summer | 2023 FORECAST

**FORECAST**: 1,278 Cooling degree days
7% cooler than 2022 cooling season
7% cooler than 10-year average

Summer-to-summer pressure on natural gas prices

*Data Sources:* National Oceanic and Atmospheric Administration maps, data; Energy Ventures Analysis projections
## Demand: Economy

### Summer Season

<table>
<thead>
<tr>
<th>Period-to-period change</th>
<th>Last Summer 2022 Actual</th>
<th>This Summer 2023 Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP Growth</td>
<td>3.7%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>80%</td>
<td>79%</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>3.6%</td>
<td>3.4%</td>
</tr>
<tr>
<td>CPI (annual)</td>
<td>7.9%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Consumer Expectations Index</td>
<td>77</td>
<td>68</td>
</tr>
</tbody>
</table>

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

**Demand: Projected 3% Higher Than Last Summer**

**Total Demand Forecast:** 97.0 Bcf/d
- Previous 3-year average: 89.0 Bcf/d
- Summer 2022 Average: 94.0 BCF/D

<table>
<thead>
<tr>
<th></th>
<th>Power Burn</th>
<th>Industrial</th>
<th>Res/Comm</th>
<th>LNG Exports</th>
<th>Pipeline to Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>3yr Summer Avg</td>
<td>34.3</td>
<td>21.4</td>
<td>11.6</td>
<td>9.3</td>
<td>5.8</td>
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<tr>
<td>2022 Summer</td>
<td>35.8</td>
<td>22</td>
<td>11.9</td>
<td>11.5</td>
<td>5.8</td>
</tr>
<tr>
<td>2023 Summer</td>
<td>37.2</td>
<td>21.9</td>
<td>11.3</td>
<td>14.1</td>
<td>6.1</td>
</tr>
</tbody>
</table>

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

*Data Source: Energy Ventures Analysis, Inc.*
Power Burn Increase
Summer Structural Growth vs. Economic Switching 2017-2022
(compared to baseline of summer 2015)

Data Source: Energy Ventures Analysis
Note: 2023 summer prices are NYMEX settlements as of 4/18/2023
Change in U.S. Power Generation Fuel Mix 2018-2023

**Net change in U.S. generating capacity**

- New natural gas generation capacity: +30 GW
- New wind + solar + battery storage: +173 GW
- Coal retirements: -71 GW

Source: Energy Ventures Analysis, U.S. EIA
Focus: Industrial Demand Peak Growth Phase

Natural Gas Spurring 19 Major Industrial Projects 2022-2025

$33 Billion Investment to Build

Increase of 0.8 Bcf/d by 2025

13 New Projects
10 Petrochemical
2 Fertilizer
1 Steel

6 Expansions
4 Fertilizer
2 Petrochem
1 Re-start
1 Steel

In addition to

49 Completed Projects for additional $98 billion and 1.3 Bcf/d from 2017-2021

Data Source: Energy Ventures Analysis, September 2021
Photo Courtesy: Chevron U.S.A. Inc., 2017 (Pascagoula)
Global LNG prices

Source: ICE. Future curves are based on April 18 settlements
U.S. LNG Exports Respond to European Crisis

U.S. LNG Export Capacity vs. Feedgas Deliveries

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

Source: Energy Ventures Analysis, EIA
Cancelled, Delayed Pipelines Reflect Difficulty of Permitting

NORTHEAST/MID-ATLANTIC CANCELLED, ON HOLD PIPELINE CAPACITY 2018-2024
BILLION CUBIC FEET PER DAY (BCFD)

7 BCFD CANCELLED OR ON HOLD
## Summer Storage

### Last Summer 2022 ACTUAL

- **Summer starting point**: 1,381 Bcf
- **Average daily injections**: 9.5 Bcf/d
- **End of injection season**: 3,542 Bcf

### This Summer 2023 FORECAST

- **Summer starting point**: 1,827 Bcf
- **Average daily injections**: 9.7 Bcf/d
- **End of injection season**: 3,895 Bcf

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

Data Source: Energy Information Administration and Energy Ventures Analysis.
# This Season’s Summer Outlook

## This Summer 2023 Forecast

### Summer Season Period-to-period change

<table>
<thead>
<tr>
<th>Summer Supply</th>
<th>▼</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weather</td>
<td>▼</td>
</tr>
<tr>
<td>Economy</td>
<td>▼</td>
</tr>
<tr>
<td>Customer demand</td>
<td>▶</td>
</tr>
<tr>
<td>Summer storage</td>
<td>▼</td>
</tr>
</tbody>
</table>

**Summer-to-summer pressure on natural gas prices**
Summer production record-setting even with slowing rig count

- Producers ramped up production to record levels
  - DUCs enabling production to get to market faster
  - Drilling rigs declining but efficiencies boost production
  - Non-associated gas contributes along with associated gas

Summer power burn and LNG exports keep demand strong

- Power burn expected to hit record demand for natural gas despite milder summer
- Exports – LNG exports continue strong as EU countries replace Russian gas
- Industrial demand slows minimally with slowing economic growth
- Power sector fuel mix continues to evolve with more gas and renewables, less coal
About NGSA

- Represents major producers and suppliers of domestic natural gas
  - Integrated and independent companies: 8 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, resulting in reliable and efficient transportation and delivery, increased supply and demand

- Combined with the Center for LNG