

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 July through December 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 second half of 2021 can be summarized as follows:

Total Estimated **Upstream** Utica Investment in Ohio

July - December 2021

Estimated Investments	Total Amount
Lease Renewals and New Leases	\$116,565,000
Drilling	\$701,760,000
Roads	\$10,223,000
Lease Operating Expenses	\$151,785,000
Royalties	\$1,162,989,000
Total Estimated Upstream Investment	\$2,143,322,000

Total Estimated **Midstream** Investment in Ohio

July - December 2021

Estimated Investments	Total Amount
Gathering Lines	\$39,827,000
Gathering System Compression and Dehydration	\$34,434,000
Total Estimated Midstream Investment	\$74,261,000

Total Estimated **Downstream** Investment in Ohio

July - December 2021

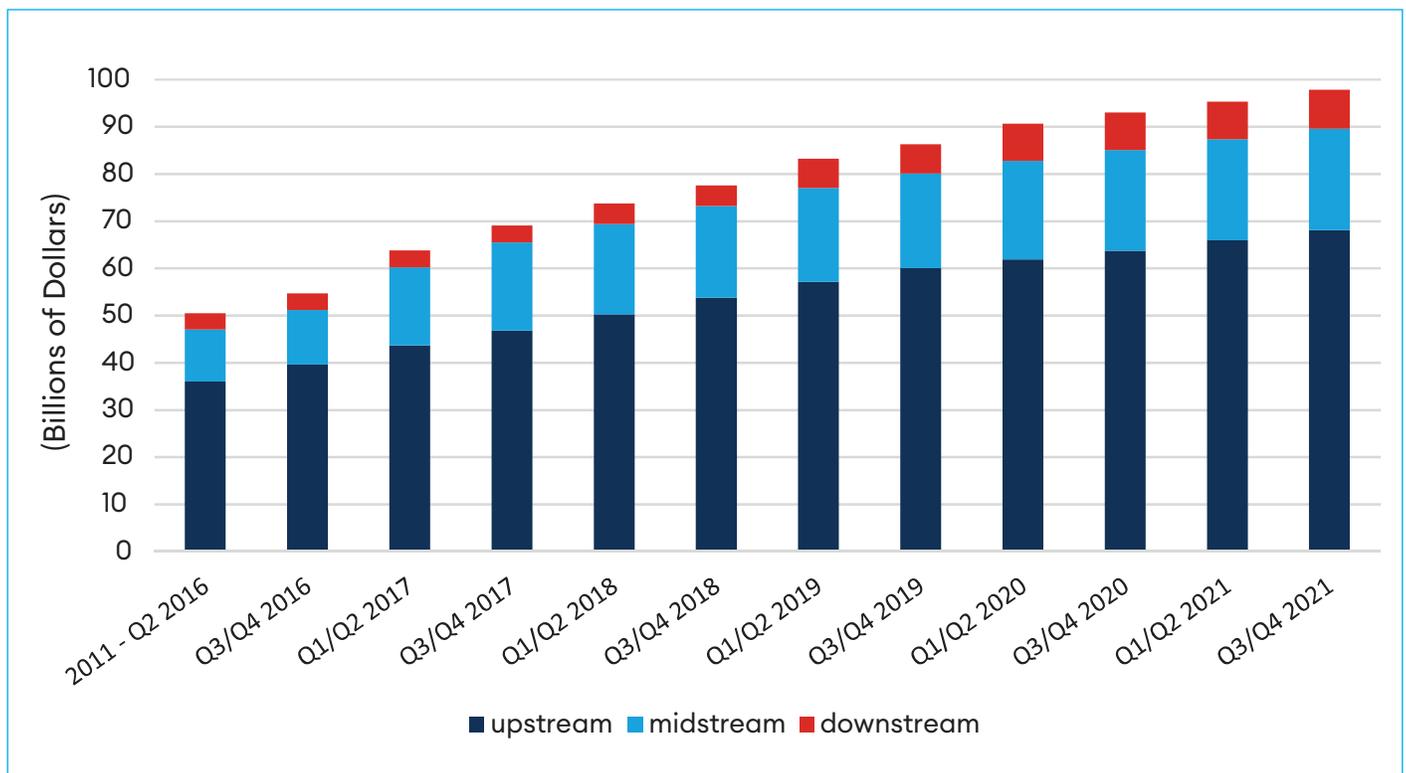
Estimated Investments	Total Amount
CHP Plants	\$289,900,000
Total Estimated Downstream Investment	\$289,900,000

¹The eleven previous reports on shale investment in Ohio up to June 2021 can be found at https://engagedscholarship.csuohio.edu/urban_enpolc/



Total investment from July through December 2021 was approximately \$2.5 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 December of 2021 is estimated to be around \$97.8 billion. Of this, \$68.1 billion has been in upstream, \$21.4 billion in midstream, and \$8.3 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 down by about \$78 million in the second half of 2021 compared to the first half of 2021, reflecting continued improving cost efficiencies for drilling. As determined from Ohio Department of Natural Resources Division of Oil and Gas (ODNR) data for shale well drilling, 86 new wells were drilled during the third and fourth quarters of 2021, 12 greater than the number drilled in the first half of 2021. ODNR production data also indicated that the total volume of gas-equivalent shale production in the second half of 2021 was 2% greater than overall production in the first half of 2021. Jefferson County had the highest number of new wells with 23, followed by Belmont and Carroll Counties, which each had 16 new wells, and Columbiana County, which had 13 new wells. No other county had more than 10 new wells drilled for the second half of 2021.

²Numbers may not add up precisely due to rounding.



Ascent and EAP Ohio were the top producers for Q3 and Q4 of 2021, having produced 429 and 202 billion cubic feet equivalent (Bcfe), respectively. Gulfport was third in production at 168 Bcfe. SWN Production (Southwestern) and Rice Drilling produced 106 Bcfe and 105 Bcfe,

respectively.³ Antero had the sixth highest production during the Study period at 45 Bcfe. These six companies represented a little over 90% of total production in Ohio for the second half of 2021.

While producers in other shale plays consider refracturing existing wells as hydrocarbon prices rise,⁴ there is little evidence of Utica operators having done so yet. A review of the DOE-supported FracFocus chemical disclosure registry suggests that no more than 5 wells have been re-fractured in Ohio since 2011.

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.

³ SWN Production's Utica assets include wells formerly belonging to Eclipse and Montage Resources.

⁴ See <https://finance.yahoo.com/news/refracs-boost-u-shale-output-000000821.html>

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