September 2013

IHS REPORT: LONG-TERM ADVANTAGE FOR U.S. CHEMICAL INDUSTRY DUE TO UNCONVENTIONAL OIL AND GAS REVOLUTION

American Chemistry Council

IHS Report: "America's New Energy Future: The Unconventional Oil and Gas Revolution and the U.S. Economy – Volume 3: A Manufacturing Renaissance" available at http://www.ihs.com/info/ecc/a/americas-new-energy-future-report-vol-3.aspxx

ACC materials available at http://chemistrytoenergy.com/ihs-shale-report

America's New Energy Future: The Unconventional Oil and Gas Revolution and the U.S. Economy – *Volume 3: A Manufacturing Renaissance*

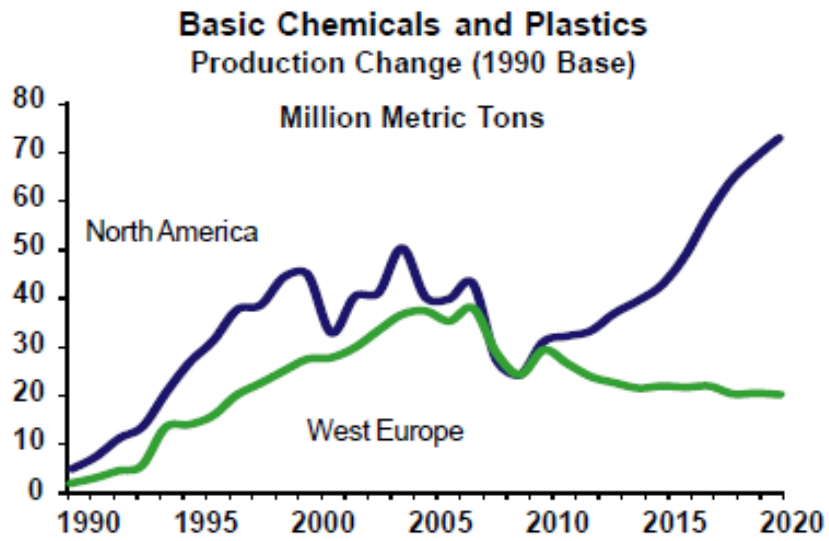
September 2013

"The unconventional revolution is contributing to a **shift in global competitiveness** for the United States…which is **particularly pronounced in energy-intensive industries, such as chemicals**."

The U.S. chemical industry's competitive advantage "**is expected to persist for decades,** thanks to the abundant and low-cost US natural gas supply, **of which natural gas liquids (NGLs) are a by-product**."

"**U.S. manufacturers** are benefiting from the availability of a **secure supply of low-cost natural gas**…key energy-intensive sectors…are expected to **invest and increase their U.S. operations**…"

Shale Gas Boom Driving U.S. Chemical Expansion



- ✓ Affordable natural gas is driving significant new capital investment in basic chemicals and plastics in the U.S.
- ✓ By 2020: North American chemicals/plastics production will double while Western Europe's falls by 1/3
- ✓ By 2025: As much as $100 billion in new investment in U.S. chemical and plastics facilities

Data provided with permission from IHS

U.S. Chemical Investment

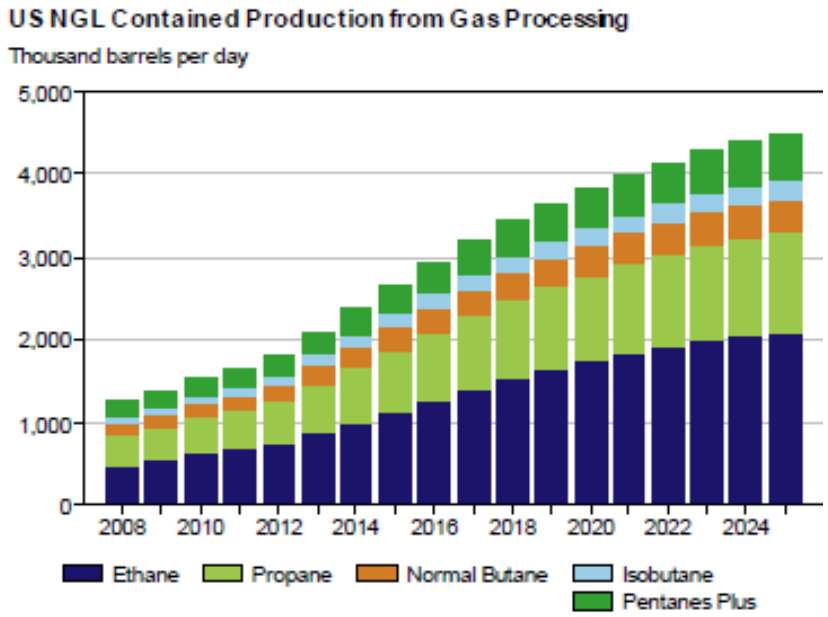
126 projects announced as of September 2013

$84 billion in potential chemical industry capital investments

54% is foreign direct investment in the U.S.

