The Shale Revolution: Realizing America’s Manufacturing Renaissance

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Who We Are

• AFPM represents more than 400 companies that encompass virtually all U.S. refining and petrochemical manufacturing capacity

• AFPM members are high-tech manufacturers who create essential products for your life every day
What We Make: Refined Products

• Refining separates crude oil into components that are used for a variety of purposes, from gasoline to jet fuel

• A 42 gallon barrel of crude oil yields about 45 gallons of petroleum products

Products made from a barrel of crude oil, 2013 gallons

- Gasoline 19
- Diesel 12
- Jet fuel 4
- Other distillates (heating oil) 1
- Heavy fuel oil (residual) 1
- Liquefied petroleum gases (LPG) 2
- Other products 6

EIA, Refining Crude Oil
What are Petrochemicals?

• Set of very specific chemical compounds
• Generally speaking a petrochemical is a chemical derived from oil or natural gas
  – Vast majority of petrochemicals are derived from oil or natural gas
  – U.S. mostly uses nat gas
Where are Petrochemicals Used?

- Housing and construction
- Medical applications
- Vehicles
- Electronics
- Packaging
- Military
- Clothing
- Much, much more
What We Make: Petrochemical Products

Vast majority (~99%) of petrochemicals are derived from oil or natural gas – used in thousands of everyday products and throughout the manufacturing supply chain:
America’s Energy Abundance

U.S. remained world's largest producer of petroleum and natural gas hydrocarbons in 2014

Estimated U.S., Russia, and Saudi Arabia petroleum and natural gas production

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<th>Year</th>
<th>United States</th>
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Source: U.S. Energy Information Administration
Note: Petroleum production includes crude oil, natural gas liquids, condensates, refinery processing gain, and other liquids, including biofuels. Barrels per day oil equivalent were calculated using a conversion factor of 1 barrel oil equivalent = 5.55 million British thermal units (Btu).
Impact of Shale Revolution

• U.S. chemical industry is the largest industrial consumer of nat gas

• New economics = U.S. competitive advantage
  – 2008 – nat gas was selling for ~$12.50/MM Btus
  – Today – less than $3/MM Btus

• Dramatic reversal – U.S. now one of the most affordable for chemical production
Energy Abundance Drives Prosperity

• 246 projects announced

• $153B in new capital investment
  – Potentially 465K direct / indirect jobs
  – 342K jobs created by additional household spending
  – 60%+ direct foreign investment

• ~ 156K direct employees in the petrochemicals sector

Reference: American Chemistry Council
American Shale & Manufacturing Partnership

• Focused on shale development and its impact on the supply chain for U.S. manufacturing

• Events in PA, OH, TX, LA, CO, DC

• 14 members, 425+ participants
  – Academia
  – Associations
  – Non-governmental organizations
  – Unions
Air Quality in America Since 1970

Source: EPA
Questions?

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