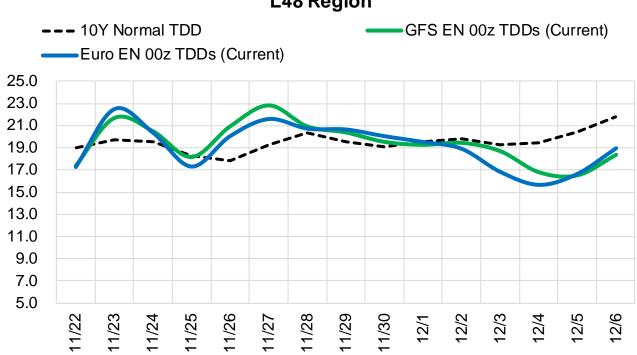




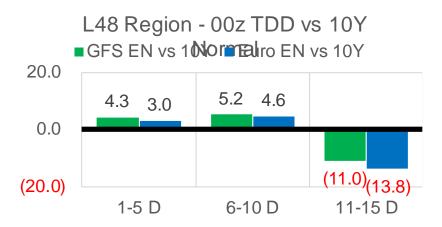
**Market Report** 

## Short-term Weather Model Outlooks (00z)



### L48 Region

## Vs. 10Y Normal



Source: WSI, Bloomberg

# **Market Report**

## 22 November 2021

#### **Daily Balances**

|  | 16-Nov | 17-Nov | 18-Nov | 19-Nov | 20-Nov | 21-Nov | 22-Nov | DoD          | vs.7D         |
|--|--------|--------|--------|--------|--------|--------|--------|--------------|---------------|
| Lower 48 Dry Production  | 95.7   | 95.8   | 96.0   | 96.7   | 96.5   | 96.4   | 97.0   | <b>0.6</b>   | <b>0.8</b>    |
| Canadian Imports   | 4.9    | 4.4    | 4.8    | 5.1    | 5.4    | 5.7    | 5.1    | <b>-0.5</b>  | <b>0.1</b>    |
| L48 Power  | 27.9   | 27.3   | 27.2   | 27.4   | 26.0   | 25.9   | 27.5   | <b>1.5</b>   | <b>a</b> 0.5  |
| L48 Residential & Commercial   | 27.5   | 23.6   | 28.2   | 34.6   | 30.9   | 28.0   | 32.0   | <b>4</b> .0  | <b>3</b> .2   |
| L48 Industrial   | 25.1   | 24.9   | 25.7   | 26.0   | 25.5   | 25.0   | 25.5   | <b>A</b> 0.5 | <b>0</b> .1   |
| L48 Lease and Plant Fuel   | 5.2    | 5.2    | 5.2    | 5.3    | 5.3    | 5.2    | 5.2    | ▼ 0.0        | <b>0.0</b>    |
| L48 Pipeline Distribution  | 3.0    | 2.7    | 3.0    | 3.3    | 3.0    | 2.9    | 3.2    | <b>A</b> 0.3 | <b>0.2</b>    |
| L48 Regional Gas Consumption   | 88.7   | 83.7   | 89.3   | 96.6   | 90.6   | 87.1   | 93.4   | <b>6.3</b>   | <b>4.0</b>    |
| Net LNG Delivered  | 11.09  | 11.20  | 11.54  | 12.00  | 11.90  | 11.76  | 11.96  | <b>0.2</b>   | <b>0.4</b>    |
| Total Mexican Exports  | 6.1    | 6.2    | 6.1    | 6.1    | 5.8    | 5.6    | 5.8    | <b>0.2</b>   | <b>v</b> -0.2 |
| Implied Daily Storage Activity<br>EIA Reported Daily Storage Activity<br>Daily Model Error | -5.3   | -0.9   | -6.2   | -12.9  | -6.4   | -2.4   | -9.0   |              |               |

