



Citi  
2016 Basic Materials Conference

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Global Supply Chain

**STRONG.**

**CONSISTENT.**

**FOCUSED.**

November 29, 2016

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The statements in this presentation relating to matters that are not historical facts are forward-looking statements. These forward-looking statements are based upon assumptions of management which are believed to be reasonable at the time made and are subject to significant risks and uncertainties. Actual results could differ materially based on factors including, but not limited to, the business cyclicalities of the chemical, polymers and refining industries; the availability, cost and price volatility of raw materials and utilities, particularly the cost of oil, natural gas, and associated natural gas liquids; competitive product and pricing pressures; labor conditions; our ability to attract and retain key personnel; operating interruptions (including leaks, explosions, fires, weather-related incidents, mechanical failure, unscheduled downtime, supplier disruptions, labor shortages, strikes, work stoppages or other labor difficulties, transportation interruptions, spills and releases and other environmental risks); the supply/demand balances for our and our joint ventures' products, and the related effects of industry production capacities and operating rates; our ability to achieve expected cost savings and other synergies; our ability to successfully execute projects and growth strategies; legal and environmental proceedings; tax rulings, consequences or proceedings; technological developments, and our ability to develop new products and process technologies; potential governmental regulatory actions; political unrest and terrorist acts; risks and uncertainties posed by international operations, including foreign currency fluctuations; and our ability to comply with debt covenants and service our debt. Additional factors that could cause results to differ materially from those described in the forward-looking statements can be found in the "Risk Factors" section of our Form 10-K for the year ended December 31, 2015, which can be found at [www.lyondellbasell.com](http://www.lyondellbasell.com) on the Investor Relations page and on the Securities and Exchange Commission's website at [www.sec.gov](http://www.sec.gov).

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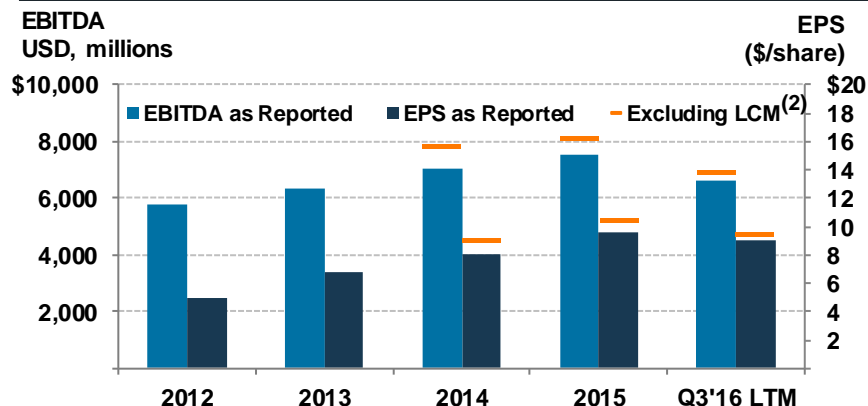
# World-Class Scale With Leading Positions



## Who We Are

- \$33 billion market capitalization <sup>(1)</sup>
- Global independent chemical company, incorporated under Dutch law
- Executive offices in London, Rotterdam, and Houston
- Products sold in ~100 countries, with 55 manufacturing sites across 17 countries

## EBITDA / Diluted EPS Performance



(1) As of September 30, 2016

(2) LCM stands for "lower of cost or market". Further detail regarding LCM adjustments can be found in the Appendix under "Information Related to Financial Measures."

(3) Source: LYB, IHS as of December 31, 2015. Only pro rata ownership of joint venture facilities.

(4) EU includes Central and Western Europe for all products except Technology and R&D which is all of Europe

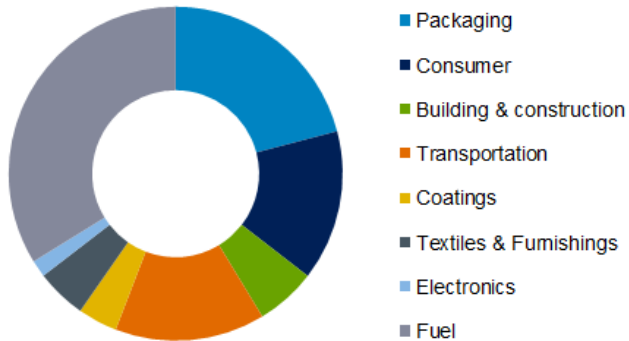
## Our Products <sup>(3)</sup>

## Capacity Position

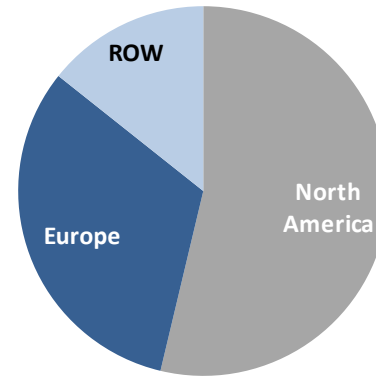
	Global	N Am	EU <sup>(4)</sup>
<b>Chemicals</b>			
Ethylene	#5	#2	#5
Propylene*	#5	#3	#6
Propylene Oxide (PO)	#2	#2	#2
<b>Polymers</b>			
Polyolefins (PE+PP)	#3	#3	#1
Polypropylene	#2	#1	#1
Polyethylene	#6	#3	#1
Polypropylene Compounds	#1	-	-
<b>Fuels</b>			
Oxyfuels	#1	#1	#1
<b>Technology and R&amp;D</b>			
Polyolefin Licensing	#1	#2	#1

\*Excluding Refinery Grade Propylene

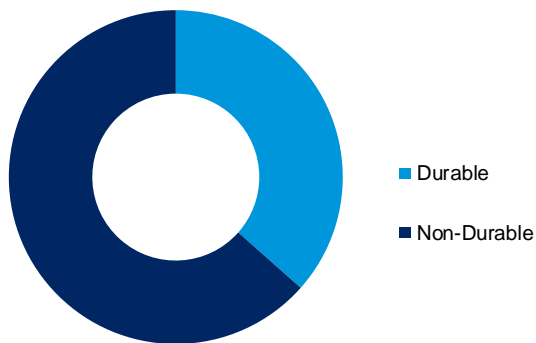
## Revenue by End Use<sup>(1)</sup>



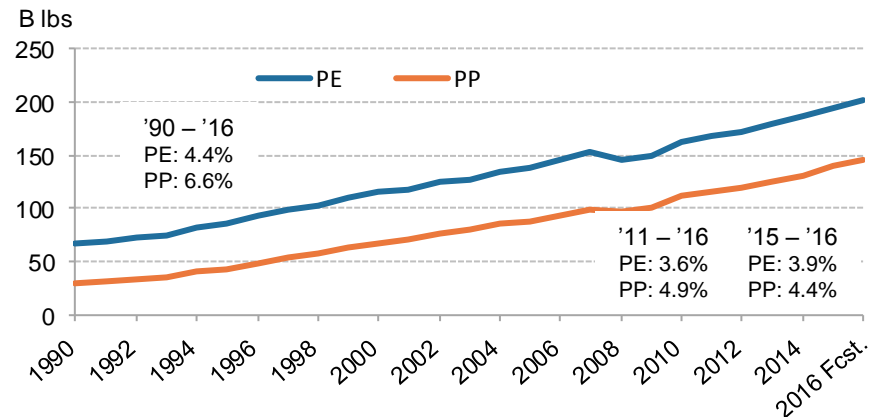
## 2015 Revenue by Geography



## Durable / Non-Durable Revenue<sup>(1)</sup>



## World PE and PP Demand

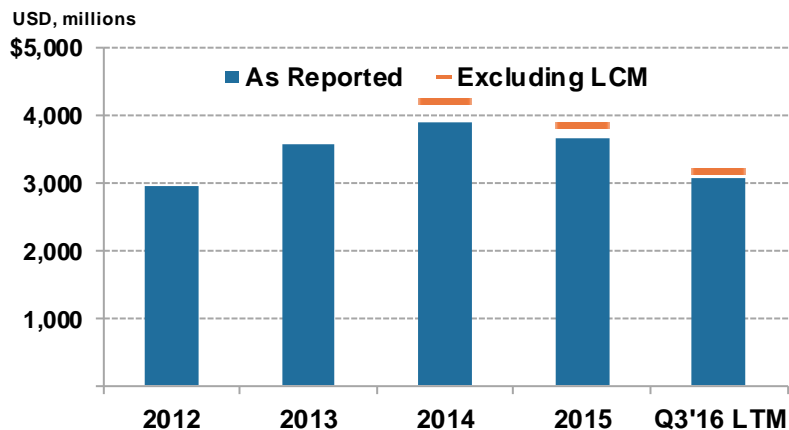


Source: Internal LYB Estimates and IHS.

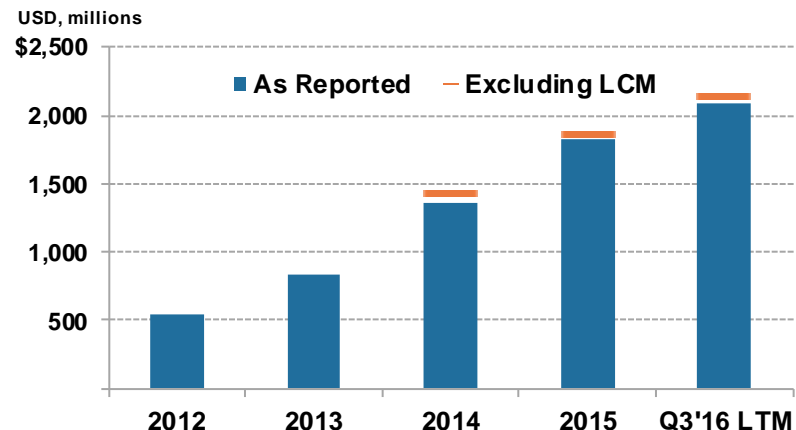
(1) Based on 2014 annual revenues. Excludes Technology segment revenues and intersegment eliminations.

# A High Performing Portfolio: EBITDA Across Time

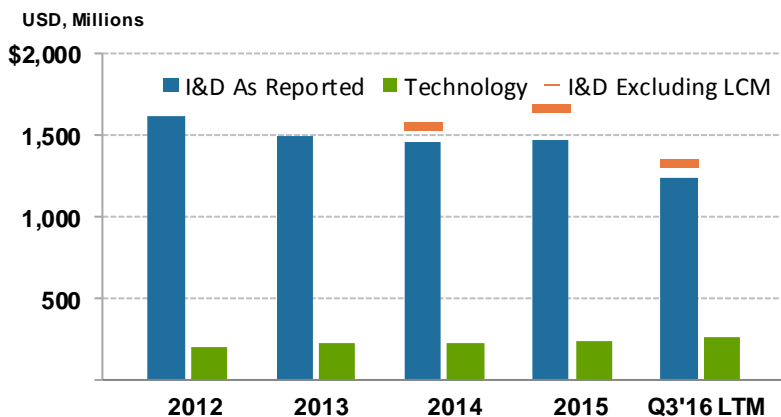
## Olefins & Polyolefins - Americas



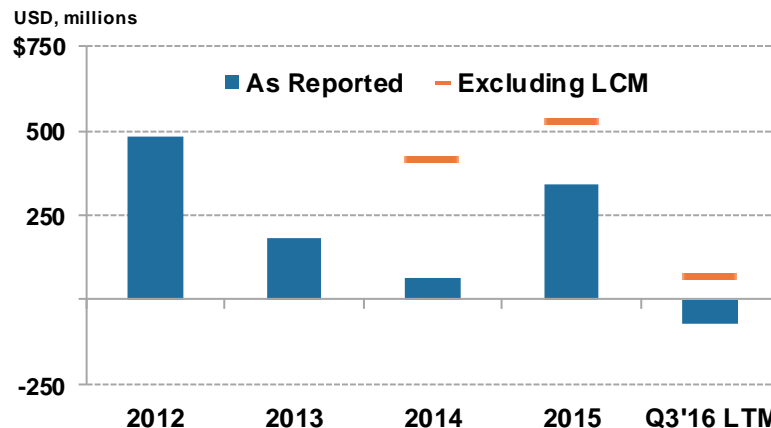
## Olefins & Polyolefins - EAI



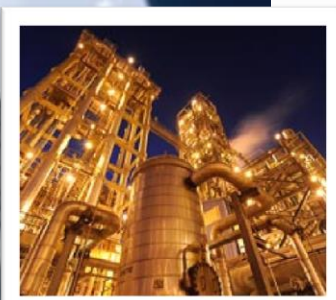
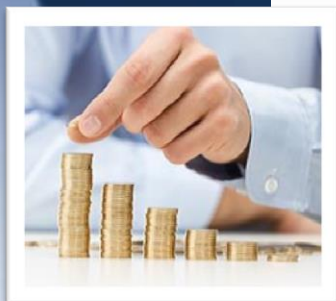
## Intermediates and Derivatives and Technology



## Refining



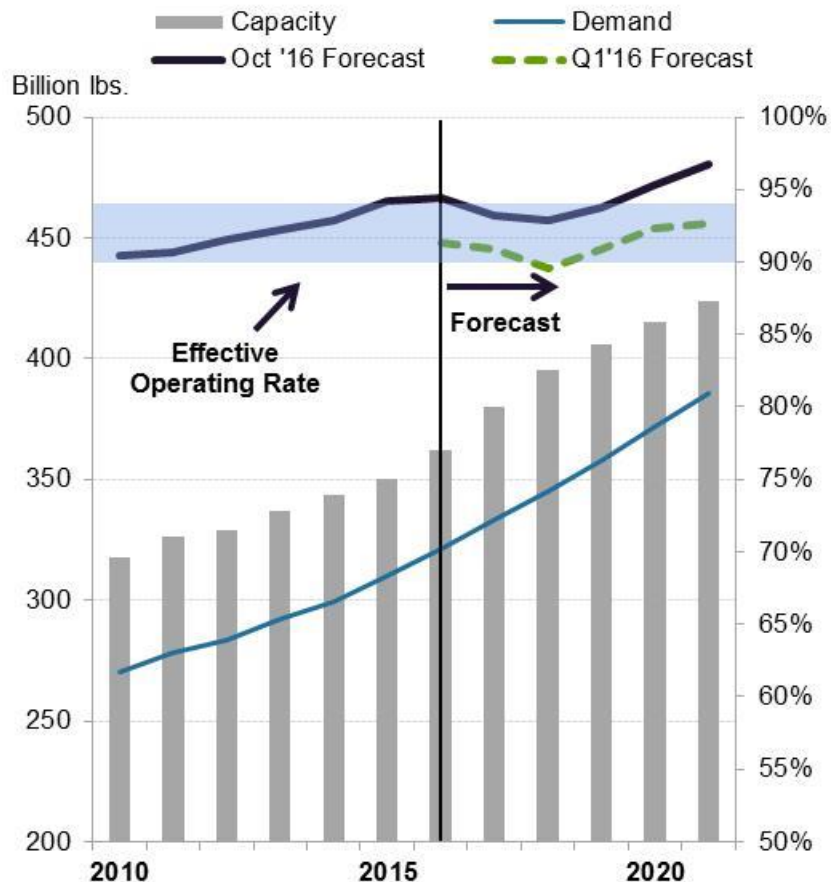
# LYB's Focused Approach is Yielding Results



