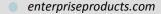
### **GROWING U.S. OIL & GAS PRODUCTION** WITH A FOCUS ON NGLS

**ENTERPRISE PRODUCTS PARTNERS L.P.** 

July 2017

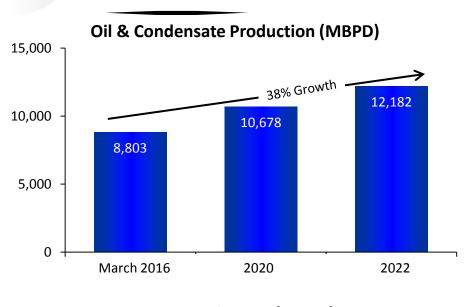
Jim Teague CEO

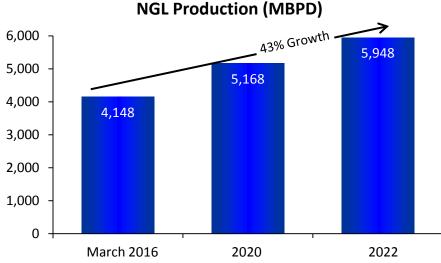


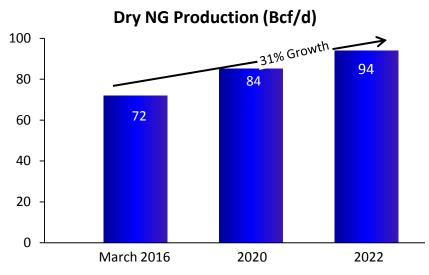


## 11

# U.S. OIL AND GAS SUPPLY EXPECTED TO CONTINUE GROWING







NGL Components			
(MBBls/d)	Current	2020	2022
Ethane	1,884	2,388	2,756
Propane	1,184	1,462	1,680
N. Butane	400	491	563
Iso Butane	240	293	338
Natural Gasoline	440	<u>534</u>	<u>611</u>
Total	4,148	5,168	5,948

Source: EPD Fundamentals



# THE CHEMICALS INDUSTRY IS MAKING LARGE INVESTMENTS BASED ON U.S. **ETHANE**

- O American Chemistry Council (ACC) analysis shows ≈\$164 billion in capital spending could lead to ≈\$105 billion per year in new chemical output
- Global petrochemical demand growth generally exceeds global GDP growth

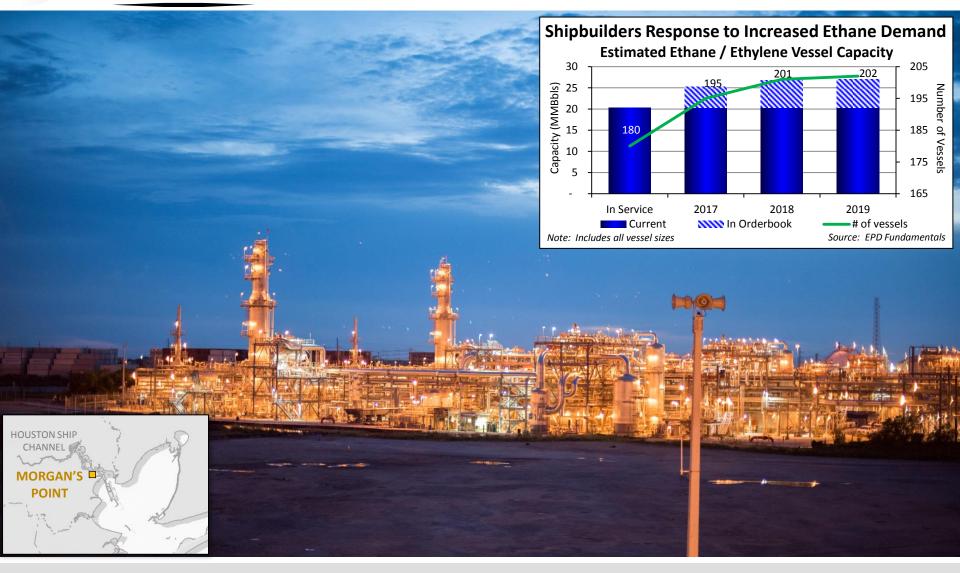
Company	Capacity Billion lb/year	Ethane Consumption (MBPD)	Ethane Consumption Cumulative (MBPD)	Estimated Completion Date	Location
Occidental Chemical / Mexichem	1.2	40		Operational	Ingleside, TX
Dow Chemical	3.3	90		Commissioning	Freeport, TX
<b>Chevron Phillips Chemical</b>	3.3	90		2017	Cedar Bayou, TX
ExxonMobil Chemical	3.3	90		2017	Baytown, TX
Indorama	1.1	30	340	2017	Lake Charles, LA
Shintech	1.1	30		2018	Plaquemine, LA
Sasol	3.3	90	460	2018	Lake Charles, LA
Formosa Plastics	3.5	95		2019	Point Comfort, TX
Axiall / Lotte	2.2	60		2019	Lake Charles, LA
Total Petrochemicals & Refining	2.2	60	675	2019	Port Arthur, TX
Shell	3.5	95	770	Early 2020s	Monaca, PA
TOTAL	<u>28.0</u>	<u>770</u>			