Lower 48 Component Models

Daily Model Error

#### **EIA Storage Week Balances**

| 15-Oct       | 22-Oct  | 29-Oct   | 5-Nov  | 12-Nov   | 19-Nov   | WoW   | vs. 4W  |
|--------------|---|--|--|--|--|---|---|
| 94.7         | 94.6  | 95.7   | 96.4   | 97.2   | 96.5   | ▼ -0.7  | <b>0.5</b>  |
| 5.0          | 5.6   | 5.6  | 5.5  | 5.1  | 4.9  | ▼ -0.2  | <b>V</b> -0.6   |
| 31.7         | 29.0  | 29.0   | 29.5   | 27.3   | 27.2   | <b>-</b> 0.2  | <b>T</b> -1.5   |
| 9.5          | 13.9  | 17.7   | 24.1   | 23.4   | 27.9   | <b>4</b> .5   | <b>a</b> 8.1  |
| 21.5         | 20.5  | 20.9   | 22.8   | 23.0   | 25.3   | <b>2.3</b>  | <b>a</b> 3.5  |
| 5.2          | 5.1   | 5.2  | 5.2  | 5.3  | 5.3  | ▼ 0.0   | <b>0.0</b>  |
| 2.2          | 2.3   | 2.5  | 2.9  | 2.7  | 2.9  | <b>0.2</b>  | <b>a</b> 0.3  |
| 70.2         | 70.8  | 75.4   | 84.5   | 81.7   | 88.5   | <b>6.8</b>  | <b>10.4</b>   |
| 10.7         | 10.8  | 10.8   | 10.9   | 11.2   | 11.1   | <b>T-0.1</b>  | <b>0.2</b>  |
| 6.6          | 6.6   | 6.9  | 6.1  | 6.2  | 6.0  | ▼ -0.2  | <b>T</b> -0.4   |
| 12.2<br>13.1 | 12.0<br>12.4  | 8.3<br>9.0   | 0.4<br>1.0   | 3.2<br>3.7   | -4.3   | -7.5  |   |
|              | 94.7<br>5.0<br>31.7<br>9.5<br>21.5<br>5.2<br>2.2<br>70.2<br>10.7<br>6.6<br>12.2 | 94.7 94.6   5.0 5.6   31.7 29.0   9.5 13.9   21.5 20.5   5.2 5.1   2.2 2.3   70.2 70.8   10.7 10.8   6.6 6.6   12.2 12.0   13.1 12.4 | 94.7 94.6 95.7   5.0 5.6 5.6   31.7 29.0 29.0   9.5 13.9 17.7   21.5 20.5 20.9   5.2 5.1 5.2   2.2 2.3 2.5   70.2 70.8 75.4   10.7 10.8 10.8   6.6 6.6 6.9   12.2 12.0 8.3   13.1 12.4 9.0 | 94.7 94.6 95.7 96.4   5.0 5.6 5.6 5.5   31.7 29.0 29.0 29.5   9.5 13.9 17.7 24.1   21.5 20.5 20.9 22.8   5.2 5.1 5.2 5.2   2.2 2.3 2.5 2.9   70.2 70.8 75.4 84.5   10.7 10.8 10.8 10.9   6.6 6.6 6.9 6.1   12.2 12.0 8.3 0.4   13.1 12.4 9.0 1.0 | 94.7 94.6 95.7 96.4 97.2   5.0 5.6 5.6 5.5 5.1   31.7 29.0 29.0 29.5 27.3   9.5 13.9 17.7 24.1 23.4   21.5 20.5 20.9 22.8 23.0   5.2 5.1 5.2 5.2 5.3   2.2 2.3 2.5 2.9 2.7   70.2 70.8 75.4 84.5 81.7   10.7 10.8 10.8 10.9 11.2   6.6 6.6 6.9 6.1 6.2   12.2 12.0 8.3 0.4 3.2   13.1 12.4 9.0 1.0 3.7 | 94.7 94.6 95.7 96.4 97.2 96.5   5.0 5.6 5.6 5.5 5.1 4.9   31.7 29.0 29.0 29.5 27.3 27.2   9.5 13.9 17.7 24.1 23.4 27.9   21.5 20.5 20.9 22.8 23.0 25.3   5.2 5.1 5.2 5.2 5.3 5.3   2.2 2.3 2.5 2.9 2.7 2.9   70.2 70.8 75.4 84.5 81.7 88.5   10.7 10.8 10.8 10.9 11.2 11.1   6.6 6.6 6.9 6.1 6.2 6.0   12.2 12.0 8.3 0.4 3.2 -4.3   13.1 12.4 9.0 1.0 3.7 | 94.794.695.796.497.296.5 $\checkmark$ -0.75.05.65.65.55.14.9 $\checkmark$ -0.2 $31.7$ 29.029.029.527.327.2 $\checkmark$ -0.29.513.917.724.123.427.9 $\blacktriangle$ 4.521.520.520.922.823.025.3 $\checkmark$ 2.35.25.15.25.25.35.3 $\checkmark$ 0.02.22.32.52.92.72.9 $\checkmark$ 0.270.270.875.484.581.788.5 $\checkmark$ 6.810.710.810.810.911.211.1 $\checkmark$ -0.16.66.66.96.16.26.0 $\checkmark$ -0.212.212.08.30.43.2-4.3-7.513.112.49.01.03.7 $\checkmark$ $\checkmark$ -0.2 |

#### **Monthly Balances**

|  | 2Yr Ago | LY     |        |        |        |        | MTD    |               |              |
|--|---------|--------|--------|--------|--------|--------|--------|---------------|--------------|
|  | Nov-19  | Nov-20 | Jul-21 | Aug-21 | Sep-21 | Oct-21 | Nov-21 | MoM           | vs. LY       |
| Lower 48 Dry Production  | 96.2    | 91.1   | 93.6   | 94.2   | 94.4   | 95.1   | 96.7   | <b>1.6</b>    | <b>5.6</b>   |
| Canadian Imports   | 4.5     | 4.6    | 5.2    | 5.1    | 5.1    | 5.4    | 5.1    | <b>▼</b> -0.3 | <b>0.5</b>   |
| L48 Power  | 27.5    | 25.7   | 39.4   | 40.1   | 33.1   | 30.3   | 27.9   | <b>-</b> 2.4  | <b>2</b> .2  |
| L48 Residential & Commercial   | 32.8    | 24.4   | 8.1    | 7.8    | 7.7    | 12.9   | 27.2   | <b>14.3</b>   | <b>2.8</b>   |
| L48 Industrial   | 24.9    | 22.4   | 21.2   | 21.9   | 22.1   | 21.7   | 24.3   | <b>2.6</b>    | <b>1</b> .9  |
| L48 Lease and Plant Fuel   | 5.2     | 5.0    | 5.1    | 5.1    | 5.2    | 5.2    | 5.3    | <b>A</b> 0.1  | <b>a</b> 0.3 |
| L48 Pipeline Distribution  | 3.0     | 2.7    | 2.5    | 2.6    | 2.2    | 2.3    | 2.9    | <b>a</b> 0.6  | <b>0.3</b>   |
| L48 Regional Gas Consumption   | 93.5    | 80.2   | 76.3   | 77.5   | 70.3   | 72.4   | 87.6   | <b>15.2</b>   | <b>7.4</b>   |
| Net LNG Exports  | 7.2     | 10.1   | 10.8   | 10.5   | 10.3   | 10.6   | 11.2   | <b>0.6</b>    | ▲ 1.1        |
| Total Mexican Exports  | 5.2     | 6.1    | 7.1    | 6.9    | 6.7    | 6.6    | 6.0    | ▼ -0.6        | <b>T-0.1</b> |
| Implied Daily Storage Activity<br>EIA Reported Daily Storage Activity<br>Daily Model Error | -5.1    | -0.7   | 4.6    | 4.6    | 12.2   | 10.9   | -3.0   |               |              |

Source: Bloomberg, analytix.ai

# **Daily** Average Generation Data

#### Nuclear Generation Daily Average - GWh (NRC)

ENERGY

|                               | 14-Nov | 15-Nov | 16-Nov | 17-Nov | 18-Nov | 19-Nov | 20-Nov | DoD | vs. 7D |
|-------------------------------|--------|--------|--------|--------|--------|--------|--------|-----|--------|
| NRC Nuclear Daily Output      | 83.7   | 84.0   | 84.1   | 85.2   | 84.8   | 83.9   | 83.9   | 0.0 | -0.4   |
| NRC Nuclear Max Capacity      | 104.9  | 104.9  | 104.9  | 104.9  | 104.9  | 104.9  | 104.9  | 0.0 | 0.0    |
| NRC Nuclear Outage            | 21.2   | 20.9   | 20.7   | 19.6   | 20.1   | 21.0   | 21.0   | 0.0 | 0.4    |
| NRC % Nuclear Cap Utilization | 85.1   | 85.4   | 85.6   | 86.7   | 86.2   | 85.3   | 85.3   | 0.0 | -0.4   |