- Maximize value through a focus on operations
  - Safe operations → reliable operations → maximum profit
  - The best/most leveraging investment is in your existing assets
- Cost discipline remains a priority
  - Most chemical markets are mature
  - Overhead and spending management must be consistent over time
- Invest in advantaged positions, sustain others
  - Raw material advantages
  - Technology and structure create areas of differentiation
- Shareholder interaction
  - Transparency
  - Shareholder friendly cash deployment policy

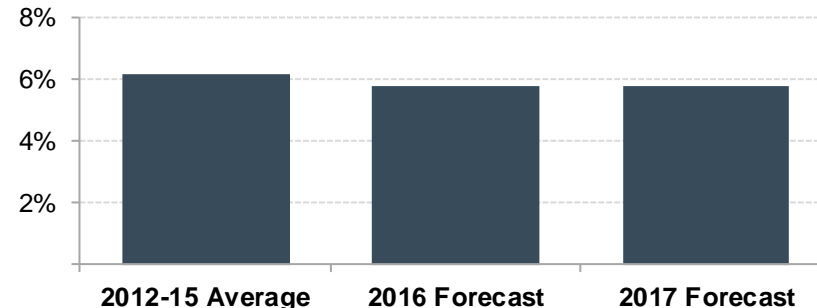
# O&P: Industry Capacity Delays and Demand Growth Support Strong Operating Rates

## Global Ethylene Supply / Demand (1)

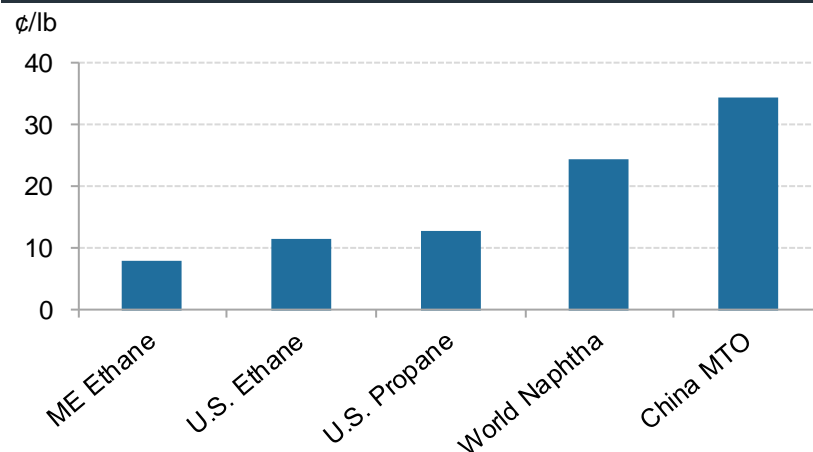


## Ethylene Downtime (2)

### % Maintenance Downtime / Nameplate



## Global Ethylene Cash Cost (3)



1) Source: IHS. Effective operating rates are calculated assuming 6% industry downtime. Demand and Q1'16 Forecast are sourced from the IHS Chemical Supply and Demand 2016 Balance Update. Capacity and Oct '16 Forecast are sourced from the IHS Chemical Capacity as of Oct 11, 2016.

2) Source: IHS. Economic downtime excluded.

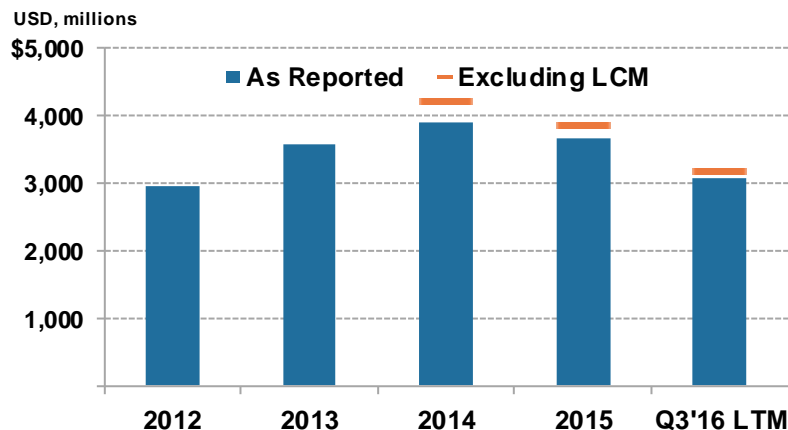
3) Source: IHS and LYB analysis as of June 2016.

# O&P Americas

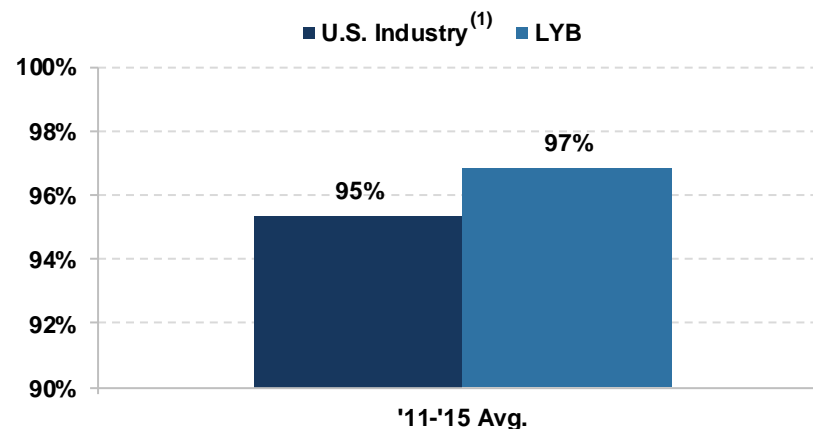
## NGL Advantage with Flexible, Reliable Operations



### EBITDA Performance



### Operating Reliability vs. U.S. Industry

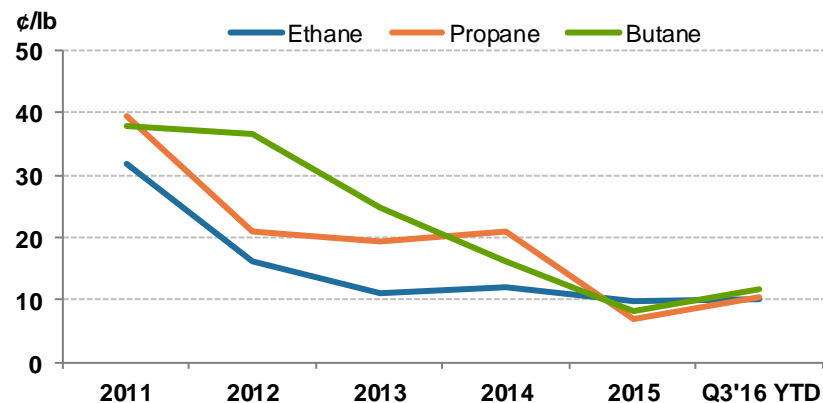


### LYB Flexibility

#### Maximum % Ethylene from Feedstock

Feed	System
NGL	~90%
Ethane	~80%
Propane	~20%
Butane	~15%
Liquids	~55%
Minimum Liquids	~10%

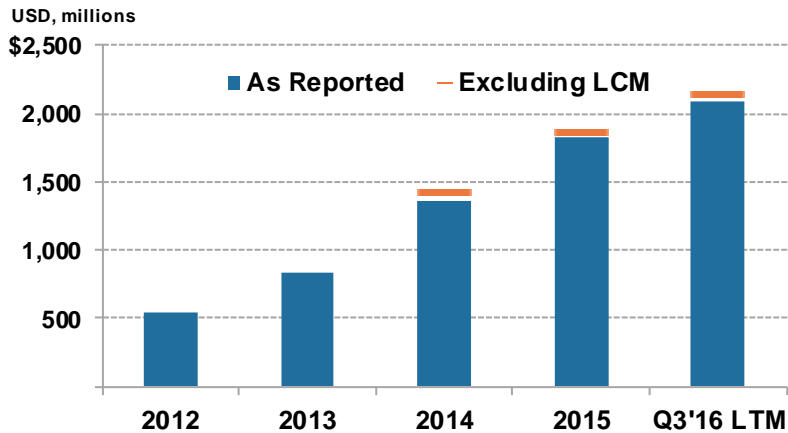
### Cost of Ethylene Production



(1) U.S. Industry excluding LYB

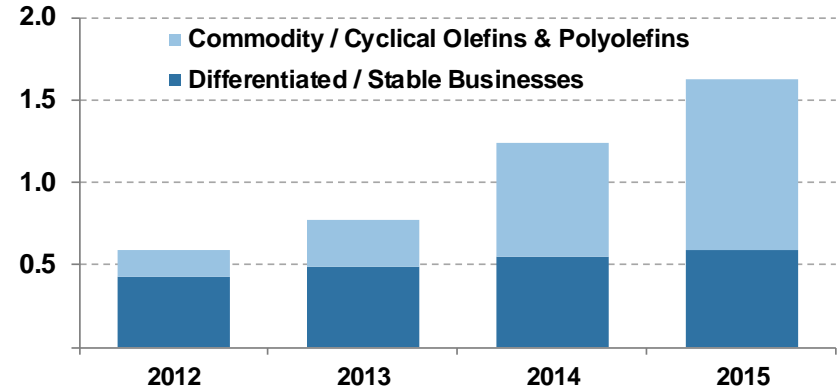


### EBITDA Performance

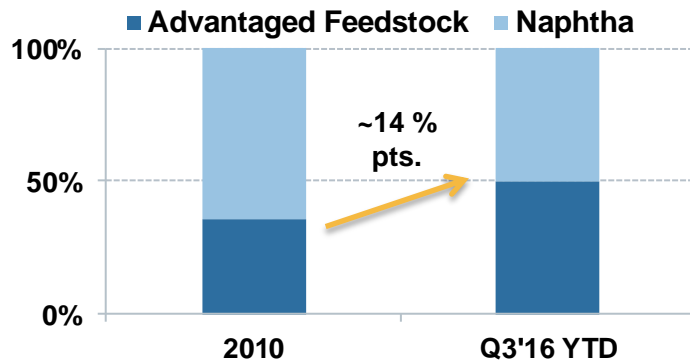


### Indexed O&P EAI EBITDA<sup>(1)</sup>

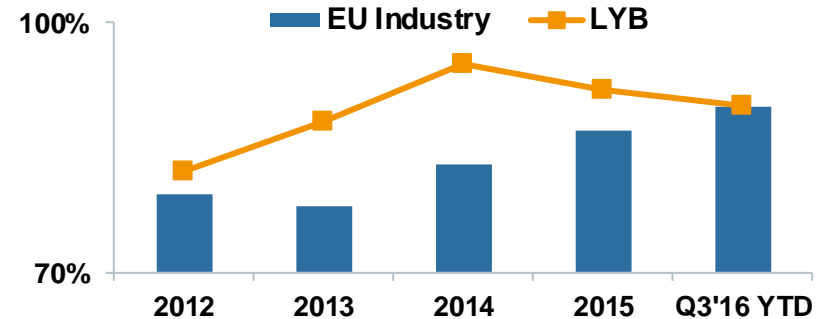
(EBITDA Indexed, Mid-Cycle = 1.0)



### Producing from Advantaged Feedstock



### Western Europe Olefins Operating Rate



Source: LYB.

(1) O&P EAI trough, mid-cycle and peak EBITDA values are based on LYB estimates. 2014 and 2015 LTM EBITDA excludes the impact of the LCM adjustment.

### Propylene Oxide & Derivatives

- Propylene Oxide (PO)
- Butanediol (BDO)
- Solvents
  - Propylene Glycol (PG)
  - Glycol Ethers

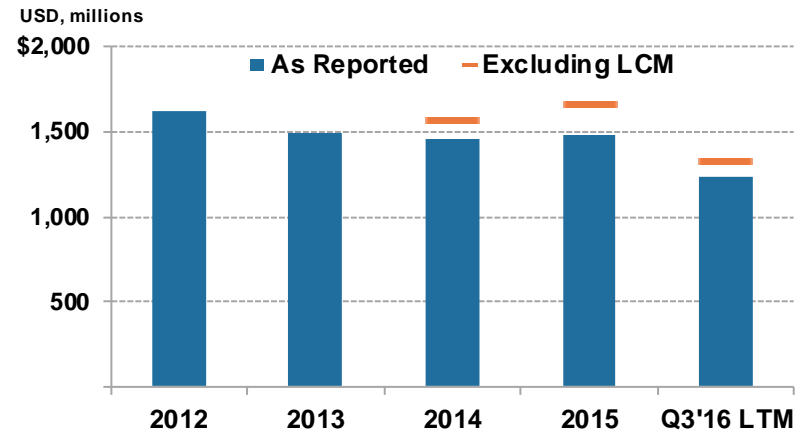
### Oxyfuels

- MTBE, ETBE

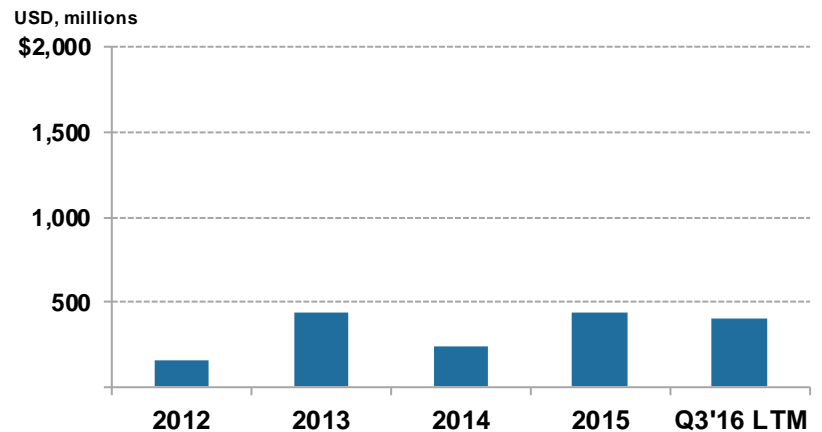
### Intermediate Chemicals

- Styrene
- Acetyls
  - Methanol
  - Acetic Acid
  - Vinyl Acetate (VAM)
- Ethylene Oxide/Ethylene Glycol
- C4 Intermediates
  - Isobutylene
  - t-butyl Hydroperoxide (TBHP)

