September 8, 2014

SHALE GAS AND NEW U.S. CHEMICAL INDUSTRY INVESTMENT: $125 BILLION AND COUNTING
U.S. Chemical Industry Global Cost Advantage


*Based on estimates from best available data.
Chemical Investment

197 projects and $125 billion in potential capital investment announced as of Sept. 2014

...Up from 97 projects and $72 billion as of March 2013

64% is by firms based outside the U.S.

ACC data

U.S. Shale Gas

30-year supply that can be profitably produced at $4.00 per million BTUs or less

U.S. chemical industry benefits from lower costs for energy and feedstock

IHS data
Natural gas liquids, especially ethane, are primary feedstock for chemical-making in the U.S.

Companies overseas mostly use an oil-based feedstock

Due to vast new NGL supplies, U.S. ethane feedstock is selling at historically low prices

Huge NGL growth predicted; sustained opportunity for U.S. chemical industry
ETHYLENE CHAIN

Natural Gas → Ethane → Cracker → Intermediate Products

- PVC
- Vinyl Chloride
- Ethylene Glycol
- Styrene
- Polystyrene

- Pool Liners
- Window Siding
- Trash Bags
- Sealants
- Carpet Backing
- Insulation
- Detergent
- Flooring Pipes

- Food Packaging
- Bottles
- Cups
- Housewares
- Crates

- Footwear
- Clothes
- Diapers
- Stockings
- Toys
- Textiles

- Tires
- Sealants
- Paint
- Antifreeze

- Adhesives
- Coatings
- Films
- Paper Coatings
- Models
- Instrument Lenses
By 2023, additional output from $125 billion in capital investment generates $91 billion in new chemical industry shipments.

This is an ongoing, permanent upward shift in shipments.
Economic Contributions From Increased Chemical Industry Investment

703,000
Permanent NEW jobs by 2023 throughout the U.S. economy from $91 billion in new chemical industry output

$274 billion
Permanent NEW U.S. economic output by 2023 from $91 billion in new chemical industry output

Based on $125 billion in potential U.S. chemical investment announced as of September 2014
Unconventional Energy Benefits the U.S.

- **Household income**: $3,500 more in 2025 due to unconventional energy
- **Jobs**: Nearly 4 million jobs supported in 2025, up from 2.1 million in 2013
- **U.S. GDP**: Grows 3.2% by 2025, equal to $500-600 billion

**IHS report** measured economic benefits of unconventional oil and natural gas activity across value chain

U.S. Outpacing Europe

“When people choose whether to invest in Europe or the US, what they think about most is the cost of energy. The loss of competitiveness is frightening.”
Antonio Tajani, European Industry Commissioner

“Natural gas prices in Europe are three times as high as in America, and electricity prices are twice as high...It's very hard to imagine how Europe can recover.”
- Paolo Scaroni, CEO, Eni

“Chemicals depend upon competitive energy and feedstock costs...It could well be another European dinosaur.”
- Jim Ratcliffe, Chairman, INEOS

I think we’d be making a big mistake if we didn’t think hard about how to encourage [natural gas production] right here in the UK. We’re seeing businesses that have previously gone off to Mexico and elsewhere come back to the U.S.”
- David Cameron, British Prime Minister
U.S. Chemical Investment is Outpacing Other Regions

- U.S. chemical industry is capturing market share from around the world
- North American chemicals and plastics production will double by 2020 while Western Europe’s falls by 1/3
- No other region has this long-term advantage in natural gas and feedstock supplies

Data provided with permission from IHS
Trade Balance Improvement from Increased Chemical Industry Investment

10x

Projected increase in net U.S. chemical industry exports (2013-2018)

$2.8 billion surplus in 2013 to $30 billion surplus in 2018

Based on $100 billion in potential U.S. chemical investment announced as of February 2014
State of the Union: President Obama pledged to facilitate permitting of new manufacturing plants.

New legislative opportunities to enact “all of the above” energy policy.

Natural gas, energy efficiency, & energy recovery are key parts of any national strategy.
Policies Needed to Realize Potential

Access & Infrastructure: Allow access to natural gas reserves on government and private lands. Ensure reliable infrastructure to transport supplies.

State Regulations: Implement responsible state-based regulations that avoid undue restrictions on natural gas production.

Permitting: Ensure timely approval of permits for manufacturing projects and investments such as new chemical plants and expansions.

Tax Treatment: Maintain accelerated depreciation in tax policy. Minimize cost and reduce complexity for businesses.