#### Wind Generation Daily Average - MWh (EIA)

|            | 14-Nov | 15-Nov | 16-Nov | 17-Nov | 18-Nov | 19-Nov | 20-Nov | DoD    | vs. 7D |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| CALI Wind  | 272    | 1244   | 2362   | 832    | 498    | 1518   | 1346   | -172   | 226    |
| TEXAS Wind | 8889   | 10264  | 20787  | 19938  | 12471  | 15108  | 15689  | 581    | 1113   |
| US Wind    | 49269  | 43525  | 73118  | 72121  | 55234  | 62388  | 46096  | -16292 | -13180 |

#### Generation Daily Average - MWh (EIA)

|              | 14-Nov | 15-Nov | 16-Nov | 17 <b>-N</b> ov | 18-Nov         | 19-Nov | 20-Nov | DoD    | vs. 7D |
|--------------|--------|--------|--------|-----------------|----------------|--------|--------|--------|--------|
| US Wind      | 49269  | 43525  | 73118  | 72121           | 55234          | 62388  | 46096  | -16292 | -13180 |
| US Solar     | 10351  | 10356  | 8701   | 9419            | 8543           | 8691   | 9226   | 535    | -118   |
| US Petroleum | 2549   | 3233   | 2436   | 1950            | 3020           | 3602   | 3230   | -371   | 432    |
| US Other     | 7587   | 7887   | 7860   | 8050            | 7866           | 8367   | 8122   | -245   | 186    |
| US Coal      | 78007  | 84359  | 77806  | 74593           | 78618          | 77043  | 84724  | 7682   | 6320   |
| US Nuke      | 87638  | 88332  | 89358  | 89575           | 89059          | 88391  | 88819  | 428    | 93     |
| US Hydro     | 24971  | 26951  | 27274  | 27262           | 27921          | 28617  | 26377  | -2239  | -788   |
| US Gas       | 140838 | 162199 | 140863 | 137919          | 1 <b>49820</b> | 155812 | 147932 | -7880  | 23     |

# See National Wind and Nuclear daily charts

Source: Bloomberg, analytix.ai

# Storage Week Average Generation Data

### Nuclear Generation Weekly Average - GWh (NRC)

|                               | 15-Oct | 22-Oct | 29-Oct | 5-Nov | 12-Nov | 19-Nov | WoW  | WoW<br>Bcf/d<br>Impact |
|-------------------------------|--------|--------|--------|-------|--------|--------|------|------------------------|
| NRC Nuclear Daily Output      | 76.5   | 73.6   | 71.6   | 72.2  | 79.8   | 83.9   | 4.1  | -0.7                   |
| NRC Nuclear Max Capacity      | 104.9  | 104.9  | 104.9  | 104.9 | 104.9  | 104.9  | 0.0  |                        |
| NRC Nuclear Outage            | 28.3   | 31.2   | 33.3   | 32.7  | 25.1   | 21.0   | -4.1 |                        |
| NRC % Nuclear Cap Utilization | 0.1    | 0.1    | 0.1    | 0.1   | 0.1    | 0.1    | 0.0  |                        |

### Wind Generation Weekly Average - MWh (EIA)

|            | 15-Oct | 22-Oct | 29-Oct | 5-Nov | 12-Nov  | 19-Nov | WoW  | WoW<br>Bcf/d<br>Impact |
|------------|--------|--------|--------|-------|---------|--------|------|------------------------|
| CALI Wind  | 2400   | 1270   | 2314   | 1669  | 1805    | 862    | -943 | 0.2                    |
| TEXAS Wind | 15396  | 10729  | 15462  | 8472  | 12032   | 13655  | 1624 | -0.3                   |
| US Wind    | 49918  | 43721  | 49870  | 32116 | 51002   | 58367  | 7364 | -1.3                   |
|            |        |        |        |       | 18886.8 |        |      |                        |
|            |        |        |        |       | 59%     |        |      |                        |

#### Generation Weekly Average - MWh (EIA)

|              |        |        |        |        |        |                 |      | VVOVV  |
|--------------|--------|--------|--------|--------|--------|-----------------|------|--------|
|              | 15-Oct | 22-Oct | 29-Oct | 5-Nov  | 12-Nov | 19 <b>-N</b> ov | WoW  | Bcf/d  |
|              |        |        |        |        |        |                 |      | Impact |
| US Wind      | 49918  | 43721  | 49870  | 32116  | 51002  | 58367           | 7364 | -1.3   |
| US Solar     | 10530  | 12209  | 10138  | 9979   | 10015  | 9792            | -224 | 0.0    |
| US Petroleum | 3224   | 3092   | 2815   | 3517   | 2532   | 2555            | 23   | 0.0    |
| US Other     | 12221  | 12109  | 10196  | 9288   | 8202   | 7860            | -342 | 0.1    |
| US Coal      | 89841  | 74017  | 73355  | 77392  | 77955  | 77805           | -150 | 0.0    |
| US Nuke      | 77046  | 73748  | 73713  | 75510  | 84337  | 88331           | 3994 | -0.7   |
| US Hydro     | 24699  | 23105  | 23540  | 25530  | 25395  | 26225           | 830  | -0.1   |
| US Gas       | 162707 | 150057 | 152802 | 159071 | 145190 | 144663          | -527 | 0.1    |
|              |        |        |        |        |        |                 |      |        |

## See National Wind and Nuclear daily charts

Source: Bloomberg, analytix.ai

The risk of trading futures and options and other derivatives involves a substantial risk of loss and is not suitable for all persons. Each person must consider whether a particular trade, combination of trades, or strategy is suitable for that person's financial means and objectives. Past results are not necessarily indicative of future results. This communication may contain links to third party websites which are not under the control of and are not maintained by ION Energy Group, and ION Energy Group is not responsible for their content.

