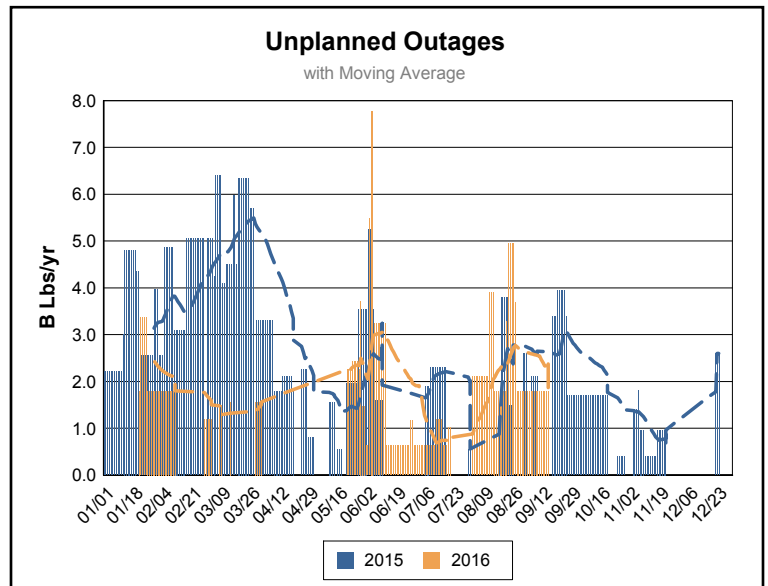
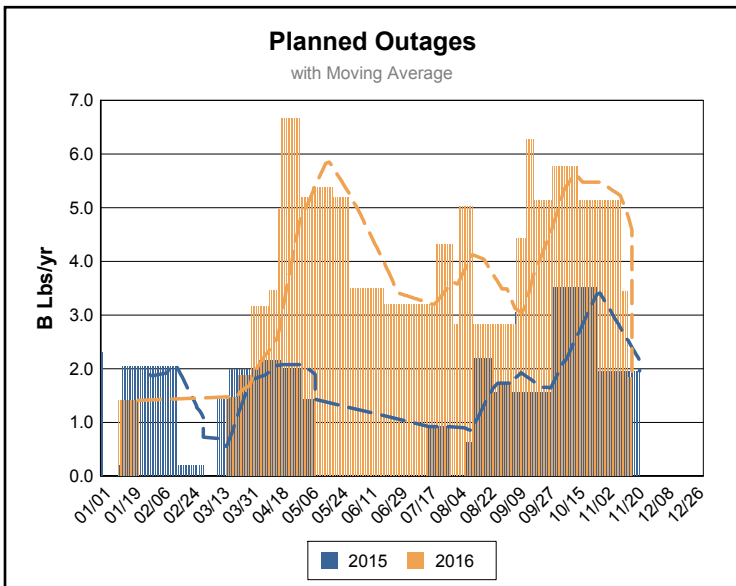


#### Key Market Updates

- ExxonMobil Chemical has restarted the 800M Lbs/yr USC I and 1 Billion Lbs/yr USC II Ethane Cracking units located at the Beaumont, Texas plant with temporary cooling towers in place. Rebuild of the permanent cooling tower will take place over the next several months.
- Chevron Phillips has begun an approximately 65-day planned maintenance turnaround at its 1,840MM Lbs/yr 1592 Ethylene unit at the Baytown (Cedar Bayou), Texas plant.
- LyondellBasell is in the process of restarting its 1,130M Lbs/yr ethylene unit located at the Morris, Illinois plant. The unit has been offline for a 60-Day planned maintenance turnaround which started July 22, 2016.
- A final investment decision on Williams Energy Canada's proposed plans to build a 1.1 Billion Lbs/yr Propylene unit in Fort Saskatchewan, Alberta Canada has been delayed due to the company selling its Canadian businesses to Inter Pipeline Limited.



# Weekly Ethylene Outlook US & Canada



Tuesday, September 20, 2016

## Daily Outages

Contact Market Hotline for more insight  
E: [steamcrackers@iirenergy.com](mailto:steamcrackers@iirenergy.com)