### I&D EBITDA Performance

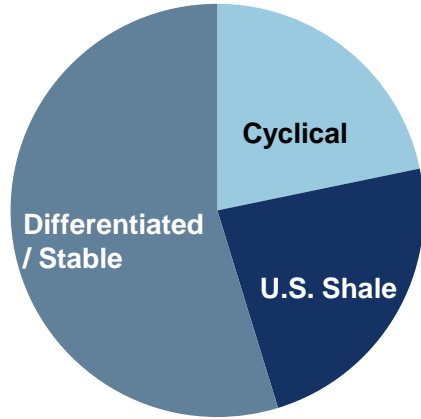


### I&D Capital Expenditures

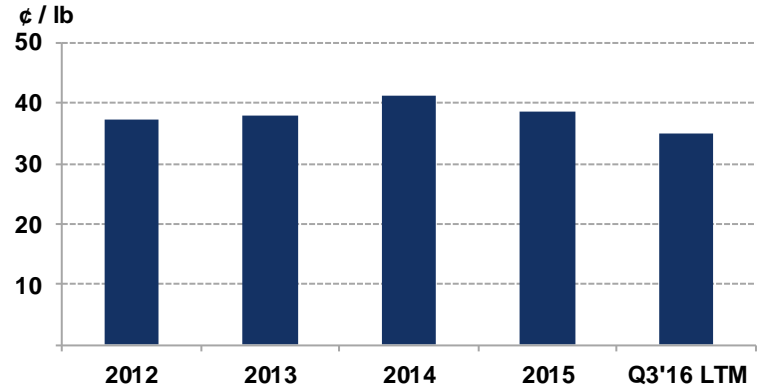


Strong cash generation over time

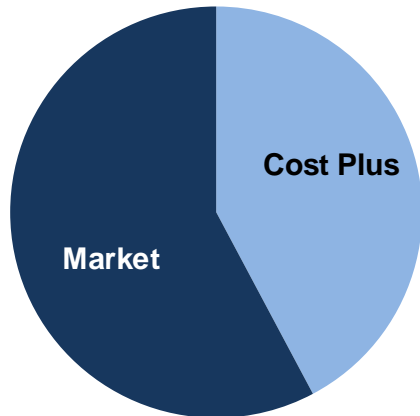
**Differentiated Proprietary Technology (2015 EBITDA <sup>(1)</sup>)**



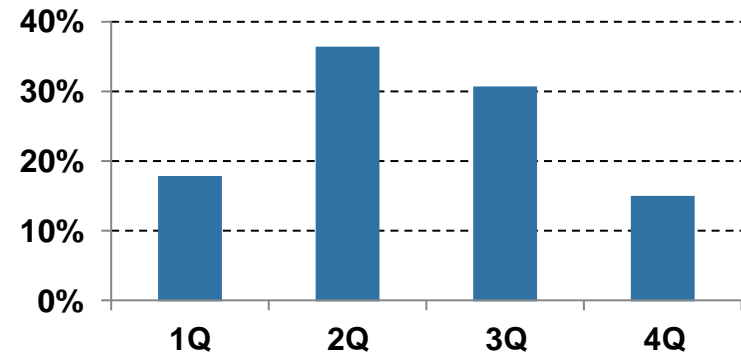
**Propylene Glycol Raw Material Margin <sup>(3)</sup>**



**Contracting Strategy <sup>(2)</sup>**



**Oxyfuels Profit Seasonality: 2013-2015**



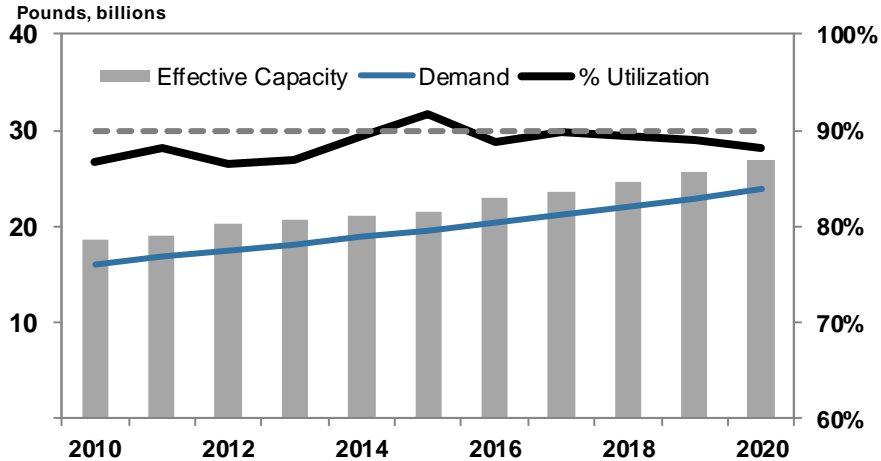
(1) EBITDA excludes the impact of the LCM adjustment.  
 (2) Internal LYB estimates derived from forecasted third party sales, 2015.  
 (3) Source: Chemical Data Inc.

- Propylene oxide & derivatives drives earnings stability
- Oxyfuels introduce summertime seasonality

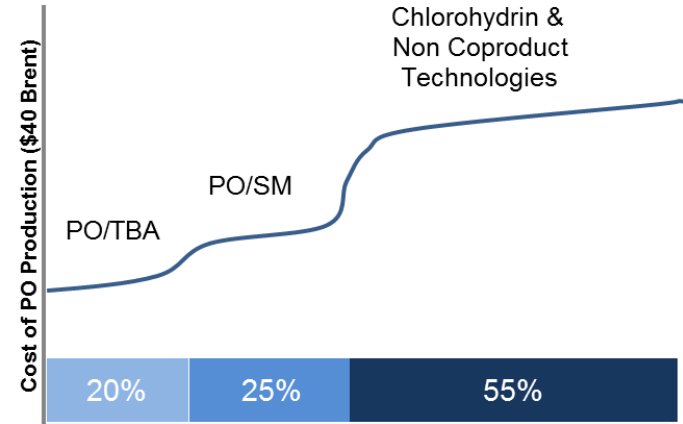
# I&D

## Expanding with Leading Technology

### Global Propylene Oxide (PO) Supply/Demand



### Propylene Oxide (PO) Cost Curve



- Worldwide propylene oxide demand growth equivalent to one new world scale plant a year
- New PO/TBA plant benefits from stable propylene oxide and advantaged oxyfuels
- LYB's PO production capacity is approximately a 50/50 split between PO/TBA and PO/SM technologies, the two lowest cost technologies

Source: LYB, IHS.

# Oxyfuels:

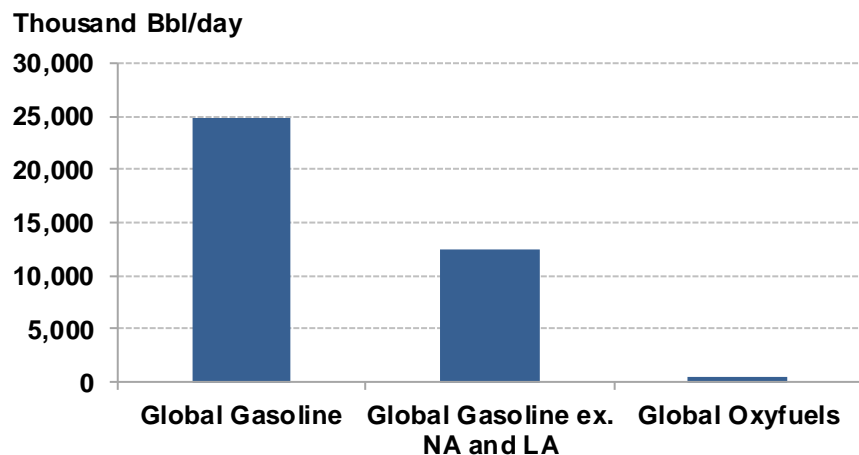
High Value in Gasoline Blending; Upgrades Shale-based NGLs



## Product Specifications

Fuel	Octane (R+M)/2	Sulfur (PPM)
U.S. Gasoline	87-93	10-30
MTBE	110	<10
ETBE	111	<10
Naphtha	70-75	30-100

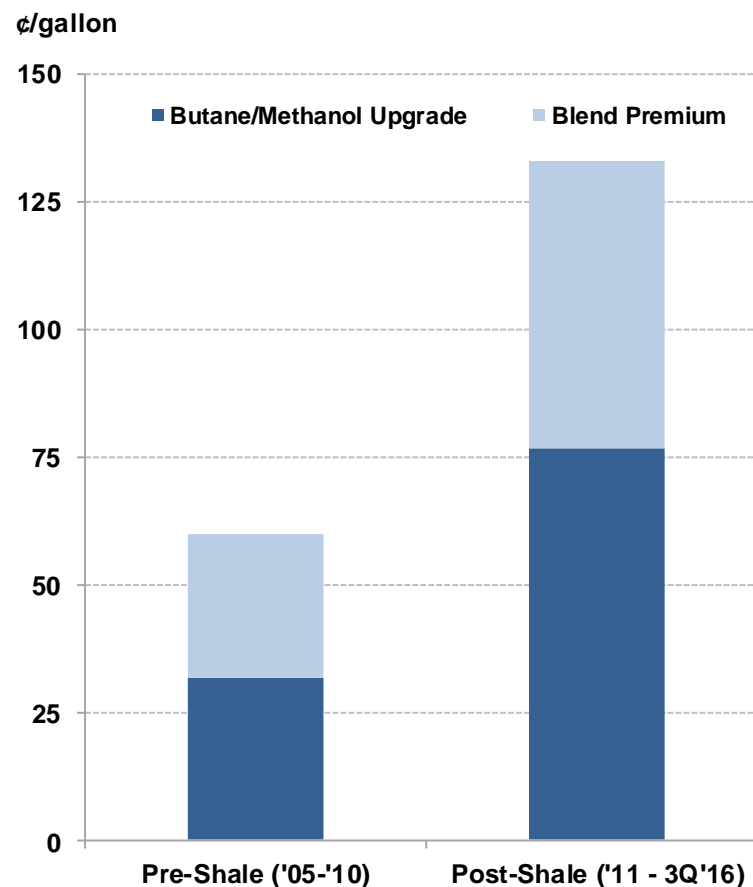
## 2016 Global Gasoline and Oxyfuel Demand<sup>2</sup>



(1) Source: LYB, Platts, and CMAI.

(2) Source IHS. Global Gasoline ex. NA and LA is excluding North America and Latin America

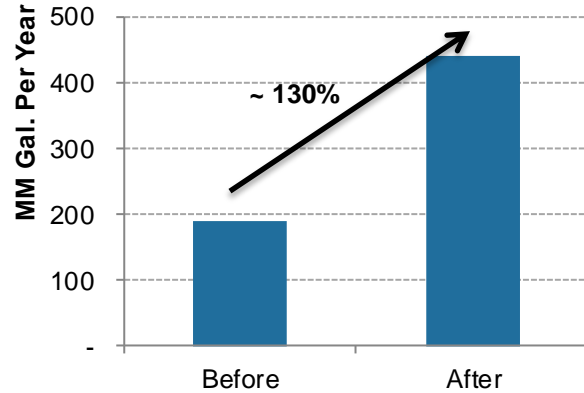
## U.S. MTBE Upgrade Value<sup>1</sup>



# Organic Growth Adding Value: Significantly Expanding our Advantaged Positions

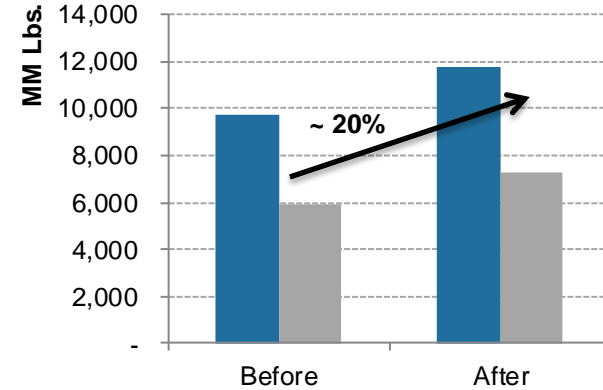
## Methanol

Complete

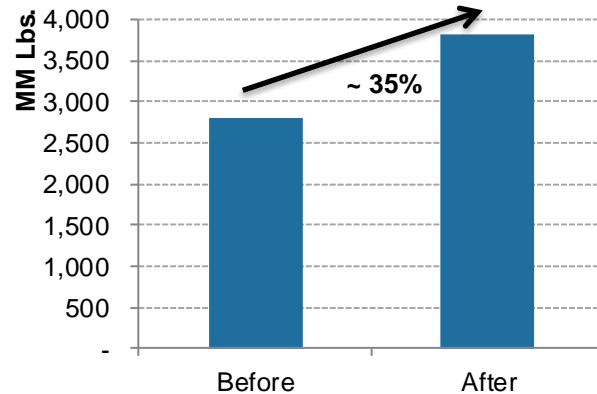


## U.S. Ethylene / Polyethylene

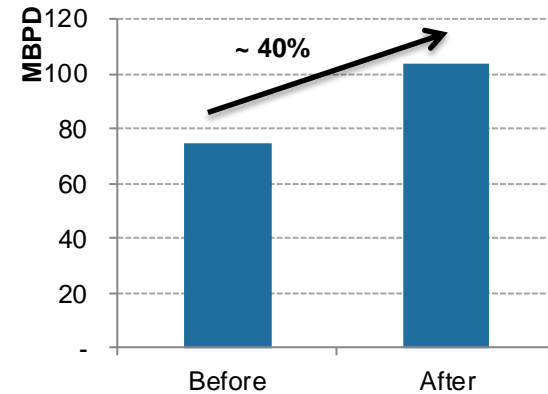
Ethylene ~60% Complete / PE ~20% Complete



## Propylene Oxide



## MTBE Equivalent



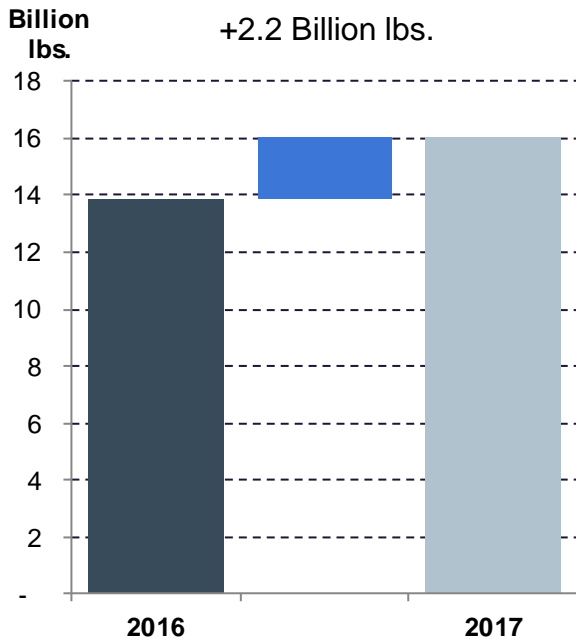
Note: "Before" refers to the capacity prior to the initiation of our growth program in 2013.