#### **U.S. World Scale Ethylene Plants Under Construction**

Sources: American Chemistry Council and EPD Fundamentals



#### ETHANE EXPORT FACILITY Largest of Its Kind



### LPG...A CLEAN FUEL YOU CAN CARRY



<u>India</u> – 32 million household converted 2016; another 70 million targeted by 2019

Nigeria - 40 million houses to be converted next 24 months

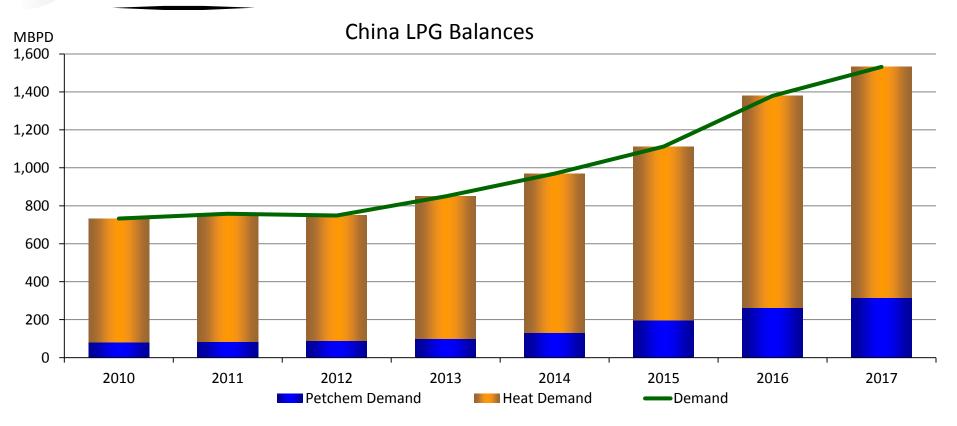
Indonesia – 90% LPG household coverage already achieved

<u>China</u> – Chinese LPG demand is expected to increase by 50% between 2014 and 2017



Source: EPD Fundamentals

### GROWING LPG DEMAND IN CHINA/ASIA: PERMANENT & RELATIVELY PRICE INELASTIC

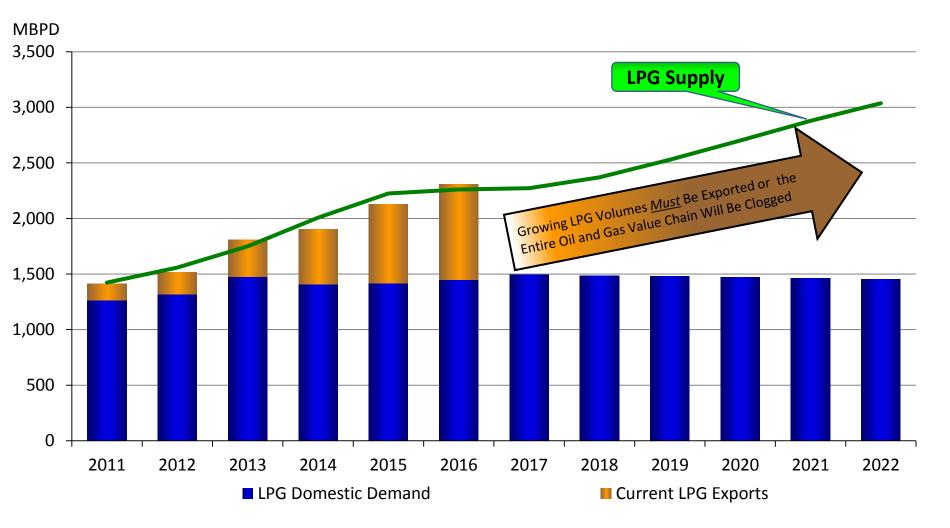


- In 2014, IEA estimates that 78% of China's ≈ 1MMBbl/d of LPG demand and 95% of India's 575 MBD LPG demand was
  residential / commercial or 'heating' demand
- Largely due to availability of U.S. supplies, IEA projects that Chinese LPG demand could increase by as much as 50% between 2014 and yearend 2017. While much of this demand is heating demand, Chinese petchem demand is also expected to grow from less than 100 MBPD in 2014 to ≈300 MBPD by yearend 2017 to support new PDH capacity

Sources: IEA, IHS and EPD Fundamentals



# EXPORTS ARE NOW *REQUIRED* TO SUPPORT U.S. OIL AND GAS PRODUCTION



LPG Dock Capacity Estimated at  $\approx$ 1 MMBbls/d

Source: EPD Fundamentals

# 11

#### PREPARING TO EXPORT VIRTUALLY EVERYTHING WE TOUCH