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# Monthly Average Generation Data

#### Nuclear Generation Monthly Average - GWh (NRC)

|                               | 2Yr Ago         | LY              |        |        |        | MTD    |                 |                    |                     |
|-------------------------------|-----------------|-----------------|--------|--------|--------|--------|-----------------|--------------------|---------------------|
|                               | Same 30<br>days | Same 30<br>days | Aug-21 | Sep-21 | Oct-21 | Nov-21 | Last 30<br>days | MoM (MTD<br>vs LY) | Last 30<br>days YoY |
| NRC Nuclear Daily Output      | 82.4            | 78.9            | 91.5   | 87.2   | 75.5   | 80.6   | 78.1            | 5.1                | -0.7                |
| NRC Nuclear Max Capacity      | 104.9           | 104.9           | 104.9  | 104.9  | 104.9  | 104.9  | 104.9           | 0.0                | 0.0                 |
| NRC Nuclear Outage            | 22.5            | 26.0            | 13.4   | 17.7   | 29.4   | 24.3   | 26.8            | -5.1               | 0.7                 |
| NRC % Nuclear Cap Utilization | 83.8            | 80.2            | 93.0   | 88.7   | 76.8   | 82.0   | 79.4            | 5.2                | -0.8                |

#### Wind Generation Monthly Average - MWh (EIA)

|            | 2Yr Ago         | LY              |        |        |        | MTD    |                 |                    |                     |
|------------|-----------------|-----------------|--------|--------|--------|--------|-----------------|--------------------|---------------------|
|            | Same 30<br>days | Same 30<br>days | Aug-21 | Sep-21 | Oct-21 | Nov-21 | Last 30<br>days | MoM (MTD<br>vs LY) | Last 30<br>days YoY |
| CALI Wind  | 637             | 1208            | 2442   | 2020   | 1765   | 1398   | 1532            | -368               | 324                 |
| TEXAS Wind | 8698            | 9581            | 9901   | 9400   | 11565  | 12187  | 12711           | 621                | 3130                |
| US Wind    | 33886           | 42654           | 35830  | 40223  | 40991  | 48554  | 49161           | 7563               | 6507                |

#### Generation Monthly Average - MWh (EIA)

|              | 2Yr Ago         | LY              |        |        |        | MTD    |                 |                    |                     |
|--------------|-----------------|-----------------|--------|--------|--------|--------|-----------------|--------------------|---------------------|
|              | Same 30<br>days | Same 30<br>days | Aug-21 | Sep-21 | Oct-21 | Nov-21 | Last 30<br>days | MoM (MTD<br>vs LY) | Last 30<br>days YoY |
| US Wind      | 33886           | 42654           | 35830  | 40223  | 40991  | 48554  | 49161           | <b>6</b> 06.7      | <b>6507</b>         |
| US Solar     | 5886            | 7213            | 13787  | 13382  | 11044  | 9622   | 9785            | <b>1</b> 63.0      | <b>2572</b>         |
| US Petroleum | 2921            | 2467            | 4484   | 2452   | 3238   | 2926   | 2904            | <b>-22</b>         | <b>437</b>          |
| US Other     | 8091            | 8941            | 9928   | 9008   | 11099  | 8392   | 8592            | <b>2</b> 01        | <b>-349</b>         |
| US Coal      | 101563          | 87510           | 137655 | 110037 | 82735  | 80181  | 77516           | ▼ -2664            | <b>v</b> -9994      |
| US Nuke      | 89408           | 82707           | 94062  | 90146  | 76700  | 85083  | 82095           | ▼ -2988            | <b>T</b> -612       |
| US Hydro     | 26669           | 28935           | 28533  | 25665  | 23895  | 26289  | 25547           | <b>-742</b>        | ▼ -3388             |
| US Gas       | 150440          | 139564          | 210824 | 173538 | 158237 | 151529 | 150135          | ▼ -5446            | <b>10571</b>        |
| US Total     | 419106          | 400545          | 534937 | 464626 | 410686 | 413115 | 407241          | ▼-11498            | <b>6696</b>         |



## See National Wind and Nuclear daily charts

Source: Bloomberg, analytix.ai

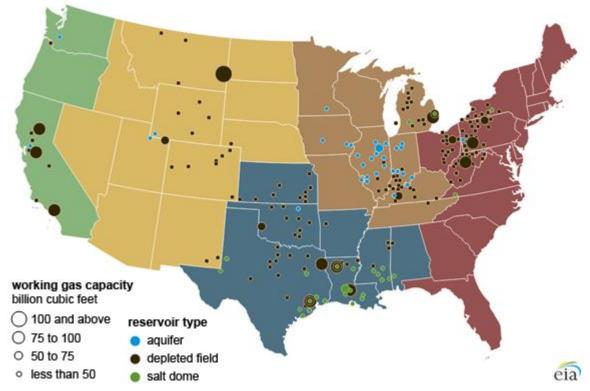


## Regional S/D Models Storage Projection

| Week Ending   | 19-Nov               |                               |   |   |
|---------------|----------------------|-------------------------------|---|---|
|               | Daily Raw<br>Storage | Daily<br>Adjustment<br>Factor | Daily<br>Average<br>Storage<br>Activity<br>(Adjusted) * | Weekly<br>Adjusted<br>Storage<br>Activity |
| L48           | -4.6                 | 0.8                           | -3.8  | -27                                       |
| East          | -1.8                 | 0.4                           | -1.3  | -9  |
| Midwest       | -2.5                 | 0.9                           | -1.5  | -11                                       |
| Mountain      | 2.9                  | -3.4                          | -0.5  | -3  |
| South Central | -3.5                 | 3.0                           | -0.5  | -3  |
| Pacific       | 0.2                  | -0.1                          | 0.0   | 0   |