# LYB Maintenance and Expansion Investments in 2016 Provide Increased Available Capacity for 2017



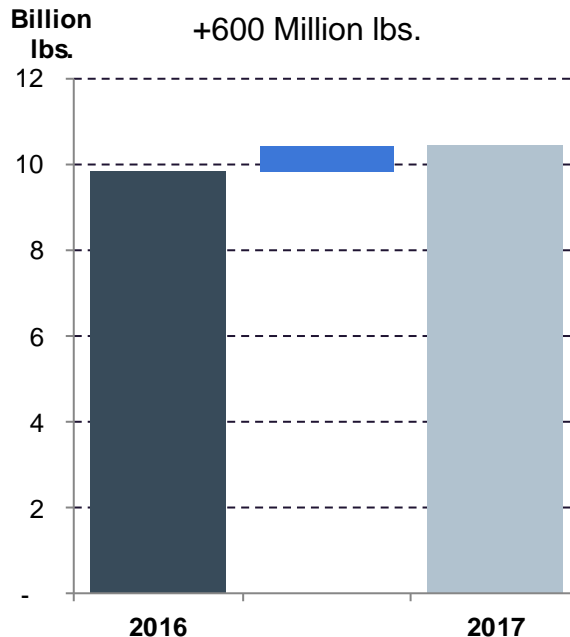
## Ethylene

+2.2 Billion lbs.



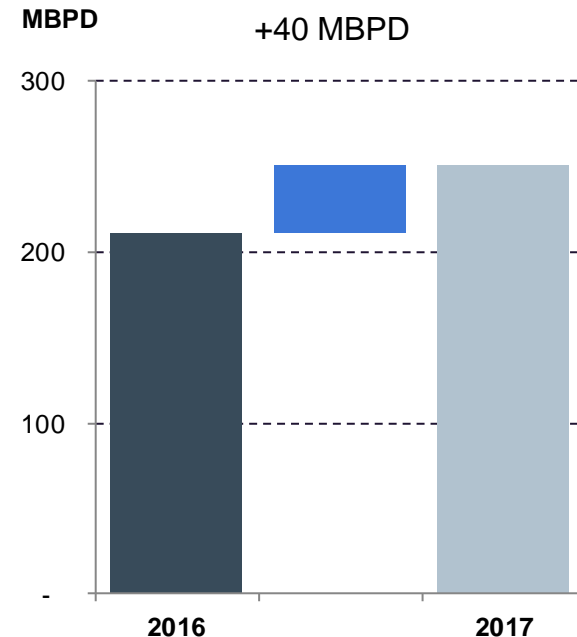
## Ethylene Derivatives: PE and EO

+600 Million lbs.



## Refining

+40 MBPD



### Turnarounds

2016: 4 Crackers, Corpus Christi Expansion  
2017: Zero Crackers

3Q16 YTD Cash Margins <sup>(1)</sup>:  
WE = 25 cpp  
US = 20 cpp

### Turnarounds

2016: PE tied to crackers + EO/EG  
2017: Zero Crackers

3Q16 YTD Margins<sup>(1)</sup>:  
EG Raw Material Margin = 19 cpp  
WE PE Cash Margin = 9 cpp  
US PE Cash Margin = 16 cpp

### Turnarounds

2016: 1 crude unit, 1 coker;  
Unplanned fire and utility outages  
2017: FCC + 1 crude unit

3Q16 YTD Maya 211 = \$19/bbl

1) Source: IHS.

# Cash Deployment Hierarchy

		3Q'16 LTM	Comments
Foundation	Base Capex	~ \$1.1 billion	<ul style="list-style-type: none"> <li>• First priorities for cash</li> </ul>
	Interest Expense	~ \$310 million	
	Interim Dividend	~ \$1.4 billion	<ul style="list-style-type: none"> <li>• Fund through the cycle with cash flow from operations</li> </ul>
Discretionary Opportunities	Growth Capex	~ \$1.0 billion	<ul style="list-style-type: none"> <li>• High-return in advantaged businesses</li> </ul>
	Share Repurchases / Special Dividend / Acquisitions	Balance of cash generated	<ul style="list-style-type: none"> <li>• Discretionary cash returned to shareholders</li> <li>• M&amp;A if strategic and meaningfully accretive</li> </ul>

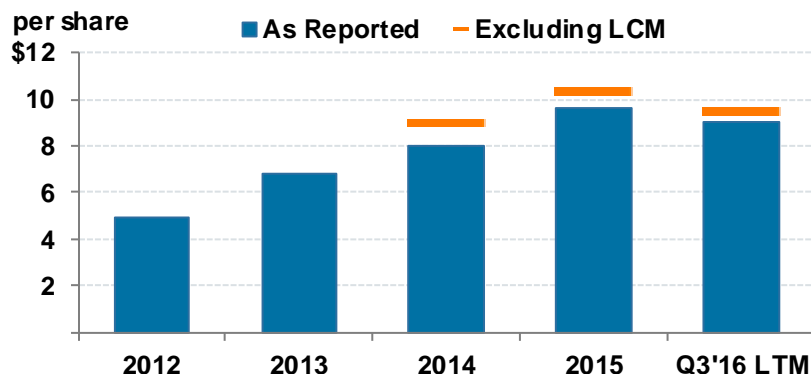
All options under continual evaluation to optimize shareholder value

Source: LYB

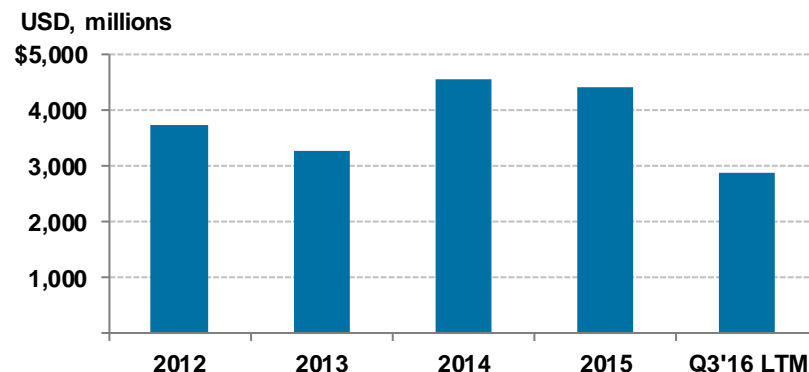


# Outperformance Coupled with a Shareholder Friendly Approach

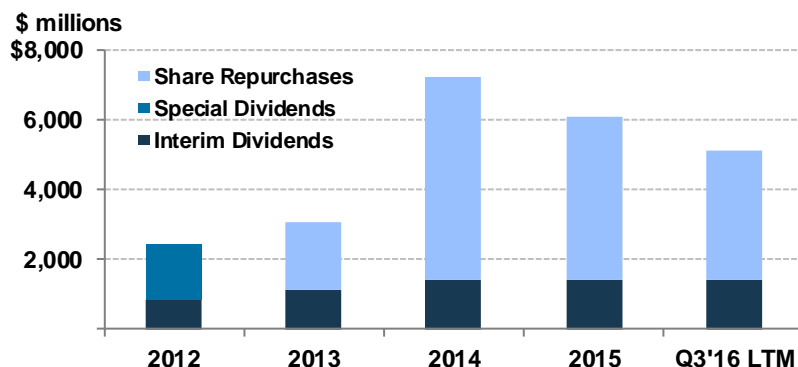
## Diluted Earnings Per Share



## Free Cash Flow



## Dividends and Share Repurchases



## Multiples

Multiples (trailing 12 months as of 9/30/16)	LYB	S&P Chemicals	S&P 500
EV/EBITDA Excluding LCM <sup>(1)</sup>	6.0x	10.5x	11.5x
P/E <sup>(2)</sup>	8.6x	19.0x	23.1x

Industry leading performance and statistics at a lagging multiple

Source: Capital IQ, Bloomberg, LYB (1) EV/EBITDA = Enterprise Value / Earnings Before Interest, Taxes and D&A as calculated by Capital IQ and Bloomberg, except for LYB, which is based on EBITDA ex. LCM for the trailing 12 months. (2) PE = Price to Earnings as calculated by Capital IQ and Bloomberg, except for LYB, which is based on earnings per share excluding LCM for the trailing 12 months.

# Appendix



**STRONG.**

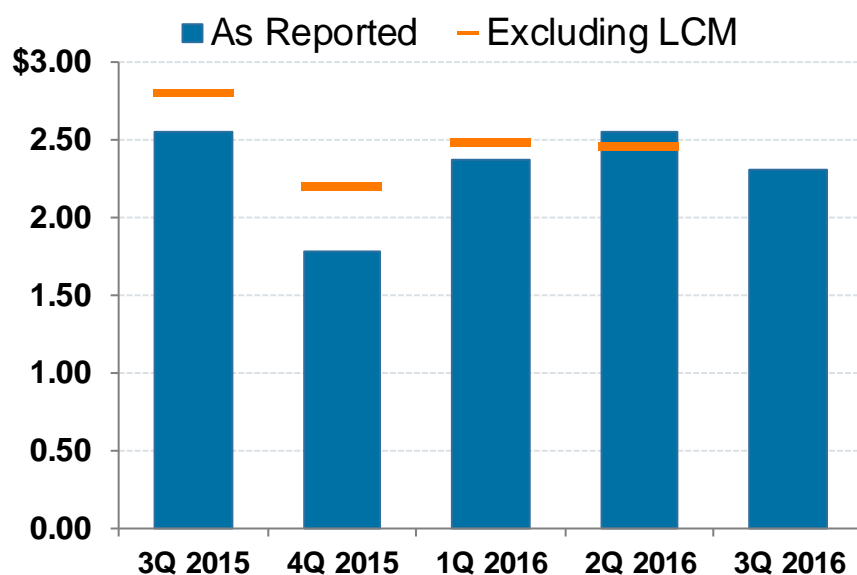
**CONSISTENT.**

**FOCUSED.**

# 3Q 2016 Highlights

(\$ in millions, except per share data)	As Reported			Excluding LCM <sup>(1)</sup>		
	3Q15	2Q16	3Q16	3Q15	2Q16	3Q16
EBITDA	\$2,001	\$1,783	\$1,606	\$2,182	\$1,715	\$1,606
Income from Continuing Operations	\$1,189	\$1,092	\$955	\$1,303	\$1,045	\$955
Diluted Earnings (\$ / share) from Continuing Operations	\$2.55	\$2.56	\$2.31	\$2.80	\$2.45	\$2.31

## Strong EPS Performance



## Highlights

- Continued good Olefin chain margins – Combined Olefins and Polyolefins results relatively unchanged
- Significant internal maintenance affected Olefins and Polyolefins Americas
- Excellent European Olefins and Polyolefins results
- Operational disruptions impacted Refining segment
- \$1.2 billion in 3Q16 share repurchases and dividends

(1) LCM stands for "lower of cost or market." An explanation of LCM and why we have excluded it from our financial information in this presentation can be found on the third page of this presentation under "Information Related to Financial Measures."

# Status of Growth Projects

**COMPLETED**

**PROGRESSING**

Project	Scope (million Lbs.)	Start-up	Cost (\$ million)	Potential EBITDA <sup>(1)</sup> (\$ million / year)	
				2011-15 Avg. Margins	2015 Margins
Increase Ethane Capability	500	2012	~\$25	\$60 – 80	\$30 – 50
Midwest Ethylene / PE	120	2012	~\$25	\$30 – 40	\$20 – 30
EU Butadiene Expansion <sup>(2)</sup>	155	Mid 2013	~\$100	\$40 – 50	\$40 – 50
Methanol Restart	250 MM Gal.	Dec. 2013	~\$180	\$210 – 230	\$170 – 190
Matagorda PE Debottleneck	220	Early 2014	~\$20	\$5 – 10	\$40 – 50
La Porte Ethylene Expansion	800	Mid 2014	~\$500	\$190 – 250	\$150 – 220
Channelview Ethylene Expansion (I)	250	Mid 2015	~\$200	\$60 – 80	\$50 – 70
<b>Completed Projects</b>			<b>~\$1,050</b>	<b>\$595 – 740</b>	<b>\$500 – 660</b>
Corpus Christi Ethylene Expansion	800	Q4 2016	~\$800	\$190 – 250	\$150 – 220
HDPE Plant	1,100	2019	~\$700	\$30 – 70	\$180 – 230
New PO/TBA Plant	1,000 PO 29 MBPD Oxyfuels	2020	~\$2,000 – 2,200	\$490 – 540	\$450 – 510
<b>Remaining Projects</b>			<b>~\$3,500 – 3,700</b>	<b>\$710 – 860</b>	<b>\$780 – 960</b>
<b>Total</b>			<b>~\$4,550 – 4,750</b>	<b>\$1,305 – 1,600</b>	<b>\$1,280 – 1,620</b>

Source: LYB, Chemical Data and IHS.

(1) Potential EBITDA assumes 100% utilization and is based on third party consultant industry margins for 2015, and 2011-2015 average as of January 13, 2016.