| <i>(in B Lbs/yr)</i>      |                         | 09/17 | 09/18 | 09/19 | 09/20 | 09/21 | 09/22 | 09/23 | 09/24 | 09/25 |
|---------------------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Current Year</b>       | <b>Design Capacity</b>  | 73.2  | 73.2  | 73.2  | 73.2  | 73.2  | 73.2  | 73.2  | 73.2  | 73.2  |
|                           | <b>Capacity Offline</b> | 6.3   | 6.3   | 6.3   | 5.1   | 5.1   | 5.1   | 5.1   | 5.1   | 5.1   |
|                           | <b>Daily Change</b>     | 0.0   | 0.0   | 0.0   | -1.1  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
|                           |                         | 09/17 | 09/18 | 09/19 | 09/20 | 09/21 | 09/22 | 09/23 | 09/24 | 09/25 |
| <b>Prior Year</b>         | <b>Capacity Offline</b> | 1.6   | 5.0   | 5.0   | 5.0   | 5.5   | 5.5   | 5.5   | 5.5   | 5.5   |
|                           | <b>Delta</b>            | 4.7   | 1.3   | 1.3   | 0.2   | -0.4  | -0.4  | -0.4  | -0.4  | -0.4  |
|                           |                         | 09/17 | 09/18 | 09/19 | 09/20 | 09/21 | 09/22 | 09/23 | 09/24 | 09/25 |
| <b>Planned Prior Yr</b>   | <b>Capacity Offline</b> | 1.6   | 1.6   | 1.6   | 1.6   | 1.6   | 1.6   | 1.6   | 1.6   | 1.6   |
|                           | <b>Delta</b>            | 4.7   | 4.7   | 4.7   | 3.6   | 3.6   | 3.6   | 3.6   | 3.6   | 3.6   |
|                           |                         | 09/17 | 09/18 | 09/19 | 09/20 | 09/21 | 09/22 | 09/23 | 09/24 | 09/25 |
| <b>Unplanned Prior Yr</b> | <b>Capacity Offline</b> | 0.0   | 3.4   | 3.4   | 3.4   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   |
|                           | <b>Delta</b>            | 0.0   | -3.4  | -3.4  | -3.4  | -4.0  | -4.0  | -4.0  | -4.0  | -4.0  |

# Weekly Ethylene Outlook US & Canada



Tuesday, September 20, 2016

## Ethylene Turnarounds

Contact Market Hotline for more insight  
E: [steamcrackers@iirenergy.com](mailto:steamcrackers@iirenergy.com)

| PADD | Owner Name                            | Plant Name                           | Unit Name                       | Outage Type | Capacity Offline (kt/yr) | Capacity Offline (M Lbs/yr) | Outage Start | Outage End | Days Offline | Days Left |
|------|---------------------------------------|--------------------------------------|---------------------------------|-------------|--------------------------|-----------------------------|--------------|------------|--------------|-----------|
| II   | Westlake Vinyls Incorporated          | Calvert City Plastic Monomers        | Ethylene                        | Planned     | 285.8                    | 630                         | 10/01/2016   | 10/16/2016 | 16           |           |
| III  | LyondellBasell Industries             | Corpus Christi Olefins               | Olefins Unit                    | Planned     | 771.1                    | 1,700                       | 04/19/2016   | 11/11/2016 | 207          | 52        |
| III  | Dow Chemical Company                  | Plaquemine Chemicals                 | Light Hydrocarbons 3 (Ethylene) | Planned     | 725.7                    | 1,600                       | 09/09/2016   | 11/15/2016 | 68           | 56        |
| III  | Chevron Phillips Chemical Company LLC | Baytown Cedar Bayou Olefins & Resins | 1592 Ethylene                   | Planned     | 834.6                    | 1,840                       | 09/15/2016   | 11/18/2016 | 65           | 59        |
| III  | ExxonMobil Chemical Company           | Baton Rouge Chemicals                | OLA-1X                          | Planned     | 117.9                    | 260                         | 01/03/2017   | 02/01/2017 | 30           |           |
| III  | Formosa Plastics Corporation USA      | Point Comfort Plastics               | O2 (Olefins 2)                  | Planned     | 816.5                    | 1,800                       | 01/05/2017   | 02/18/2017 | 45           |           |



# Weekly Ethylene Outlook US & Canada



Tuesday, September 20, 2016

## Ethylene Turnarounds

Contact Market Hotline for more insight  
E: steamcrackers@iirenergy.com

| PADD | Owner Name                  | Plant Name          | Unit Name | Outage Type | Capacity Offline (kt/yr) | Capacity Offline (M Lbs/yr) | Outage Start | Outage End | Days Offline | Days Left |
|------|-----------------------------|---------------------|-----------|-------------|--------------------------|-----------------------------|--------------|------------|--------------|-----------|
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 10   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 11   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 12   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 13   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 14   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 15   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 16   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 17   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 18   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 19   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 20   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 21   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 22   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 23   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 24   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 25   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 26   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 27   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 28   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 29   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 30   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 31   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 32   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 33   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 34   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 35   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 36   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 37   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 38   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 39   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 40   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 41   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 42   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 43   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 44   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 45   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 46   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 47   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 48   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 49   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |
| 1    | ExxonMobil Chemical Company | ExxonMobil Chemical | Unit 50   | Planned     | 2000                     | 2000                        | 09/20/2016   | 09/20/2016 | 0            | 0         |