\*Adjustment Factor is calcuated based on historical regional deltas

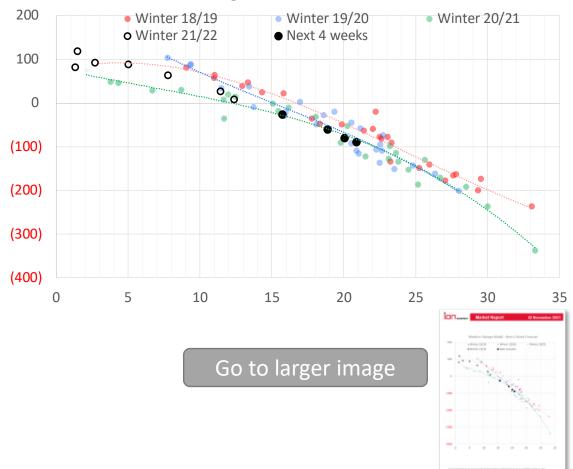
### U.S. underground natural gas storage facilities by type (July 2015)



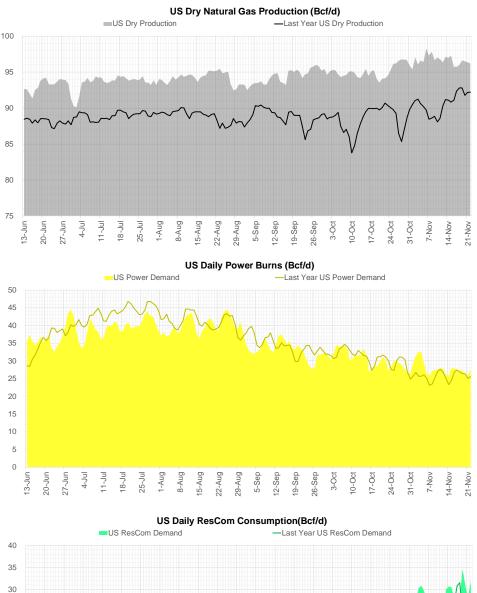
## Weather Model Storage Projection

| Next report<br>and beyond |       |                            |
|---------------------------|-------|----------------------------|
| Week Ending               | GWDDs | Week Storage<br>Projection |
| 19-Nov                    | 15.7  | -27                        |
| 26-Nov                    | 19    | -60                        |
| 03-Dec                    | 20    | -80                        |
| 10-Dec                    | 21    | -89                        |

Weather Storage Model - Next 4 Week Forecast



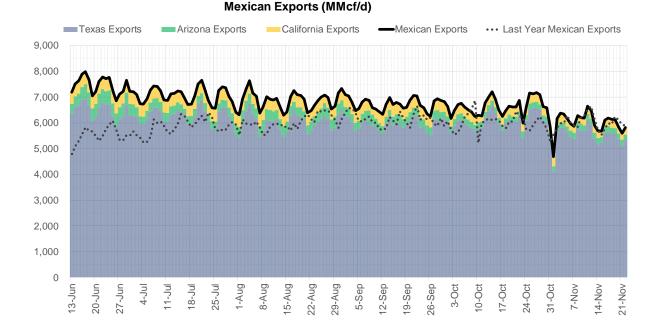


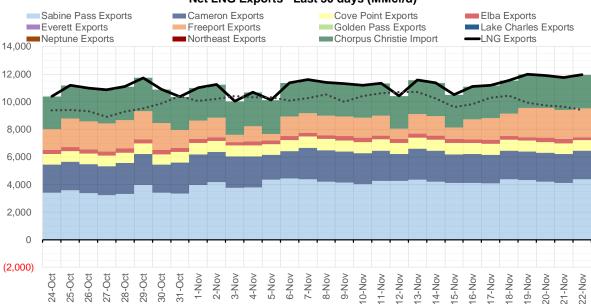


25 20 15 10 5 0 13-Jun 20-Jun 27-Jun 8-Aug 15-Aug 22-Aug 5-Sep 12-Sep 19-Sep 26-Sep 11-Jul 18-Jul I-Aug 10-Oct 17-Oct 24-Oct 31-Oct 14-Nov 21-Nov 4-Jul 25-Jul 29-Aug 3-Oct 7-Nov

Source: Bloomberg







Net LNG Exports - Last 30 days (MMcf/d)