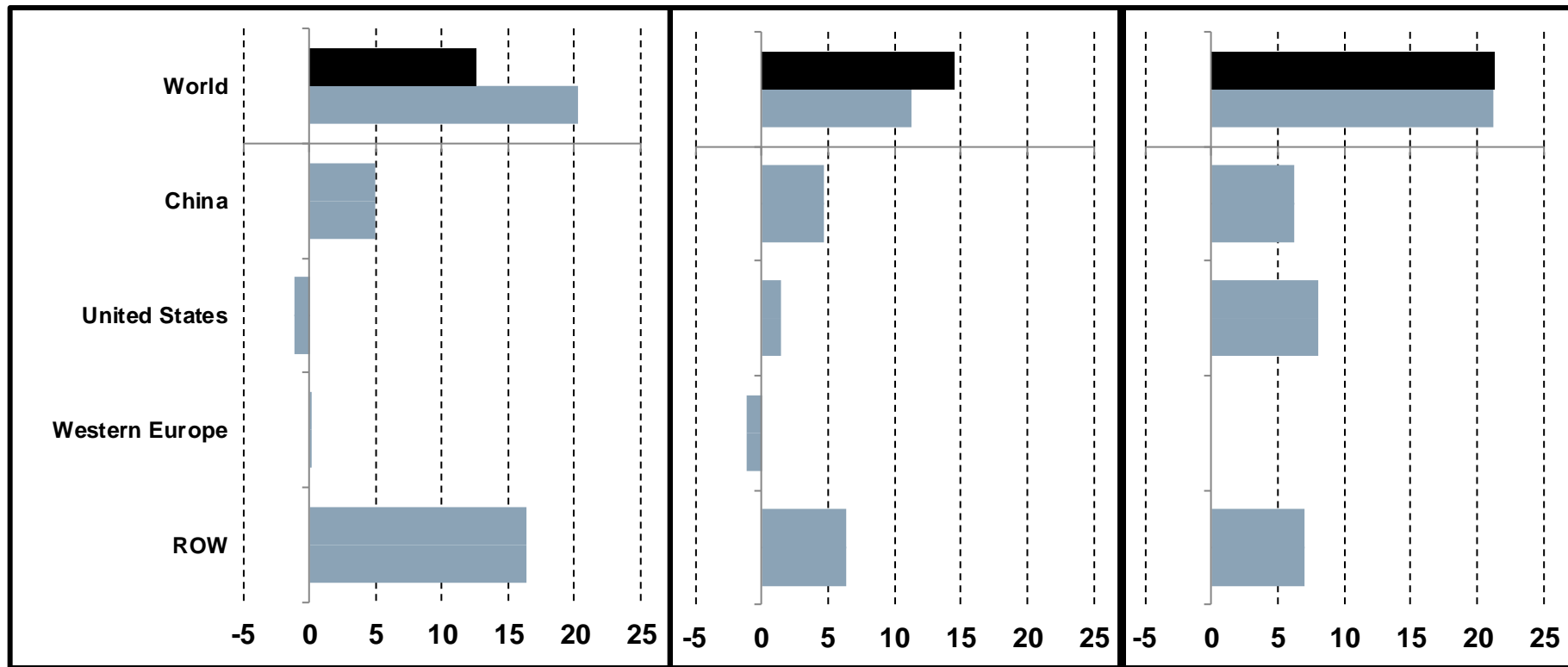
(2) The EU Butadiene expansion benefitted from a fixed margin through 2015 and thus the potential EBITDA benefit has not changed.

# Demand for World-scale Ethylene Crackers

**2007 – 2011**  
**Middle-East Buildout**  
**Loosening**

**2012 – 2016**  
**China Demand**  
**Tightening**

**2017 – 2021**  
**U.S. Shale Gas**  
**Balanced**



Number of 3 Blb/yr World-scale Ethylene Crackers Equivalents

■ Demand Growth

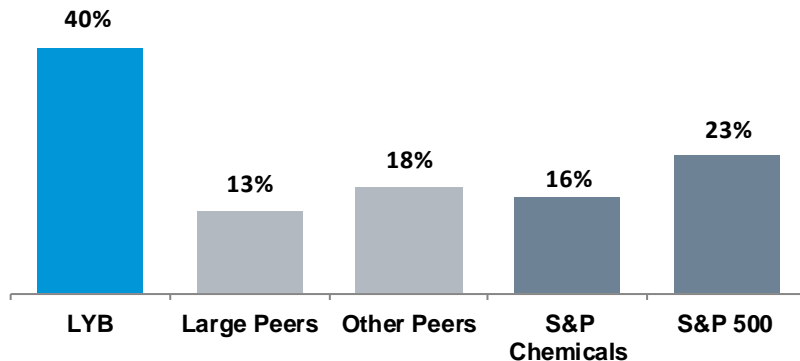
■ Capacity Additions

Source: IHS.

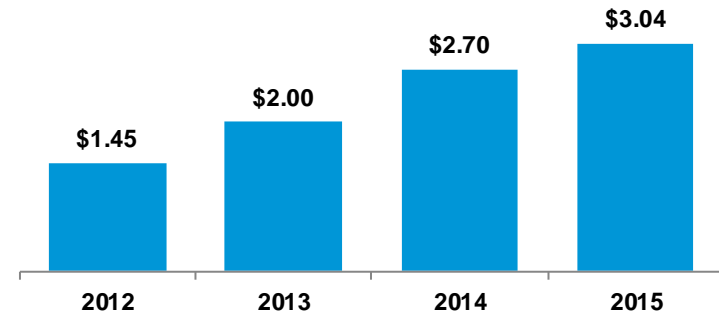
Demand is sourced from the IHS Chemical Supply and Demand 2016 Balance Update. Capacity additions are sourced from the IHS Chemical Capacity as of Oct 11, 2016.

# Cash Generation, Dividends and Buybacks Significantly Outpace Peers and S&P 500

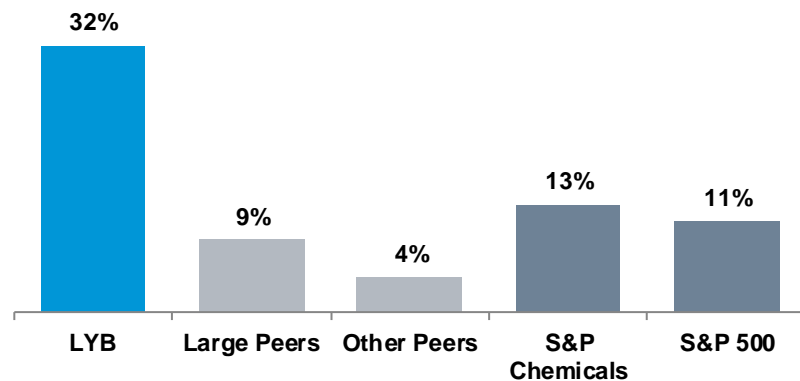
**2012 - Q2'16 Free Cash Flow  
as % Q2'16 LTM Avg. Enterprise Value <sup>(1)</sup>**



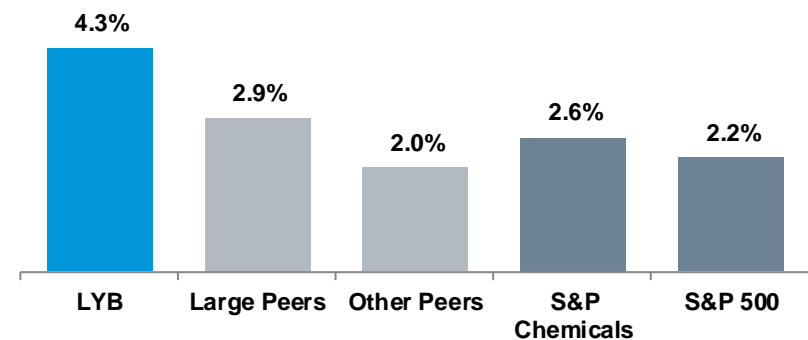
**Growing LYB Annual Dividend (per Share) <sup>(2)</sup>**



**2012 - Q2'16 Share Repurchases  
as % of Q2'16 LTM Avg. Enterprise Value <sup>(3)</sup>**



**Q2'16 Dividend Yield in Top 15% of S&P 500 <sup>(4)</sup>**

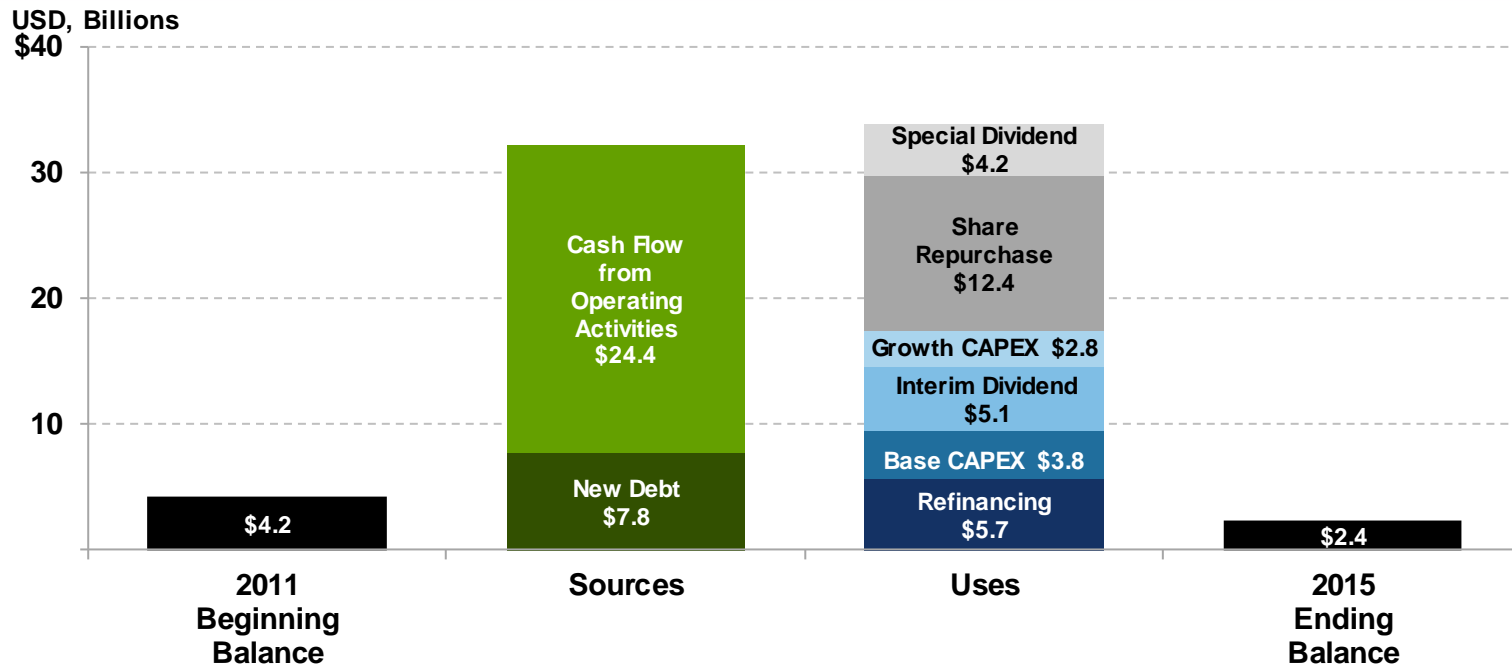


Source: Capital IQ and LYB. For definitions and peer group definitions, please see the Glossary in this Appendix.

(1) S&P data calculated based upon individual constituent data as of June 30, 2016 (2) Excludes special dividends paid in 2012 of \$2.75 per share.

(3) LYB and Capital IQ as of June 30, 2016. (4) Q2'16 LTM using LYB and Capital IQ as of June 30, 2016.

# Substantial Cash Flow Deployment Following a Consistent Philosophy



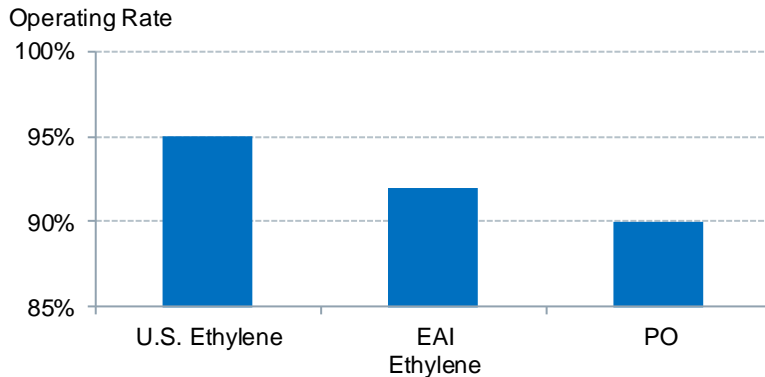
## Adding Value:

- Refinancing: Reducing interest expense and optimizing debt portfolio
- Base CAPEX: Investments driving high reliability and returns from existing assets
- Interim Dividend: Progressive dividend providing income from owning LYB
- Growth CAPEX: Organic growth with fast, high-return capacity expansions
- Share Repurchase and Special Dividends: Additional return of value to shareholders

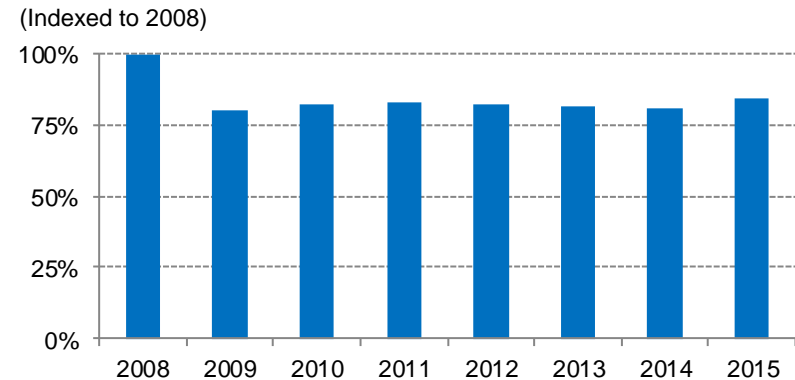
Note: Includes Cash and Liquid Investments.

# Operating Reliability and Cost Management: Key Priorities and an LYB Advantage

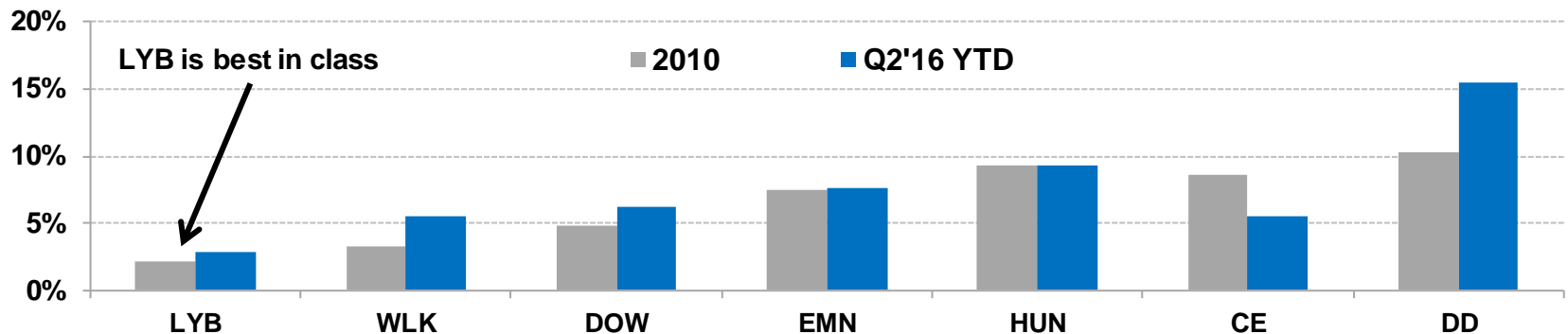
## 2015 LYB Operating Reliability



## Fixed Costs<sup>(1)</sup>



## SG&A as Percent of Revenue – LYB vs. Peer Companies



LYB continues to have intense focus on reliability and cost discipline, resulting in industry leading performance

Source: Capital IQ and LYB. 1) Fixed costs are adjusted for annual bonuses and selected items, and to 2015 FX.