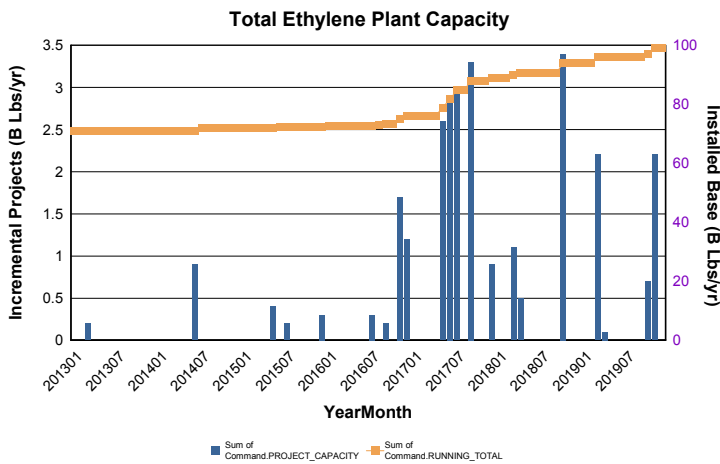
# Weekly Ethylene Outlook US & Canada



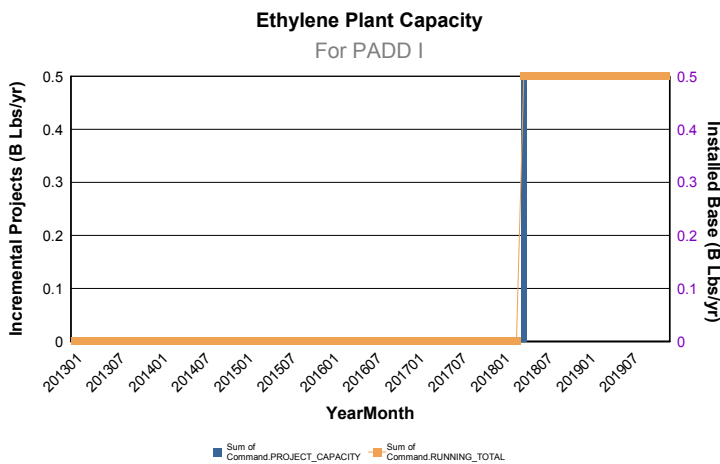
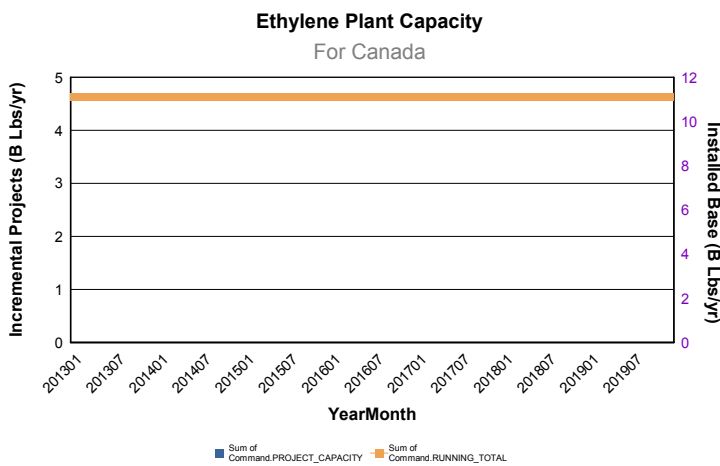
Tuesday, September 20, 2016

## Ethylene Projects and Capacity Changes

Contact Market Hotline for more insight  
E: steamcrackers@iirenergy.com



|                  | Current Ethylene Plant Capacity |                 |
|------------------|---------------------------------|-----------------|
|                  | (B Lbs/yr)                      | (kt/yr)         |
| <b>Canada</b>    | 11.1                            | 5,053.0         |
| <b>Caribbean</b> | 0.0                             | 0.0             |
| <b>PADD I</b>    | 0.0                             | 0.0             |
| <b>PADD II</b>   | 2.7                             | 1,233.8         |
| <b>PADD III</b>  | 59.3                            | 26,917.7        |
| <b>PADD IV</b>   | 0.0                             | 0.0             |
| <b>PADD V</b>    | 0.0                             | 0.0             |
| <b>Total</b>     | <b>59.3</b>                     | <b>26,917.7</b> |



|                 | PADD I              |                 |
|-----------------|---------------------|-----------------|
|                 | Projects (B Lbs/yr) | Project (kt/yr) |
| <b>Apr-2018</b> | 0.5                 | 226.8           |
| <b>Total</b>    | <b>0.5</b>          | <b>226.8</b>    |

