



Ohio's Shale Economy: Executive Summary

This report presents findings from an investigation into shale-related investment in Ohio. The investment estimates are cumulative from January through June of 2021. Prior investments have been included in previous reports that are available from Cleveland State University.¹ Subsequent reports will estimate additional investment since the date of this report. Investment in Ohio into the Utica during the first half of 2021 can be summarized as follows:

Total Estimated **Upstream** Utica Investment in Ohio

January - June 2021

Estimated Investments	Total Amount
Lease Renewals and New Leases	\$116,565,000
Drilling	\$876,600,000
Roads	\$4,440,000
Lease Operating Expenses	\$205,740,000
Royalties	\$1,017,983,000
Total Estimated Upstream Investment	\$2,221,328,000

Total Estimated **Midstream** Investment in Ohio

January - June 2021

Estimated Investments	Total Amount
Gathering Lines	\$29,100,000
Gathering System Compression and Dehydration	\$13,800,00
Total Estimated Midstream Investment	\$42,900,000

Total Estimated **Downstream** Investment in Ohio

January - June 2021

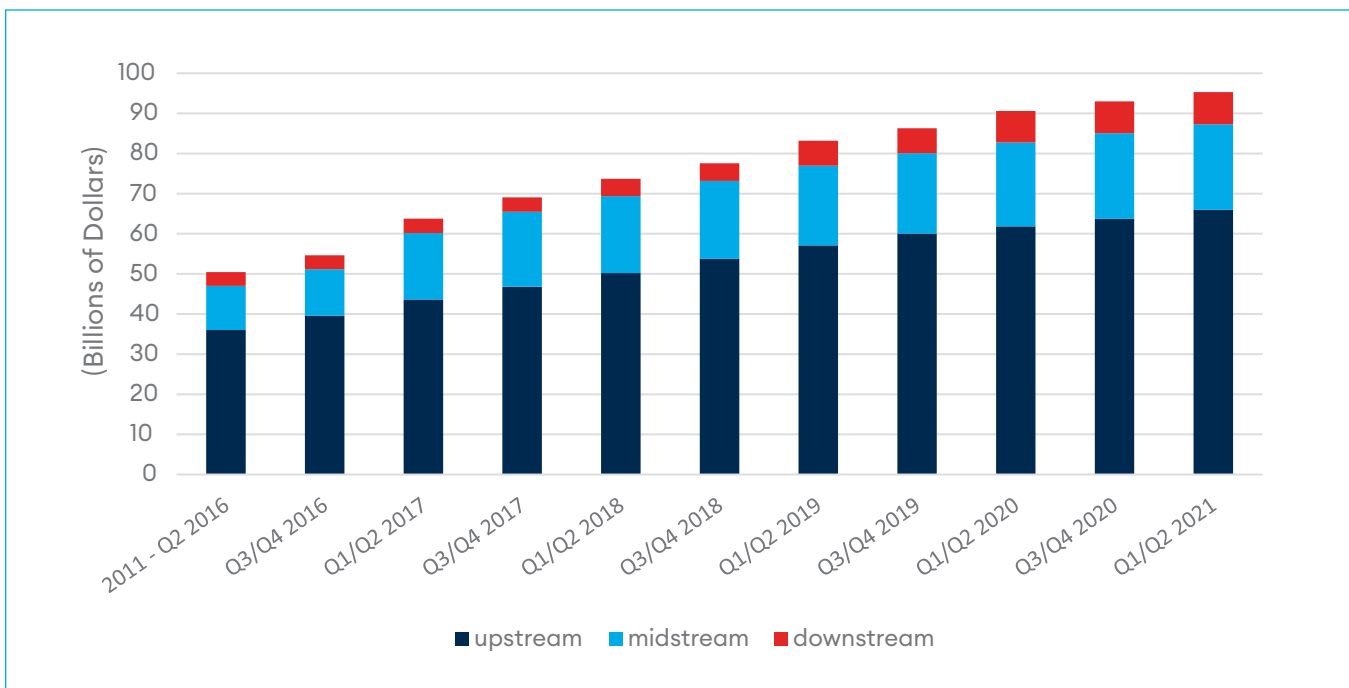
Estimated Investments	Total Amount
Natural Gas Refueling Stations	\$31,300,000
Petrochemicals (Including Refineries)	\$16,378,000
Total Estimated Downstream Investment	\$47,678,000

¹The ten previous reports on shale investment in Ohio up to December 2020 can be found at https://engagedscholarship.csuohio.edu/urban_enpolc/



Total investment from January through June 2021 was approximately \$2.3 billion, including upstream, midstream, and downstream. Indirect downstream investment, such as development of new manufacturing as a result of lower energy costs, was not investigated as part of this Study. Together with previous investment to date, cumulative oil and gas investment in Ohio through June of 2021 is estimated to be around \$95.3 billion. Of this, \$65.9 billion has been in upstream, \$21.4 billion in midstream, and \$8.0 billion in downstream industries.² Figure 1 shows the growth in cumulative shale-related investment for Ohio since the release of the first Shale Dashboard.

Figure 1. Cumulative Shale Investment in Ohio Over Time



Overall upstream investments were up by about \$361 million in the first half of 2021 compared to the second half of 2020, reflecting higher royalty earnings due to higher oil and gas prices. As determined from Ohio Department of Natural Resources Division of Oil and Gas (ODNR) data for shale well drilling, 74 new wells were drilled during the first and second quarters of 2021, 6 fewer than the number drilled in the second half of 2020. ODNR production data also indicated that the total volume of gas-equivalent shale production in the first half of 2021 was 7% less than overall production in the second half of 2020. Jefferson County had the highest number of new wells with 36, followed by Harrison and Monroe Counties, which had 13 and 10 new wells, respectively. We noted in our last report that Belmont county lost its top ranking among Ohio counties in new well development since the second half of 2018. The county dropped even lower in the first of half of 2021, with only six new wells drilled. No other county had more than five new wells drilled for the first half of 2021.