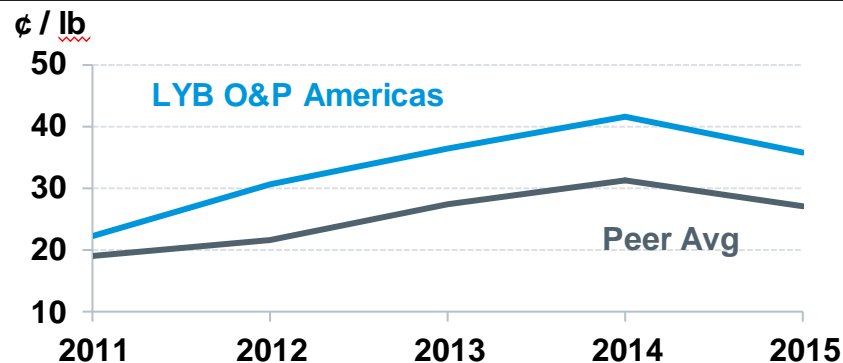
# O&P - Americas and EAI

## Our Strategy is Generating Differential Results

- **Safe & Reliable Operations**
- **Cost Focused**
- **Feedstock Advantaged and Flexibility**
- **Differentiated Products**

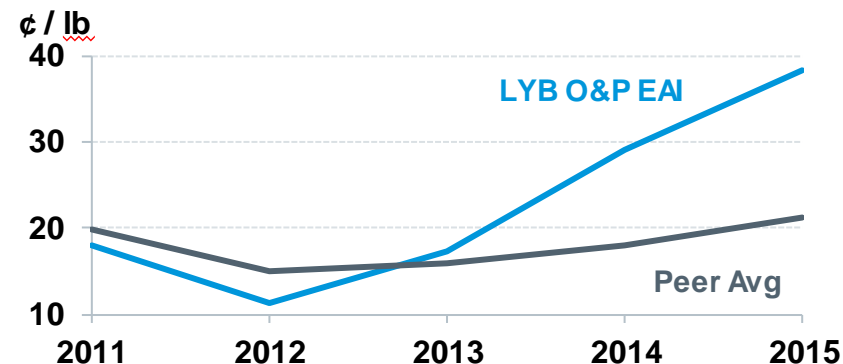
### O&P Americas vs. Americas Peers

EBITDA excluding LCM per Pound of Ethylene Capacity



### O&P EAI vs. EAI Peers

EBITDA excluding LCM per Pound of Ethylene Capacity



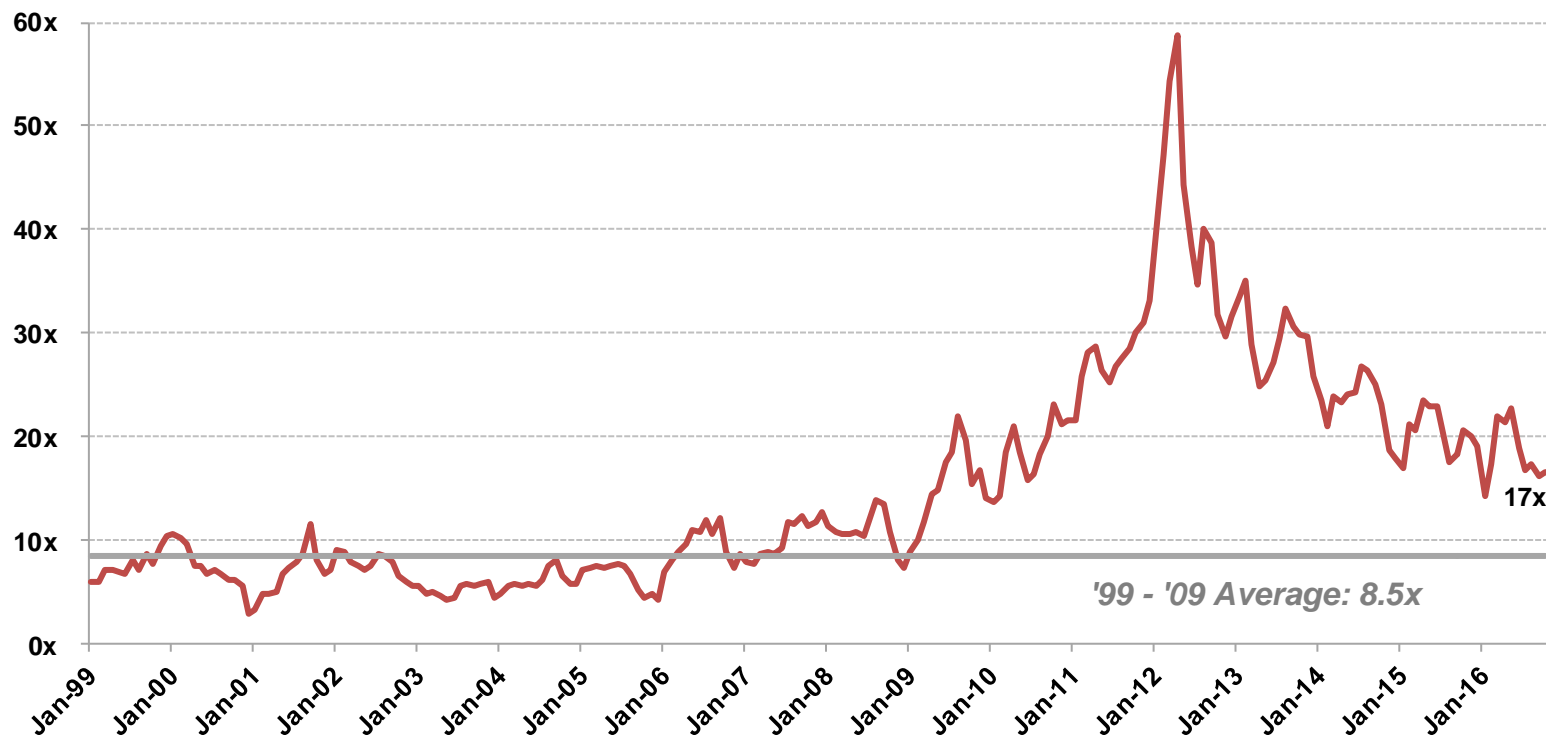
Source: Company Filings, Capital IQ, IHS, and LYB Estimates.

Capacities: Ethylene capacities include pro-rata JV capacities and are averages based on company reports and IHS. Dow capacity is global.

Americas EBITDA: CP Chemical is consolidated using: income before taxes + depreciation – equity income. Westlake Olefins is operating income + depreciation. INEOS O&P North America and Dow Performance Plastics EBITDA is as reported before exceptional/extraordinary items. LYB O&P Americas EBITDA excludes the impacts of LCM adjustments.

EAI EBITDA: INEOS O&P Europe is as reported EBITDA before exceptional/extraordinary items. Borealis is operating income + depreciation + equity income. LYB O&P EAI EBITDA excludes the impacts of LCM adjustments.

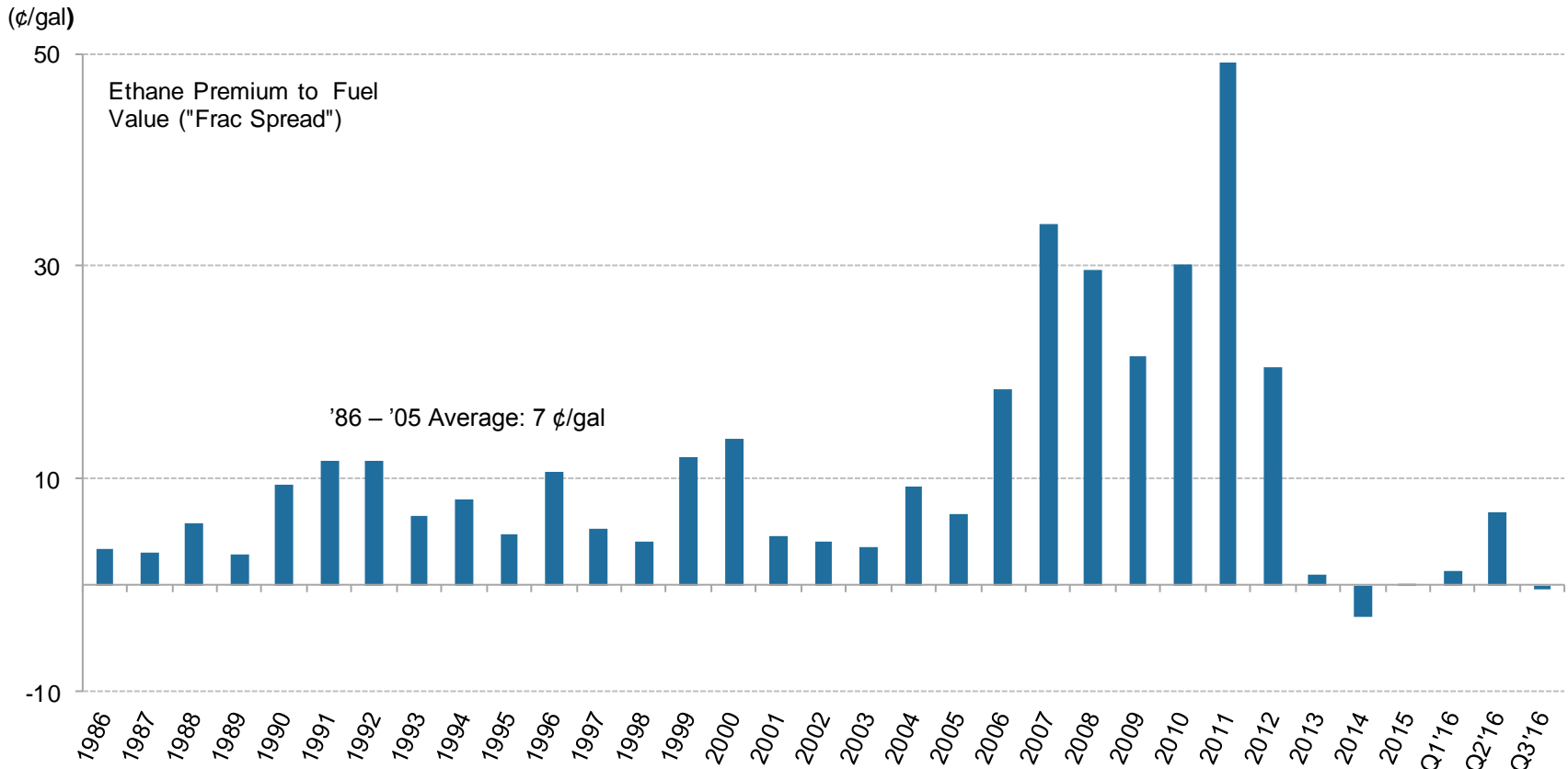
## Historic Oil/Gas Ratio



- Current oil to gas ratio remains healthy and well above the pre-shale average
- Historic equivalent value of crude oil to gas implies a price of ~ \$15-25 per barrel

Source: NYMEX, ICE.

# Ethane Frac Spread

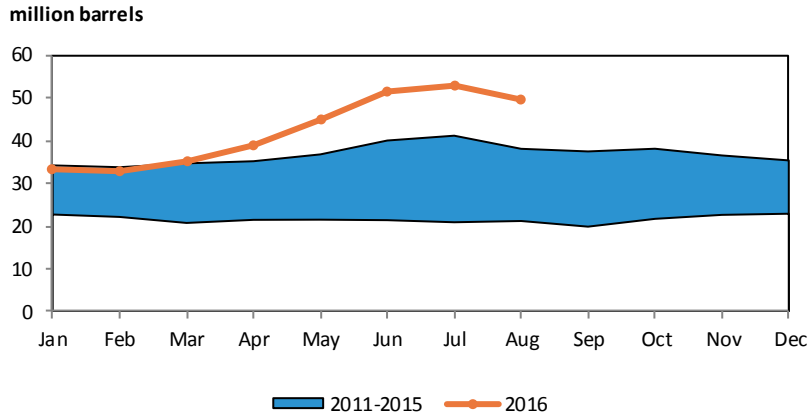


- Long term ethane has generally traded with a 7 ¢/gal frac spread
- Infrastructure constraints drove 2006 – 2012 premiums