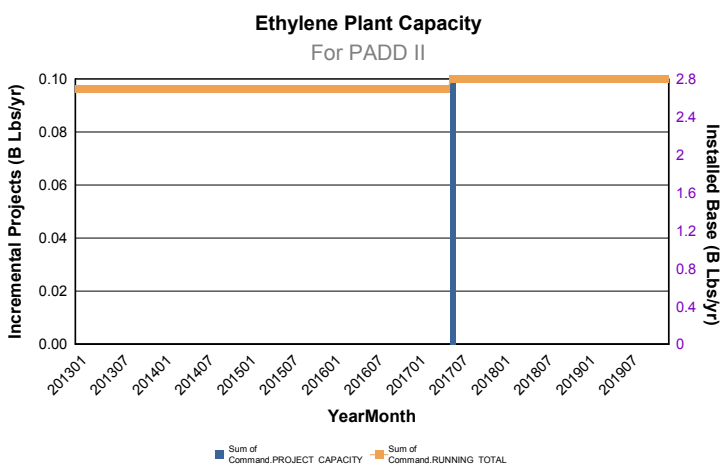
# Weekly Ethylene Outlook US & Canada



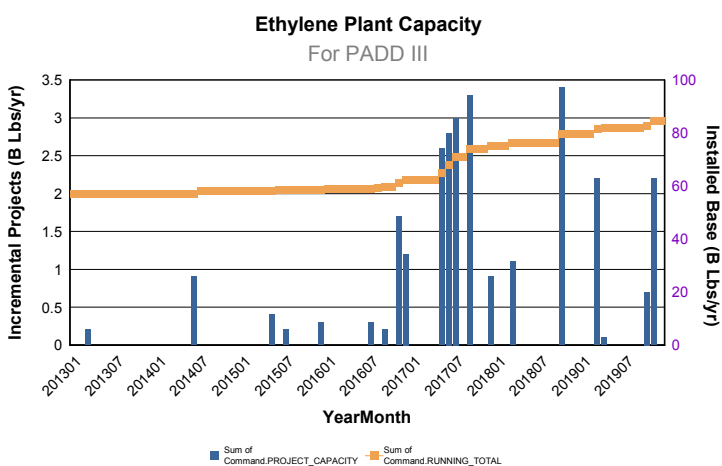
Tuesday, September 20, 2016

## Ethylene Projects and Capacity Changes

Contact Market Hotline for more insight  
E: steamcrackers@iirenergy.com



|              | PADD II             |                 |
|--------------|---------------------|-----------------|
|              | Projects (B Lbs/yr) | Project (kt/yr) |
| Jun-2017     | 0.1                 | 31.8            |
| <b>Total</b> | <b>0.1</b>          | <b>31.8</b>     |



|              | PADD III            |                 |
|--------------|---------------------|-----------------|
|              | Projects (B Lbs/yr) | Project (kt/yr) |
| Mar-2013     | 0.2                 | 108.9           |
| Jun-2014     | 0.9                 | 385.6           |
| May-2015     | 0.4                 | 181.4           |
| Jul-2015     | 0.2                 | 90.7            |
| Dec-2015     | 0.3                 | 113.4           |
| Jul-2016     | 0.3                 | 113.4           |
| Sep-2016     | 0.2                 | 68.0            |
| Nov-2016     | 1.7                 | 771.1           |
| Dec-2016     | 1.2                 | 544.3           |
| May-2017     | 2.6                 | 1,179.3         |
| Jun-2017     | 2.8                 | 1,270.1         |
| Jul-2017     | 3.0                 | 1,360.8         |
| Sep-2017     | 3.3                 | 1,496.9         |
| Dec-2017     | 0.9                 | 385.6           |
| Mar-2018     | 1.1                 | 499.0           |
| Oct-2018     | 3.4                 | 1,545.4         |
| Mar-2019     | 2.2                 | 1,000.2         |
| Apr-2019     | 0.1                 | 56.7            |
| Oct-2019     | 0.7                 | 326.6           |
| Nov-2019     | 2.2                 | 1,016.0         |
| <b>Total</b> | <b>27.7</b>         | <b>12,513.4</b> |

No part of this Report may be copied, reproduced, e-mailed, or transmitted in any form, by any means, without the express written permission of IIR Energy or Industrial Information Resources, Inc., who, furthermore, does not assume any responsibility and/or liability for the information, accuracy or content of this Report.