Ascent and Encino were the top producers for Q1 and Q2 of 2021, having produced 389 and 196 billion cubic feet equivalent (Bcfe), respectively. Gulfport was third in production at 173 Bcfe.

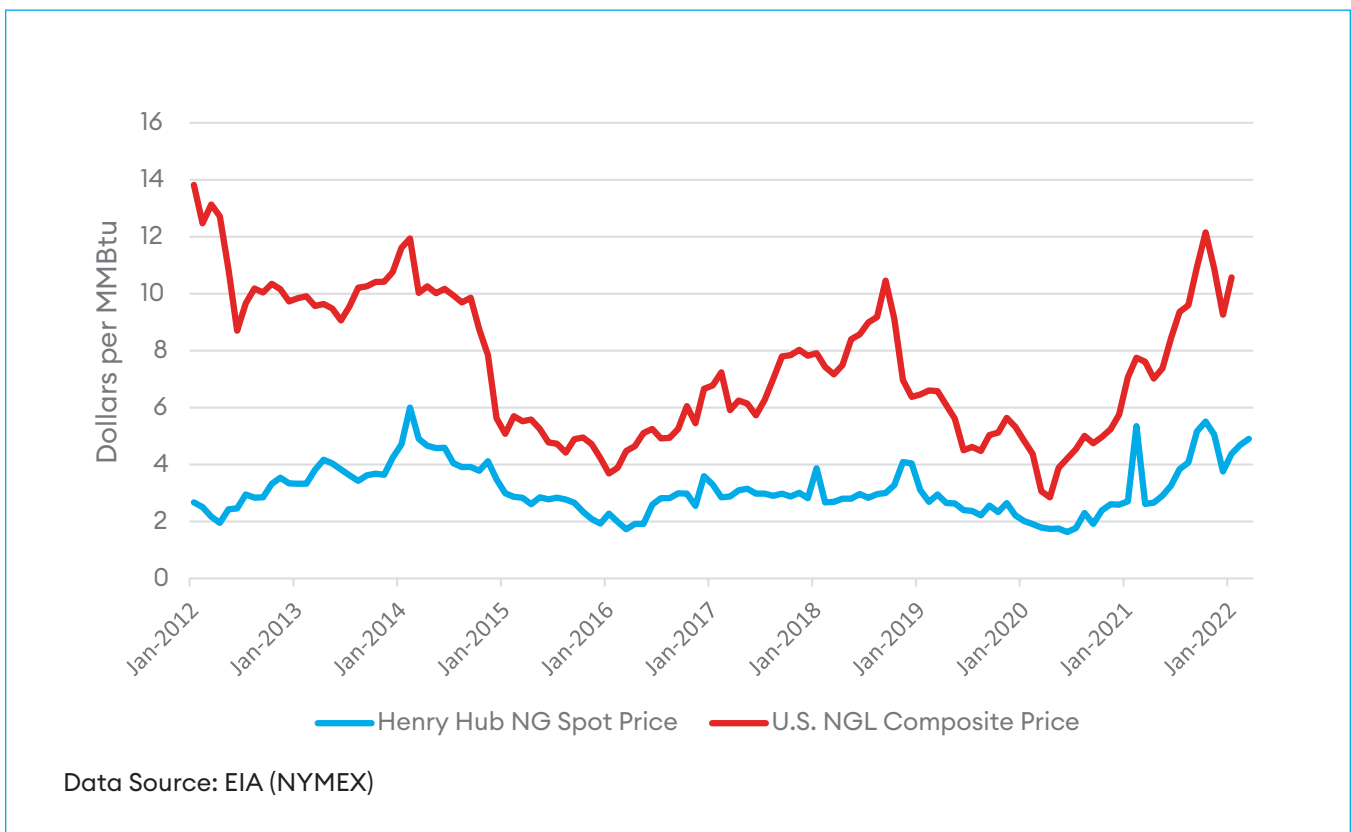
²Numbers may not add up precisely due to rounding.



Rice Drilling and Eclipse each produced 109 Bcfe. Equinor took Antero’s place in the top six producers in Ohio, with Equinor at 42 Bcfe, which was 2 Bcfe higher than the latter’s production. The top six companies made up around 89% of the total production for the first half of 2021.

The first half of 2021 saw a steep decline in midstream investment compared to the second half of 2020, with no major pipeline development or processing capacity expansion as the COVID pandemic unfolded. However, more recently rising commodity prices approaching 10-year highs (see Figure 2) will likely put upward pressure on investment spending across all natural gas segments. The midstream spending that did occur in the first half of 2021 included gathering system buildout for pipelines (\$29.1 million) and compression (\$13.8 million).

Figure 2. Monthly Average Natural Gas and NGL Prices Since 2012



In downstream developments, two compressed natural gas refueling stations (representing a combined investment of \$31.3 million) were installed by transit agencies in Cleveland and Columbus. Additional capacity expansion occurred at Marathon’s oil refinery in Canton, totaling an estimated \$15.8 million. There is no definite timeframe for an investment decision on PTTGC America’s ethane cracker in Belmont County, but the company continues to buy real estate and do preparatory work near the proposed site, including purchases of \$0.5 million in property during the Study period.

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