Source: Bloomberg

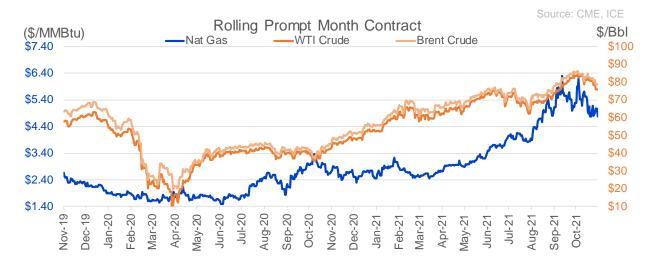


### Nat Gas Options Volume and Open Interest CME, ICE and Nasdaq Combined

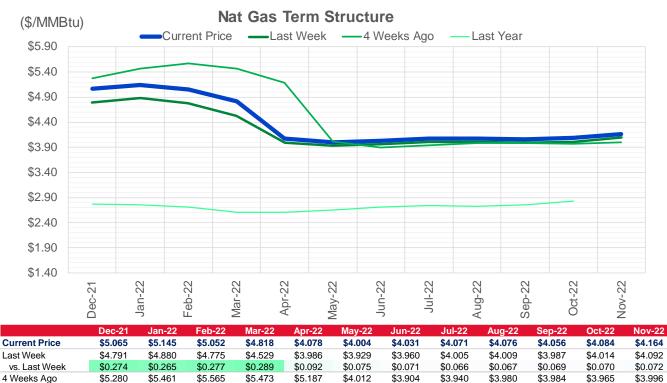
| CONTRACT<br>MONTH | CONTRACT<br>YEAR | PUT/CALL | STRIKE | CUMULATIVE<br>VOL | C | CONTRACT<br>MONTH | CONTRACT<br>YEAR | PUT/CALL | STRIKE       | CUMULATIVE OI  |
|-------------------|------------------|----------|--------|-------------------|---|-------------------|------------------|----------|--------------|----------------|
| 3                 | 2022             | Р        | 3.00   | 6100              |   | 12                | 2021             | Р        | 2.75         | 54612          |
| 12                | 2021             | С        | 6.00   | 3907              |   | 12                | 2021             | Р        | 4.00         | 43439          |
| 12                | 2021             | P        | 4.50   | 3710              |   | 12                | 2021             | Р        | 3.00         | 40234          |
| 12                | 2021             | P        | 4.25   | 3359              |   | 12                | 2021             | Р        | 2.50         | 39420          |
| 12                | 2021             | C        | 5.50   | 3310              |   | 3                 | 2022             | С        | 10.00        | 34396          |
| 12                | 2021             | P        | 4.00   | 2202              |   | 12                | 2021             | Р        | 3.50         | 33464          |
| 12                | 2021             | С        | 5.75   | 2183              |   | 12                | 2021             | Р        | 4.25         | 26257          |
| 1                 | 2022             | C        | 7.00   | 1655              |   | 12                | 2021             | С        | 6.00         | 25855          |
| 3                 | 2022             | C        | 5.25   | 1579              |   | 3                 | 2022             | С        | 8.00         | 25818          |
| 3                 | 2022             | C        | 9.00   | 1493              |   | 12                | 2021             | Р        | 5.00         | 25048          |
| 1                 | 2022             | C        | 6.00   | 1469              |   | 1                 | 2022             | С        | 6.00         | 23673          |
| 3                 | 2022             | c        | 7.00   | 1454              |   | 12                | 2021             | С        | 7.00         | 23465          |
| 1                 | 2022             | P        | 3.00   | 1378              |   | 1                 | 2022             | Р        | 2.75         | 23233          |
| 12                | 2021             | P        | 5.00   | 1368              |   | 3                 | 2022             | С        | 5.00         | 22601          |
| 12                | 2021             | C        | 5.25   | 1349              |   | 1                 | 2022             | Р        | 3.00         | 22597          |
| 12                | 2021             | P        | 4.40   | 1242              |   | 12                | 2021             | С        | 4.00         | 22526          |
| 12                | 2021             | C        | 5.00   | 1070              |   | 12                | 2021             | С        | 8.00         | 20740          |
| 10                | 2022             | C        | 7.00   | 1000              |   | 3                 | 2022             | Р        | 3.00         | 20644          |
| 3                 | 2022             | P        | 4.00   | 968               |   | 4                 | 2022             | С        | 3.00         | 19710          |
| 1                 | 2022             | C        | 6.25   | 921               |   | 3                 | 2022             | Р        | 2.50         | 18839          |
| 12                | 2021             | c        | 11.30  | 901               |   | 3                 | 2022             | Р        | 3.50         | 18730          |
| 1                 | 2022             | P        | 4.50   | 853               |   | 1                 | 2022             | С        | 5.00         | 18533          |
| 11                | 2023             | P        | 3.00   | 800               |   | 12                | 2021             | Р        | 4.50         | 17843          |
| 12                | 2023             | P        | 3.00   | 800               |   | 3                 | 2022             | Р        | 4.00         | 17811          |
| 12                | 2021             | C        | 5.70   | 770               |   | 2                 | 2022             | С        | 5.00         | 17645          |
| 1                 | 2022             | C        | 5.90   | 737               |   | 1                 | 2022             | С        | 7.00         | 17599          |
| 1                 | 2022             | c        | 5.00   | 699               |   | 1                 | 2022             | Р        | 3.50         | 17589          |
| 1                 | 2022             | P        | 4.25   | 679               |   | 3                 | 2022             | С        | 6.00         | 17410          |
| 12                | 2021             | P        | 4.90   | 658               |   | 4                 | 2022             | С        | 5.00         | 16923          |
| 1                 | 2022             | P        | 4.75   | 653               |   | 12                | 2021             | P        | 2.00         | 16834          |
| 1                 | 2022             | C        | 5.10   | 646               |   | 12                | 2021             | С        | 5.00         | 16082          |
| 3                 | 2022             | P        | 3.50   | 621               |   | 12                | 2022             | С        | 5.00         | 16047          |
| 12                | 2021             | P        | 4.75   | 612               |   | 3                 | 2022             | C<br>P   | 4.00         | 15506          |
| 12                | 2021             | C        | 9.00   | 603               |   | 4<br>2            | 2022<br>2022     | P        | 2.50<br>3.50 | 15264<br>15228 |
| 12                | 2021             | P        | 4.60   | 602               |   | 2<br>12           | 2022<br>2021     | P<br>C   |              |                |
| 12                | 2021             | P        | 4.70   | 526               |   | 12                | 2021             | P        | 5.50<br>4.00 | 15215          |
| 1                 | 2023             | C        | 5.00   | 500               |   | 1                 | 2022             | P<br>C   | 4.00<br>4.00 | 15066<br>14369 |
| 2                 | 2023             | č        | 5.00   | 500               |   | 1                 | 2022             | c        | 4.00         | 14064          |
| 1                 | 2022             | P        | 3.75   | 498               |   | 1                 | 2022             | c        | 8.00         | 14064          |
| 1                 | 2022             | P        | 5.00   | 486               |   | 3                 | 2022             | P        | 8.00<br>5.00 | 13932          |
| 2                 | 2022             | C        | 6.00   | 466               |   | 2                 | 2022             | C        | 6.00         | 13891          |
| 1                 | 2022             | P        | 4.00   | 458               |   | 5                 | 2022             | c        | 3.00         | 13733          |
| 5                 | 2022             | C        | 5.00   | 427               |   | 3                 | 2022             | c        | 7.00         | 13562          |
| 5                 | 2022             | P        | 3.50   | 425               |   | 12                | 2022             | c        | 15.00        | 13491          |
| 12                | 2021             | P        | 5.25   | 418               |   | 6                 | 2021             | C        | 3.00         | 13438          |
| 12                | 2021             | C        | 6.25   | 400               |   | 6                 | 2022             | C        | 5.00         | 13332          |
| 5                 | 2022             | P        | 3.00   | 400               |   | 12                | 2022             | C        | 4.50         | 13267          |
| 7                 | 2022             | P        | 3.05   | 400               |   | 12                | 2022             | c        | 5.25         | 13263          |
| ,<br>12           | 2022             | Ċ        | 7.00   | 390               |   | 7                 | 2022             |          |              |                |
|                   |                  | 2        |        | 200               |   |                   |                  | Source   | e: CME, ICE  |                |