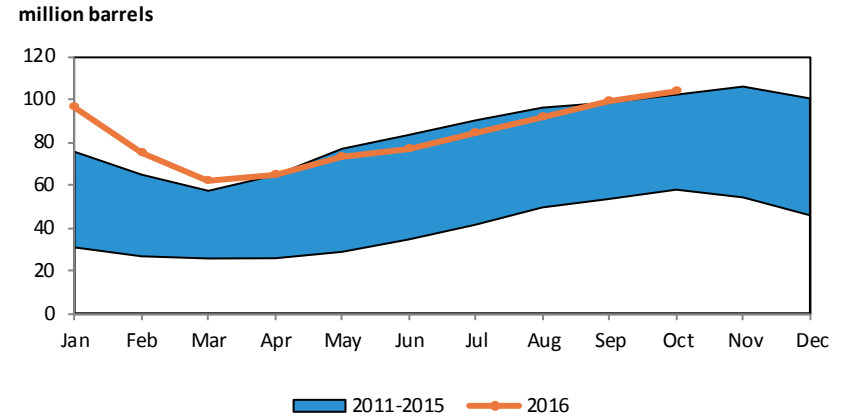
Source: IHS

# NGLs Remain Abundant

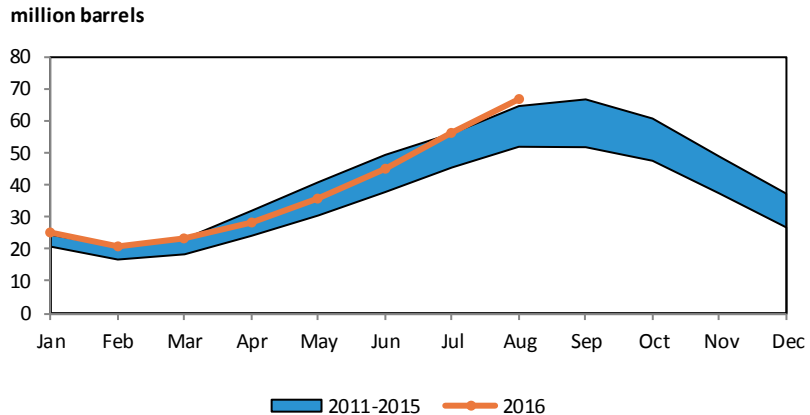
## Ethane Inventory



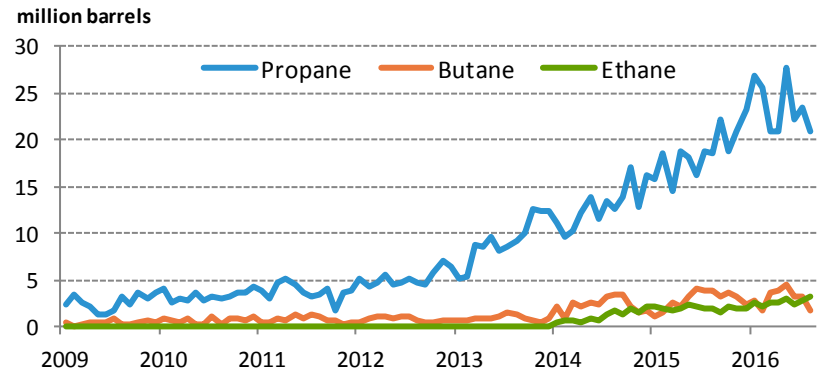
## Propane Inventory



## Butane Inventory



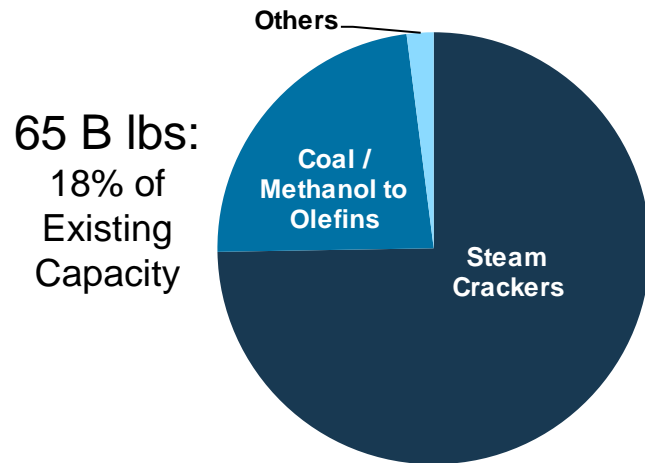
## NGL Exports



Source: EIA

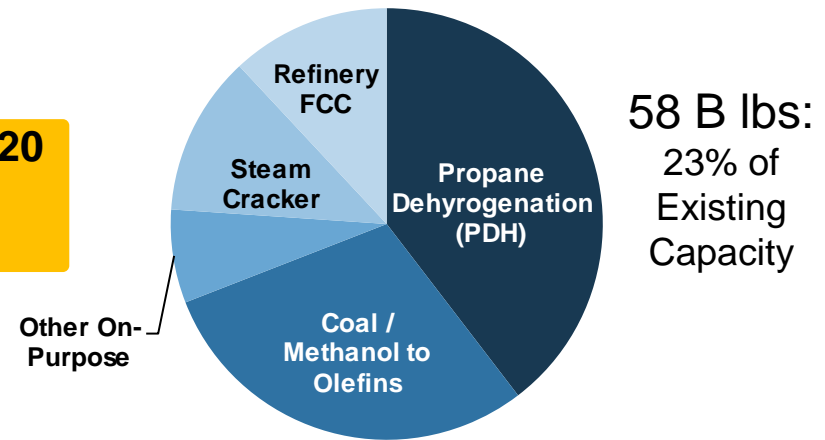
# 2016 – 2020: On-purpose Propylene Dominates Global Capacity Growth

## Ethylene Capacity Growth



## Propylene Capacity Growth (1)

2016 – 2020  
Global  
Growth

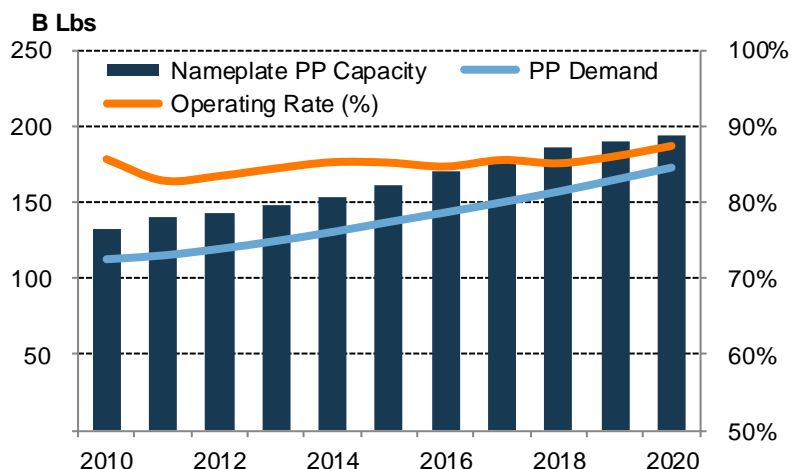


- Ethylene Demand Growth ~ 65 Blbs
- Ethylene Supply Growth ~ 75% conventional

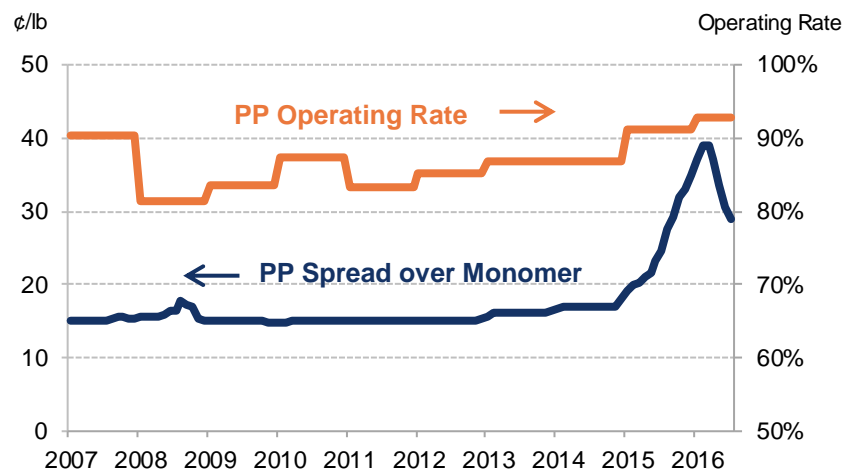
- Propylene Demand Growth ~ 52 Blbs
- Propylene Supply Growth ~ 75% On-purpose

Source: IHS. (1) Excludes refinery-grade propylene.

## Polypropylene Supply / Demand



## NA PP: Tight Market Driving Margin



## Polypropylene Advantages

- Low density, lightweight
- Impact resistance
- Recyclability
- Chemical resistance
- Wide temperature performance
- Plasticizer-free
- Replacement for higher-cost resins and PVC
- Abundant, low-priced propylene will enable continued PP growth.

Source: IHS. Spreads and margins depicted as 3-month moving averages. Spread is contract homopolymer less contract polymer-grade monomer price. Homopolymer prices prior to 2015 are adjusted to account for the January 2015 IHS non-market reduction. Margin is IHS discounted contract pre-tax non-integrated margin.

This presentation makes reference to certain “non-GAAP” financial measures as defined in Regulation G of the U.S. Securities Exchange Act of 1934, as amended. The non-GAAP measures we have presented include income from continuing operations excluding LCM, diluted earnings per share excluding LCM, EBITDA and EBITDA excluding LCM. LCM stands for “lower of cost or market,” which is an accounting rule consistent with GAAP related to the valuation of inventory. Our inventories are stated at the lower of cost or market. Cost is determined using the last-in, first-out (“LIFO”) inventory valuation methodology, which means that the most recently incurred costs are charged to cost of sales and inventories are valued at the earliest acquisition costs. Market is determined based on an assessment of the current estimated replacement cost and selling price of the inventory. In periods where the market price of our inventory declines substantially, cost values of inventory may be higher than the market value, which results in us writing down the value of inventory to market value in accordance with the LCM rule, consistent with GAAP. This adjustment is related to our use of LIFO accounting and the recent decline in pricing for many of our raw material and finished goods inventories. We report our financial results in accordance with U.S. generally accepted accounting principles, but believe that certain non-GAAP financial measures, such as EBITDA and earnings and EBITDA excluding LCM, provide useful supplemental information to investors regarding the underlying business trends and performance of the company's ongoing operations and are useful for period-over-period comparisons of such operations. Non-GAAP financial measures should be considered as a supplement to, and not as a substitute for, or superior to, the financial measures prepared in accordance with GAAP.

EBITDA, as presented herein, may not be comparable to a similarly titled measure reported by other companies due to differences in the way the measure is calculated. We calculate EBITDA as income from continuing operations plus interest expense (net), provision for (benefit from) income taxes, and depreciation & amortization. EBITDA should not be considered an alternative to profit or operating profit for any period as an indicator of our performance, or as an alternative to operating cash flows as a measure of our liquidity. We have also presented financial information herein exclusive of adjustments for LCM.

Cash and Liquid Investments is a measure which provides investors a view of the financial flexibility for future strategic capital or cash deployment. Cash and Liquid Investments include cash and cash equivalents, short-term investments, and repurchase agreements.

We also believe that free cash flow and free cash flow as a percent of average enterprise value are measures commonly used by investors. The measures, as presented herein, may not be comparable to similarly titled measures reported by other companies due to differences in the way the measures are calculated. For purposes of this presentation, free cash flow means net cash provided by operating activities minus capital expenditures. Free cash flow as a percent of average enterprise value means the sum of the free cash flow for the period divided by the average enterprise value where the average enterprise value is calculated using the average daily closing share price for the period.

EBITDA per pound of ethylene capacity and EV/EBITDA are measures which provide an indicator of firm value to investors. For purposes of this presentation, EBITDA per pound of ethylene capacity means annual segment EBITDA divided by end of year segment ethylene capacity in pounds and EV/EBITDA means the average enterprise value where the average enterprise value is calculated using the average daily closing share price for the period divided by the EBITDA for the period.

Reconciliations for our non-GAAP measures can be found on the following slides.

- **COGS:** Cost of Goods Sold
- **D&A:** Depreciation and Amortization
- **EBITDA (as used for peers):** Earnings before Interest, Taxes and Depreciation and Amortization = Revenue - COGS - SG&A - R&D + D&A + Equity Income
- **EV:** Enterprise Value calculated using the average daily closing share price for the applicable last 12 month period multiplied by the common shares outstanding as of the applicable reporting date
- **Free Cash Flow** = Cash from Operations – Capital Expenditures
- **R&D:** Research and Development
- **SG&A:** Sales, General and Administrative

## Peer Groups

- **Americas Peers:** Dow, CP Chemical, Ineos and Westlake
- **EAI Peers:** Borealis and Ineos
- **Large Peers:** Dow, DuPont
- **Other Peers:** Celanese, Eastman, Huntsman and Westlake
- **Peer Companies:** Celanese, Dow, DuPont, Eastman, Huntsman and Westlake
- **S&P 500:** S&P 500 Index
- **S&P Chemicals:** S&P Chemicals Index

\* See reconciliations at end of presentation.



# EBITDA Excluding LCM Adjustments to Reported EBITDA 2011 – 2015, Nine Months Ended & Last Twelve Months



## Reconciliation of EBITDA Excluding LCM Adjustments to EBITDA

In Millions of Dollars	For the Years Ended December 31,					Nine Months Ended			Last Twelve Months
	2011	2012	2013	2014	2015	2015	September 30, 2015	September 30, 2016	September 30, 2016
<b>EBITDA Excluding LCM Adjustments:</b>									
Olefins & Polyolefins - Americas	\$ 2,137	\$ 2,968	\$ 3,573	\$ 4,190	\$ 3,821	\$ 3,821	\$ (2,987)	\$ 2,314	\$ 3,148
Olefins & Polyolefins - EAI	865	548	839	1,410	1,855	1,855	(1,404)	1,669	2,120
Intermediates & Derivatives	1,410	1,621	1,492	1,552	1,656	1,656	(1,370)	1,027	1,313
Refining	977	481	182	409	519	519	(451)	(9)	59
Technology	191	197	232	232	243	243	(178)	201	266
Other	(111)	(7)	(7)	17	(13)	(13)	(13)	(6)	(32)
Total	5,469	5,808	6,311	7,810	8,081	8,081	(6,403)	5,196	6,874
<b>Less:</b>									
<b>LCM Adjustments:</b>									
Olefins & Polyolefins - Americas	-	-	-	279	160	160	(101)	-	59
Olefins & Polyolefins - EAI	-	-	-	44	30	30	(6)	-	24
Intermediates & Derivatives	-	-	-	93	181	181	(107)	-	74
Refining	-	-	-	344	177	177	(50)	-	127
Technology	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total	-	-	-	760	548	548	(264)	-	284
<b>EBITDA:</b>									
Olefins & Polyolefins - Americas	2,137	2,968	3,573	3,911	3,661	3,661	(2,886)	2,314	3,089
Olefins & Polyolefins - EAI	865	548	839	1,366	1,825	1,825	(1,398)	1,669	2,096
Intermediates & Derivatives	1,410	1,621	1,492	1,459	1,475	1,475	(1,263)	1,027	1,239
Refining	977	481	182	65	342	342	(401)	(9)	(68)
Technology	191	197	232	232	243	243	(178)	201	266
Other	(111)	(7)	(7)	17	(13)	(13)	(13)	(6)	(32)
Total	\$ 5,469	\$ 5,808	\$ 6,311	\$ 7,050	\$ 7,533	\$ 7,533	\$ (6,139)	\$ 5,196	\$ 6,590