ETHYLENE CHAIN

Natural Gas-Derived Feedstock Key to U.S. Advantage



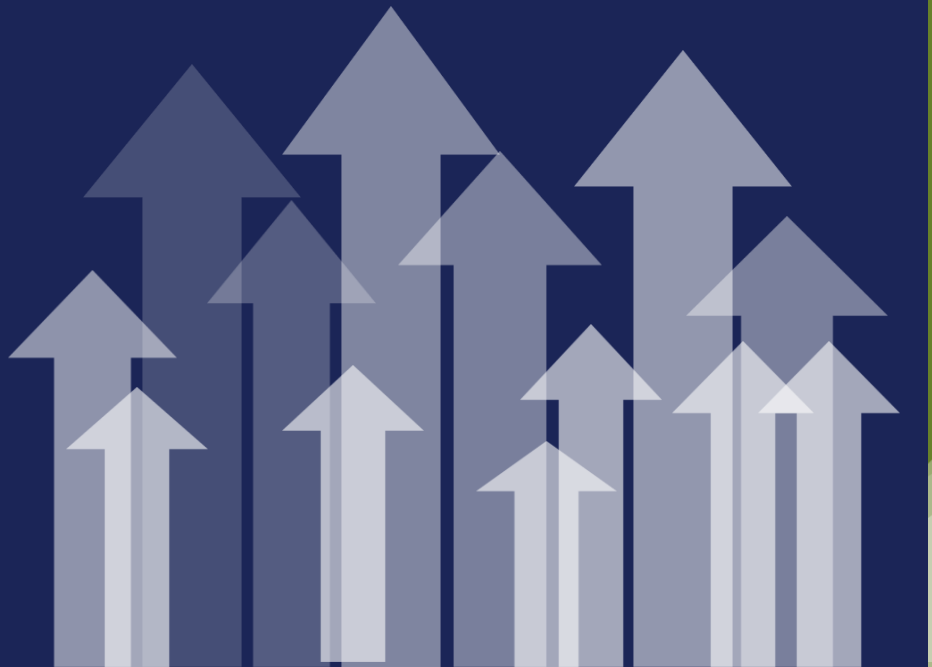
- ✓ Natural gas liquids are primary feedstock in U.S.; competitors overseas mostly use oil-based feedstock
- ✓ IHS predicts rapid NGL growth over the next decade, especially ethane
- ✓ NGL production to double by 2020, to 3.8 million barrels per day

Data provided with permission from IHS

IHS Report Findings: Chemical Industry Contributions to U.S. Economy

New Jobs

In 2012: 53,000
In 2025: 318,748



New GDP

In 2012: $6.7 billion
In 2025: $51 billion

Source: IHS Report: "America's New Energy Future: The Unconventional Oil and Gas Revolution and the U.S. Economy – Volume 3: A Manufacturing Renaissance"

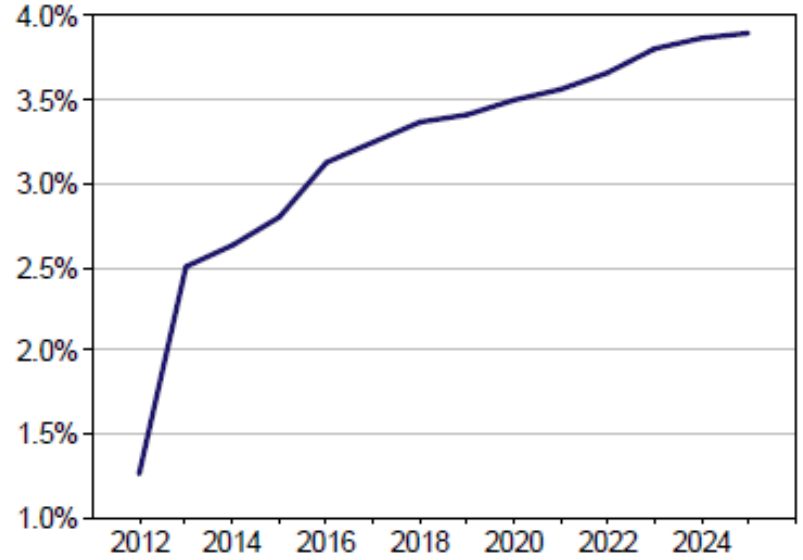
IHS Report Findings: Chemical Industry Contributions to U.S. Economy

	2012	2025	2012-2025
Value of Production	$1.7 billion	$69.7 billion	$505.3 billion
Capital Spending	$4.8 billion	$7.4 billion	$129.3 billion
Federal Tax Revenue	$983 million	$7.4 billion	$69 billion
State Tax Revenue	$695 million	$5.0 billion	$46.3 billion

Source: IHS Report: "America's New Energy Future: The Unconventional Oil and Gas Revolution and the U.S. Economy – Volume 3: A Manufacturing Renaissance"

IHS Report Findings: U.S. Manufacturing Growth

Change in Industrial Production Index due to the Unconventional Activity Value Chain: Base Case*



Note: *The unconventional activity value chain represents the sum of unconventional oil and natural gas value chains and energy-related chemicals.

- ✓ Improving cost competitiveness for domestic manufacturers will lead to increased U.S. industrial production
- ✓ The projected increase is equivalent to $258 billion in new manufacturing output in 2020 and $328 billion in 2025
- ✓ Production indices for basic chemicals, fertilizers, and petroleum products to rise 6-8% by 2025

Source: IHS Report: "America's New Energy Future: The Unconventional Oil and Gas Revolution and the U.S. Economy – Volume 3: A Manufacturing Renaissance"

Restrictive Policies Would Slow Chemical Industry Growth

Regulatory or policy restrictions on energy development would cost as many as 289,000 potential chemical industry jobs and $46 billion in economic growth by 2025

Source: IHS Report: "America's New Energy Future: The Unconventional Oil and Gas Revolution and the U.S. Economy – Volume 3: A Manufacturing Renaissance"

Policies Needed to Realize Potential

- ✓ ***Access***: Allow access to natural gas reserves on government and private lands
- ✓ ***Infrastructure:*** Ensure reliable infrastructure to transport supplies
- ✓ ***State Regulations***: Implement responsible state-based regulations that avoid undue restrictions on natural gas supplies
- ✓ ***Tax Treatment***: Minimize cost and reduce complexity for businesses. Maintain accelerated depreciation in tax policy