How Natural Gas is Changing Ohio Manufacturing

Jenn Klein, President
Ohio Chemistry Technology Council
Business of Chemistry
By the Numbers
MORE THAN 96% OF ALL MANUFACTURED GOODS ARE DIRECTLY TOUCHED BY THE BUSINESS OF CHEMISTRY

THE BUSINESS OF CHEMISTRY IS A $770 BILLION ENTERPRISE

THE BUSINESS OF CHEMISTRY SUPPORTS NEARLY 25% OF THE U.S. GDP

CHEMICAL COMPANIES INVESTED $57 BILLION IN RESEARCH AND DEVELOPMENT IN 2012

MORE THAN 847 MILLION TONS OF PRODUCTS WERE TRANSPORTED IN 2012, MAKING THE BUSINESS OF CHEMISTRY ONE OF THE COUNTRY’S LARGEST SHIPPERS

CAPITAL INVESTMENT BY THE BUSINESS OF CHEMISTRY REACHED NEARLY $39 BILLION IN 2012, INCLUDING INVESTMENTS IN STRUCTURES AND EQUIPMENT

A HIGHLY INNOVATIVE INDUSTRY, 17% OF ALL U.S. PATENTS ARE CHEMISTRY OR CHEMISTRY-RELATED

THE BUSINESS OF CHEMISTRY ACCOUNTS FOR 12% OF U.S. EXPORTS, $188 BILLION IN 2012, AND IS THE SECOND LARGEST EXPORTING SECTOR IN THE U.S.
Ohio Chemistry – By The Numbers

- 7th largest chemical producing state in U.S.
- Directly employs 43,197 people
- Indirectly contributes another 108,217 jobs
- Every chemistry industry job adds 4.6 jobs to the state’s economy
- Average chemistry industry wage is $75,666
Developing Ohio’s Shale Gas

It’s About the Energy and the Chemistry
Energy Consumption & Raw Materials

- Purchased energy (electricity) and raw materials (base feedstock chemical) are two largest cost items for most chemical companies in Ohio
  
  ✓ Plentiful coal and natural gas for utility boilers = downward pressure for industry’s electricity costs
  
  ✓ Natural gas source of 90%+ of purchased raw materials = lower raw material costs
Energy Intensive Industry

Figure 121. Shares of total world industrial sector delivered energy consumption by major energy-intensive industries, 2010

percent of total

- Chemicals (including feedstocks)
- Iron and steel
- Nonmetallic minerals
- Pulp and paper
- Refining
- Other

NGLs Key to Chemical Industry Advantage

- Natural gas liquids, especially ethane, are primary feedstock for chemical-making in the U.S.
- Companies overseas use an oil-based feedstock
- Due to vast new NGL supplies, ethane feedstock is selling at historically low prices
American chemistry is poised to capture market share from other areas of the world.

North American chemicals and plastics production is expected to double by 2020 while Western Europe’s falls by 1/3.

54% of announced U.S. chemical investment is by companies based abroad.
Natural Gas As Raw Material

- Natural Gas, Oil
  - Ethane, Naphtha, etc.
    - Ethylene
      - Ethylene Dichloride
      - Ethylene Oxide
        - Ethyl benzene
          - Linear Alcohols
          - Vinyl Acetate
            - Vinyl Chloride
              - Low-Density Polyethylene
              - High Density Polyethylene
            - Ethylene Glycol
              - Antifreeze
              - Fibers
                - PET
                - Miscellaneous
        - Vinyl Acetate
          - Detergents
            - Adhesives, Coatings, Textile/Paper Finishing, Flooring, etc.
          - Styrene
            - Polystyrene
              - SAN
              - SBR
              - Latex
              - Miscellaneous
        - Ethylene Dichloride
          - PVC
            - Food Packaging, Film, Trash Bags, Diapers, Toys, Housewives, etc.
            - Siding, Windows Frames, Pipe, Medical Tubing, etc.
          - Pantyhose, Carpets, Clothing, etc.
          - Bottles, Film, etc.
            - Insulation, Cups, etc.
            - Instrument Lenses, House wares, etc.
            - Tires, Hose, etc.
            - Medical Gloves, Carpeting, Coatings, etc.
          - Miscellaneous
The Impacts of Natural Gas

- Helping to reduce natural gas prices, creating a more stable fuel supply and reducing electricity costs for chemical manufacturers
- Providing long-term, sustained opportunity in feedstock supply and cost
- Driving significant new capital investment in the U.S. chemical manufacturing sector
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<tr>
<th>Policies Needed to Realize Potential</th>
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<tr>
<td><strong>Infrastructure</strong></td>
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<tr>
<td>Ensure reliable infrastructure to transport natural gas supplies</td>
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<tr>
<td><strong>State Regulations</strong></td>
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<td>Implementation of responsible state-based regulations that avoid undue restrictions on natural gas supplies</td>
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Questions

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