# EBITDA Excluding LCM Adjustments to Reported EBITDA



## Reconciliation of EBITDA Excluding LCM Adjustments to EBITDA

In Millions of Dollars	Three Months Ended					Three Months Ended			Nine Months Ended			Nine Months Ended		Last Twelve Months
	March 31, 2015	June 30, 2015	September 30, 2015	December 31, 2015		2015	March 31, 2016	June 30, 2016	September 30, 2016	September 30, 2016	September 30, 2015	2015	September 30, 2015	September 30, 2016
<b>EBITDA Excluding LCM Adjustments:</b>														
Olefins & Polyolefins - Americas	\$ 1,074	\$ 993	\$ 920	\$ 834	\$ 3,821	\$ 878	\$ 754	\$ 682	\$ 2,314	\$ 2,987	\$ 3,821	\$ (2,987)	\$ 2,314	\$ 3,148
Olefins & Polyolefins - EAI	357	492	555	451	1,855	549	536	584	1,669	1,404	1,855	(1,404)	1,669	2,120
Intermediates & Derivatives	381	483	506	286	1,656	354	369	304	1,027	1,370	1,656	(1,370)	1,027	1,313
Refining	154	154	143	68	519	14	(13)	(10)	(9)	451	519	(451)	(9)	59
Technology	76	57	45	65	243	83	73	45	201	178	243	(178)	201	266
Other	2	(2)	13	(26)	(13)	(3)	(4)	1	(6)	13	(13)	(13)	(6)	(32)
Total	2,044	2,177	2,182	1,678	8,081	1,875	1,715	1,606	5,196	6,403	8,081	(6,403)	5,196	6,874
<b>Less:</b>														
<b>LCM Adjustments:</b>														
Olefins & Polyolefins - Americas	43	(21)	79	59	160	-	-	-	-	101	160	(101)	-	59
Olefins & Polyolefins - EAI	-	-	6	24	30	40	(40)	-	-	6	30	(6)	-	24
Intermediates & Derivatives	44	17	46	74	181	28	(28)	-	-	107	181	(107)	-	74
Refining	5	(5)	50	127	177	-	-	-	-	50	177	(50)	-	127
Technology	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	92	(9)	181	284	548	68	(68)	-	-	264	548	(264)	-	284
<b>EBITDA:</b>														
Olefins & Polyolefins - Americas	1,031	1,014	841	775	3,661	878	754	682	2,314	2,886	3,661	(2,886)	2,314	3,089
Olefins & Polyolefins - EAI	357	492	549	427	1,825	509	576	584	1,669	1,398	1,825	(1,398)	1,669	2,096
Intermediates & Derivatives	337	466	460	212	1,475	326	397	304	1,027	1,263	1,475	(1,263)	1,027	1,239
Refining	149	159	93	(59)	342	14	(13)	(10)	(9)	401	342	(401)	(9)	(68)
Technology	76	57	45	65	243	83	73	45	201	178	243	(178)	201	266
Other	2	(2)	13	(26)	(13)	(3)	(4)	1	(6)	13	(13)	(13)	(6)	(32)
Total	\$ 1,952	\$ 2,186	\$ 2,001	\$ 1,394	\$ 7,533	\$ 1,807	\$ 1,783	\$ 1,606	\$ 5,196	\$ 6,139	\$ 7,533	\$ (6,139)	\$ 5,196	\$ 6,590

# Net Income to EBITDA

## 2011 – 2015 & Last Twelve Months



### Reconciliation of Net Income To EBITDA

<u>In Millions of Dollars</u>	For the Years Ended December 31,					Last Twelve Months
	2011	2012	2013	2014	2015	September 30, 2016
Net Income	\$ 2,140	\$ 2,834	\$ 3,853	\$ 4,168	\$ 4,474	\$ 3,869
(Income) Loss from Discontinued Operations	332	24	7	4	5	5
LCM Adjustments, After Tax				483	351	185
Income from Continuing Operations Excluding LCM Adjustments	2,472	2,858	3,860	4,655	4,830	4,059
Less:						
LCM Adjustments, After Tax				(483)	(351)	(185)
Income from Continuing Operations	2,472	2,858	3,860	4,172	4,479	3,874
Provision for Income Taxes	1,059	1,327	1,136	1,540	1,730	1,366
Depreciation and Amortization	931	983	1,021	1,019	1,047	1,056
Interest expense, net	1,007	640	294	319	277	294
LCM Adjustments, Pre Tax				760	548	284
EBITDA Excluding LCM Adjustments	5,469	5,808	6,311	7,810	8,081	6,874
LCM Adjustments, Pre Tax	-	-	-	(760)	(548)	(284)
EBITDA	\$ 5,469	\$ 5,808	\$ 6,311	\$ 7,050	\$ 7,533	\$ 6,590

# Net Income to EBITDA



## Reconciliation of Net Income To EBITDA

In Millions of Dollars	Three Months Ended					Three Months Ended			Nine Months Ended			Nine Months Ended		Last Twelve Months
	March 31, 2015	June 30, 2015	September 30, 2015	December 31, 2015	2015	March 31, 2016	June 30, 2016	September 30, 2016	September 30, 2016	September 30, 2015	2015	September 30, 2015	September 30, 2016	September 30, 2016
Net Income	\$ 1,164	\$ 1,329	\$ 1,186	\$ 795	\$ 4,474	\$ 1,030	\$ 1,091	\$ 953	\$ 3,074	\$ 3,679	\$ 4,474	\$ (3,679)	\$ 3,074	\$ 3,869
(Income) Loss from Discontinued Operations	3	(3)	3	2	5	-	1	2	3	3	5	(3)	3	5
LCM Adjustments, After Tax	58	(6)	114	185	351	47	(47)	-	-	166	351	(166)	-	185
Income from Continuing Operations Excluding LCM Adjustments	1,225	1,320	1,303	982	4,830	1,077	1,045	955	3,077	3,848	4,830	(3,848)	3,077	4,059
Less:														
LCM Adjustments, After Tax	(58)	6	(114)	(185)	(351)	(47)	47	-	-	(166)	(351)	166	-	(185)
Income from Continuing Operations	1,167	1,326	1,189	797	4,479	1,030	1,092	955	3,077	3,682	4,479	(3,682)	3,077	3,874
Provision for Income Taxes	440	541	487	262	1,730	432	346	326	1,104	1,468	1,730	(1,468)	1,104	1,366
Depreciation and Amortization	287	247	248	265	1,047	268	266	257	791	782	1,047	(782)	791	1,056
Interest expense, net	58	72	77	70	277	77	79	68	224	207	277	(207)	224	294
LCM Adjustments, Pre Tax	92	(9)	181	284	548	68	(68)	-	-	264	548	(264)	-	284
EBITDA Excluding LCM Adjustments	2,044	2,177	2,182	1,678	8,081	1,875	1,715	1,606	5,196	6,403	8,081	(6,403)	5,196	6,874
LCM Adjustments, Pre Tax	(92)	9	(181)	(284)	(548)	(68)	68	-	-	(264)	(548)	264	-	(284)
EBITDA	\$ 1,952	\$ 2,186	\$ 2,001	\$ 1,394	\$ 7,533	\$ 1,807	\$ 1,783	\$ 1,606	\$ 5,196	\$ 6,139	\$ 7,533	\$ (6,139)	\$ 5,196	\$ 6,590

# Components of Cash and Liquid Investments

## Components of Cash and Liquid Investments

<u>In Millions of Dollars</u>	<u>December 31, 2010</u>	<u>December 31, 2015</u>
Cash and Cash Equivalents	\$ 4,222	\$ 924
Short-Term Investments	-	1,064
Repurchase Agreements	-	387
Cash and Liquid Investments	<u>\$ 4,222</u>	<u>\$ 2,375</u>

# Dividends and Share Repurchases



## Schedule of Spending for Dividends and Share Repurchases

In Millions of Dollars	For the Years Ended December 31,				Three Months Ended						For the Year	Nine Months Ended		Last Twelve
	2012	2013	2014	2015	March 31, 2016	June 30, 2016	September 30, 2016	March 31, 2015	June 30, 2015	September 30, 2015	December 31, 2015	September 30, 2015	September 30, 2016	September 30, 2016
Interim Dividends	\$ 833	\$ 1,127	\$ 1,403	\$ 1,410	\$ 336	\$ 362	\$ 351	\$ 334	\$ 368	\$ 361	\$ 1,410	\$ (1,063)	\$ 1,049	\$ 1,396
Special Dividends	1,582	-	-	-	-	-	-	-	-	-	-	-	-	-
Repurchases of Ordinary Shares	-	1,949	5,788	4,656	986	\$ 696	\$ 819	1,359	\$ 778	\$ 1,299	4,656	(3,436)	2,501	3,721
Total	<u>\$ 2,415</u>	<u>\$ 3,076</u>	<u>\$ 7,191</u>	<u>\$ 6,066</u>	<u>\$ 1,322</u>	<u>\$ 1,058</u>	<u>\$ 1,170</u>	<u>\$ 1,693</u>	<u>\$ 1,146</u>	<u>\$ 1,660</u>	<u>\$ 6,066</u>	<u>\$ (4,499)</u>	<u>\$ 3,550</u>	<u>\$ 5,117</u>

# Diluted EPS from Continuing Operations ex. LCM to Diluted EPS from Continuing Operations



## Reconciliation of Diluted EPS from Continuing Operations Excluding LCM Adjustments to Diluted EPS from Continuing Operations

	For the Years Ended December 31,				Last Twelve Months
					September 30,
	2012	2013	2014	2015	2016
Diluted Earnings Per Share from Continuing Operations Excluding LCM Adjustments	\$ 4.96	\$ 6.76	\$ 8.92	\$ 10.35	\$ 9.43
Less:					
LCM Adjustments	-	-	0.92	0.75	0.43
Diluted Earnings Per Share from Continuing Operations	<u>\$ 4.96</u>	<u>\$ 6.76</u>	<u>\$ 8.00</u>	<u>\$ 9.60</u>	<u>\$ 9.00</u>

## Reconciliation of Diluted EPS from Continuing Operations Excluding LCM Adjustments to Diluted EPS

	Three Months Ended				2015	Three Months Ended			Nine Months Ended		Last Twelve Months
	March 31,	June 30,	September 30,	December 31,		March 31,	June 30,	September 30,	September 30,	September 30,	September 30,
	2015	2015	2015	2015		2016	2016	2016	2016	2015	2016
Diluted Earnings Per Share from Continuing Operations											
Excluding LCM Adjustments	\$ 2.54	\$ 2.79	\$ 2.80	\$ 2.20	\$ 10.35	\$ 2.48	\$ 2.45	\$ 2.31	\$ 7.24	\$ 8.13	\$ 9.43
Less:											
LCM Adjustments	0.12	(0.02)	0.25	0.42	0.75	0.11	(0.11)	-	-	0.35	0.43
Diluted Earnings Per Share	<u>\$ 2.42</u>	<u>\$ 2.81</u>	<u>\$ 2.55</u>	<u>\$ 1.78</u>	<u>\$ 9.60</u>	<u>\$ 2.37</u>	<u>\$ 2.56</u>	<u>\$ 2.31</u>	<u>\$ 7.24</u>	<u>\$ 7.78</u>	<u>\$ 9.00</u>

# Free Cash Flow to Net Cash Provided by Operating Activities

## Reconciliation of Free Cash Flow to Net Cash Provided by Operating Activities

<u>In Millions of Dollars</u>	<u>For the Years Ended December 31,</u>				<u>Last Twelve</u>
	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>Months</u>
					<u>September 30,</u>
					<u>2016</u>
Free Cash Flow	\$ 3,727	\$ 3,274	\$ 4,549	\$ 4,402	\$ 2,894
Add:					
Capital Expenditures	1,060	1,561	1,499	1,440	2,159
Net Cash Provided by Operating Activities	<u>\$ 4,787</u>	<u>\$ 4,835</u>	<u>\$ 6,048</u>	<u>\$ 5,842</u>	<u>\$ 5,053</u>



# LYB Enterprise Value to EBITDA

## Calculation of Ratio of LYB Enterprise Value (EV) to EBITDA Excluding LCM

### In Million of Dollars except for common shares outstanding

Common Shares Outstanding, September 30, 2016	409,165,559
Multiplied by:	
Average Closing Share Price, LTM September 30, 2016	<u>\$ 83.06</u>
Market Capitalization	\$ 33,985
Add:	
Current Maturities of Long-Term Debt	3
Short-Term Debt	621
Long-Term Debt	8,464
Less:	
Cash	740
Short-Term Investments	<u>1,090</u>
Net Debt	7,258
Non-Controlling Interests	<u>25</u>
Enterprise Value	41,268
Divided by:	
Last 12 Months EBITDA Excluding LCM	<u>6,874</u>
Ratio of Enterprise Value to EBITDA Excluding LCM	<u>6.0</u>

# Free Cash Flow to Average Enterprise Value

## Calculation of Ratio of Free Cash Flow to LTM Average Enterprise Value (EV)

### In Million of Dollars except for common shares outstanding

Free Cash Flow (2012-Q2'2016)	\$	17,423
 <b><u>Average Q2'2016 LTM Enterprise Value</u></b>		
Common Shares Outstanding, December 31, 2015		419,381,566
Multiplied by:		
Average Daily Closing Share Price, 2Q'2016 LTM		<u>86.01</u>
Market Capitalization	\$	36,071
Add:		
Current Maturities of Long-Term Debt		4
Short-Term Debt		616
Long-Term Debt		8,485
Less:		
Cash		1,060
Short-Term Investments		<u>1,023</u>
Net Debt		7,022
Non-Controlling Interests		<u>24</u>
Enterprise Value	\$	<u>43,117</u>
Ratio of Free Cash Flow to Average Enterprise Value		<u><u>40%</u></u>

# Share Repurchases to Average Enterprise Value

## Calculation of Ratio of Share Repurchases (2012 - Q2'2016) to Average Enterprise Value (EV)

### In Million of Dollars except for share data

Share Repurchases (2012 - Q2'2016)	<u>\$ 14,075</u>
 <u>Average Q2'2016 LTM Enterprise Value</u>	
Common Shares Outstanding, June 30, 2016	419,381,566
Multiplied by:	
Average Daily Closing Share Price, Q2'2016 LTM	<u>86.01</u>
Market Capitalization	\$ 36,071
Add:	
Current Maturities of Long-Term Debt	4
Short-Term Debt	616
Long-Term Debt	8,485
Less:	
Cash	1,060
Short-Term Investments	<u>1,023</u>
Net Debt	7,022
Non-Controlling Interests	<u>24</u>
Enterprise Value	<u>\$ 43,117</u>
 Ratio of Share Repurchases (2012 - Q2'2016) to Average Enterprise Value	 <u>32%</u>

# EBITDA Excluding LCM per Average Pound of Ethylene Capacity



## Reconciliation of EBITDA Excluding LCM per Average Pound of Ethylene Capacity

<u>In Million of Dollars Unless Otherwise Indicated</u>	<u>For the Years Ended December 31,</u>				
	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
EBITDA Excluding LCM:					
O&P–Americas	\$ 2,137	\$ 2,968	\$ 3,573	\$ 4,190	\$ 3,821
O&P–EAI	865	548	839	1,410	1,855
Average Annual Ethylene Capacity (Millions of Pounds):					
O&P–Americas	9,590	9,750	9,780	10,070	10,733
O&P–EAI	4,829	4,829	4,829	4,829	4,829
EBITDA Excluding LCM per Average Pound of Ethylene Capacity:					
O&P–Americas	22.3¢	30.4¢	36.5¢	41.6¢	35.6¢
O&P–EAI	17.9¢	11.3¢	17.4¢	29.2¢	38.4¢