### Nat Gas Futures Open Interest CME, and ICE Combined

| Civile, and toe Combined |  |        |              |        |         |       |              |  |
|--------------------------|--|--------|--------------|--------|---------|-------|--------------|--|
| CME Henry F              | CME Henry Hub Futures (10,000 MMBtu) ICE Henry Hub Futures Contract Equivalent (10,000 M |        |              |        |         |       |              |  |
|                          | Current  | Prior  | Daily Change |        | Current | Prior | Daily Change |  |
| DEC 21                   | 40133  | 54566  | -14433       | DEC 21 | 83865   | 88313 | -4448        |  |
| JAN 22                   | 263059   | 263075 | -16          | JAN 22 | 92246   | 89939 | 2308         |  |
| FEB 22                   | 79326  | 79298  | 28           | FEB 22 | 69520   | 69230 | 291          |  |
| MAR 22                   | 166396   | 162129 | 4267         | MAR 22 | 78373   | 80169 | -1796        |  |
| APR 22                   | 116582   | 115688 | 894          | APR 22 | 75443   | 75291 | 153          |  |
| MAY 22                   | 138743   | 139433 | -690         | MAY 22 | 72861   | 72799 | 62           |  |
| JUN 22                   | 44894  | 45013  | -119         | JUN 22 | 54946   | 54944 | 2            |  |
| JUL 22                   | 42629  | 43171  | -542         | JUL 22 | 56661   | 56923 | -262         |  |
| AUG 22                   | 31920  | 31856  | 64           | AUG 22 | 54948   | 55194 | -246         |  |
| SEP 22                   | 37710  | 37257  | 453          | SEP 22 | 55894   | 56087 | -193         |  |
| OCT 22                   | 89396  | 88731  | 665          | OCT 22 | 62199   | 62442 | -243         |  |
| NOV 22                   | 35575  | 35537  | 38           | NOV 22 | 47459   | 47720 | -262         |  |
| DEC 22                   | 27242  | 27311  | -69          | DEC 22 | 50345   | 50466 | -121         |  |
| JAN 23                   | 32658  | 32312  | 346          | JAN 23 | 40671   | 40542 | 128          |  |
| FEB 23                   | 11659  | 11241  | 418          | FEB 23 | 33353   | 33444 | -91          |  |
| MAR 23                   | 25948  | 24565  | 1383         | MAR 23 | 37353   | 37176 | 178          |  |
| APR 23                   | 18266  | 16948  | 1318         | APR 23 | 39330   | 38157 | 1173         |  |
| MAY 23                   | 10369  | 10047  | 322          | MAY 23 | 35232   | 35317 | -85          |  |
| JUN 23                   | 9164   | 9055   | 109          | JUN 23 | 31527   | 31602 | -75          |  |
| JUL 23                   | 6288   | 6198   | 90           | JUL 23 | 31414   | 31468 | -54          |  |
| AUG 23                   | 4971   | 5118   | -147         | AUG 23 | 32461   | 32499 | -39          |  |
| SEP 23                   | 6591   | 6402   | 189          | SEP 23 | 30663   | 30715 | -52          |  |
| OCT 23                   | 10575  | 10625  | -50          | OCT 23 | 34274   | 34780 | -506         |  |
| NOV 23                   | 5487   | 5287   | 200          | NOV 23 | 33643   | 33760 | -117         |  |
| DEC 23                   | 8472   | 8339   | 133          | DEC 23 | 31155   | 31276 | -121         |  |
| JAN 24                   | 5076   | 4900   | 176          | JAN 24 | 20434   | 20389 | 45           |  |
| FEB 24                   | 1450   | 1449   | 1            | FEB 24 | 15345   | 15303 | 42           |  |
| MAR 24                   | 8694   | 8641   | 53           | MAR 24 | 20483   | 20398 | 85           |  |
| APR 24                   | 4868   | 4868   | 0            | APR 24 | 14483   | 14475 | 8            |  |
| MAY 24                   | 1996   | 1981   | 15           | MAY 24 | 15055   | 15120 | -66          |  |



# **Market Report**



| 4 Weeks Ago     | \$5.280  | \$5.461  | \$5.565  | \$5.473  | \$5.187  | \$4.012  | \$3.904 | \$3.940 | \$3.980 | \$3.984 | \$3.965 |
|-----------------|----------|----------|----------|----------|----------|----------|---------|---------|---------|---------|---------|
| vs. 4 Weeks Ago | -\$0.215 | -\$0.316 | -\$0.513 | -\$0.655 | -\$1.109 | -\$0.008 | \$0.127 | \$0.131 | \$0.096 | \$0.072 | \$0.119 |
| Last Year       | \$2.650  | \$2.770  | \$2.755  | \$2.709  | \$2.608  | \$2.608  | \$2.652 | \$2.710 | \$2.734 | \$2.732 | \$2.762 |
| vs. Last Year   | \$2.415  | \$2.375  | \$2.297  | \$2.109  | \$1.470  | \$1.396  | \$1.379 | \$1.361 | \$1.342 | \$1.324 | \$1.322 |
|                 |          |          |          |          |          |          |         |         |         |         |         |
|                 |          |          |          |          |          | Ca       | sh      | Prompt  | Casl    | n to    |         |
|                 |          |          |          | U        | nits     | Sett     | led     | Settle  | Pror    | npt     |         |
|                 | AG       | T Cityga | te       | \$/      | /MMBtu   | 5.0      | )1      | 11.34   | 6.3     | 33      |         |
|                 | TE       | ТСО МЗ   |          | \$/      | /MMBtu   | 4.6      | 68      | 5.95    | 1.2     | 27      |         |
|                 | FG       | T Zone 3 | 3        | \$/      | /MMBtu   | 4.8      | 30      | 4.89    | 0.0     | )9      |         |
|                 | Zor      | ne 6 NY  |          | \$/      | /MMBtu   | 4.8      | 30      | 6.52    | 1.7     | 2       |         |
|                 | Chi      | icado Ci | tvaate   | \$       | /MMBtu   | 4.7      | 78      | 5.01    | 0.2     | 23      |         |

| AGT Citygate          | ⊅/IVIIVIDIU | 5.01 | 11.34 | 0.33  |
|-----------------------|-------------|------|-------|-------|
| TETCO M3              | \$/MMBtu    | 4.68 | 5.95  | 1.27  |
| FGT Zone 3            | \$/MMBtu    | 4.80 | 4.89  | 0.09  |
| Zone 6 NY             | \$/MMBtu    | 4.80 | 6.52  | 1.72  |
| Chicago Citygate      | \$/MMBtu    | 4.78 | 5.01  | 0.23  |
| Michcon               | \$/MMBtu    | 4.76 | 4.54  | -0.22 |
| Columbia TCO Pool     | \$/MMBtu    | 4.55 | 4.26  | -0.29 |
| Ventura               | \$/MMBtu    | 4.79 | 5.36  | 0.57  |
| Rockies/Opal          | \$/MMBtu    | 5.15 | 4.84  | -0.31 |
| El Paso Permian Basin | \$/MMBtu    | 4.62 | 4.77  | 0.15  |
| Socal Citygate        | \$/MMBtu    | 6.62 | 5.80  | -0.82 |
| Malin                 | \$/MMBtu    | 5.90 | 5.37  | -0.53 |
| Houston Ship Channel  | \$/MMBtu    | 4.83 | 4.93  | 0.10  |
| Henry Hub Cash        | \$/MMBtu    | 4.90 | 4.64  | -0.27 |
| AECO Cash             | C\$/GJ      | 3.24 | 3.93  | 0.69  |
| Station2 Cash         | C\$/GJ      | 3.17 | 5.68  | 2.51  |
| Dawn Cash             | C\$/GJ      | 4.76 | 4.65  | -0.11 |

Source: CME, Bloomberg

The risk of trading futures and options and other derivatives involves a substantial risk of loss and is not suitable for all persons. Each person must consider whether a particular trade, combination of trades, or strategy is suitable for that person's financial means and objectives. Past results are not necessarily indicative of future results. This communication may contain links to third party websites which are not under the control of and are not maintained by ION Energy Group, and ION Energy Group is not responsible for their content.

\$0.168

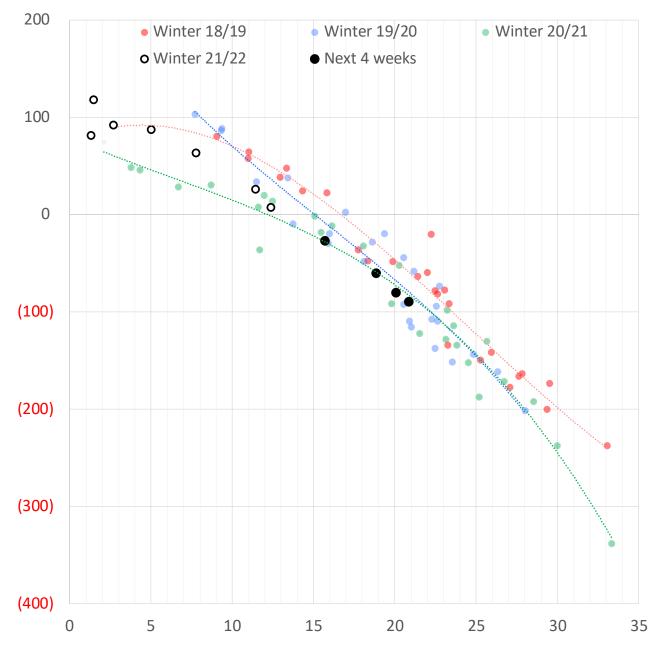
\$2.836

\$1.328



|                         |              |                      |                 | vs. 4 Weeks     |                 |
|-------------------------|--------------|----------------------|-----------------|-----------------|-----------------|
|                         | Units        | <b>Current Price</b> | vs. Last Week   | Ago             | vs. Last Year   |
| NatGas Jul21/Oct21      | \$/MMBtu     | 2.224                | <b>a</b> 0.000  | <b>a</b> 0.000  | <b>2</b> .172   |
| NatGas Oct21/Nov21      | \$/MMBtu     | 0.361                | <b>0.000</b>    | <b>a</b> 0.922  | <b>a</b> 0.287  |
| NatGas Oct21/Jan22      | \$/MMBtu     | -0.696               | <b>a</b> 0.265  | -0.420          | <b>-</b> 1.006  |
| NatGas Apr22/Oct22      | \$/MMBtu     | 0.006                | -0.022          | <b>a</b> 0.022  | -0.059          |
| WTI Crude               | \$/Bbl       | 76.10                | -4.690          | -7.660          | <b>a</b> 33.950 |
| Brent Crude             | \$/Bbl       | 78.89                | -3.280          | -6.640          | <b>a</b> 33.930 |
| Fuel Oil, NY Harbour 1% | \$/Bbl       | 97.18                | <b>0.000</b>    | <b>0.000</b>    | <b>0.000</b>    |
| Heating Oil             | cents/Gallon | 229.34               | <b>-</b> 11.030 | <b>-</b> 24.550 | <b>1</b> 00.710 |
| Propane, Mt. Bel        | cents/Gallon | 1.25                 | -0.073          | -0.201          | <b>a</b> 0.711  |
| Ethane, Mt. Bel         | cents/Gallon | 0.40                 | -0.003          | -0.028          | <b>0.187</b>    |
| Coal, PRB               | \$/MTon      | 12.30                | <b>0.000</b>    | <b>0.000</b>    | <b>0.000</b>    |
| Coal, PRB               | \$/MMBtu     | 0.70                 |                 |                 |                 |
| Coal, ILB               | \$/MTon      | 31.05                | <b>0.000</b>    | <b>a</b> 0.000  | <b>0.000</b>    |
| Coal, ILB               | \$/MMBtu     | 1.32                 |                 |                 |                 |

## Weather Storage Model - Next 4 Week Forecast



# **Market Report**

ENERGY

## 22 November 2021

