



Southern Ohio Diversification Initiative



Photo: US Department of Energy (DOE)

PETROLEUM REFINERY

Capacity: 500,000 Barrels/Day **Estimated Cost:** \$15 billion

Employment per IMPLAN Analysis:

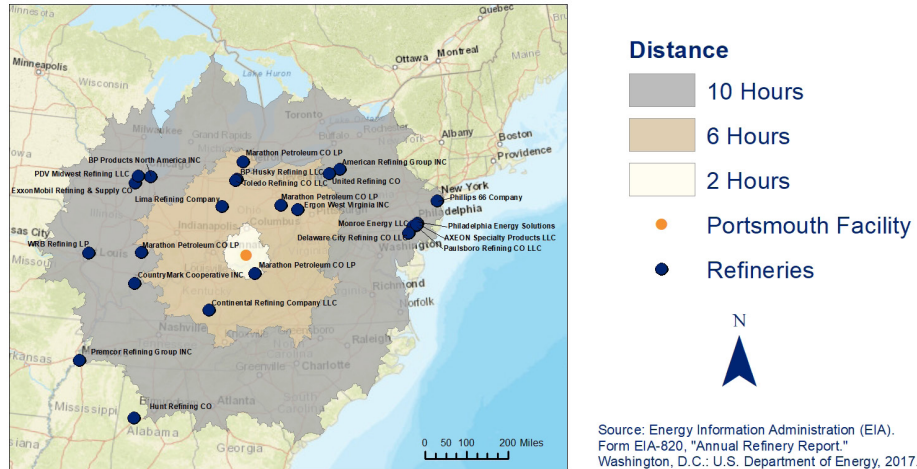
Type	Construction	Operation
Direct	10,000	1,600
Indirect	1,355	5,500
Induced	2,114	2,978
Total	13,469	10,078

Economic Indicator	Construction (Typically 5-7 years)	Operations (Indefinite years with upgrades)
Total Annual Average Jobs	13,469	10,078
Total Value Paid to Workers	\$509,230,412	\$687,966,335
Gross Regional Product	\$746,289,747	\$1,110,653,201
Direct Industry Product	\$1,466,489,020	\$14,221,254,720



PETROLEUM REFINERIES IN REGION

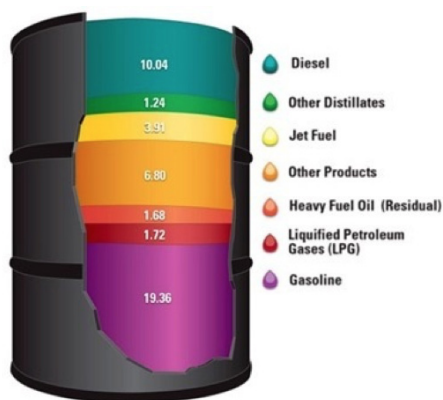
Distance of Petroleum Refineries From Portsmouth Facility



Refinery Facts

- Ohio has the seventh-largest crude oil-refining capacity in the US.
- Petroleum refineries produce liquids the petrochemical industry uses to make a variety of chemicals and plastics.
- Ohio is part of the Midwest Petroleum Administration for Defense District (PADD 2).

PETROLEUM PRODUCTS MADE FROM A BARREL OF CRUDE OIL



A 42 gallon (US) barrel of crude oil yield about 45 gallons of petroleum products because of refinery processing gain, which is due to changes in the overall density of the refined products relative to that of the crude oil.

In the US, 19 million barrels of crude oil is refined each day. 10.1 million barrels of crude oil is imported.

NATURAL GAS (NG) SUPPLY AT PORTS

NG supplier: Purchased from Sage Energy and conveyed by Pike Natural Gas

PORTS NG pipeline: 8 inch diameter underground line at 100 PSI, capacity 19,762 cfm?

PORTS to main NG line: 110,890 Ft or ~21 miles.

NG right-away info: width, max diameter pipe, lines sizes between PORTS and main line?

NATURAL GAS (NG) REQUIREMENTS FOR REFERENCED PETROLEUM REFINERY

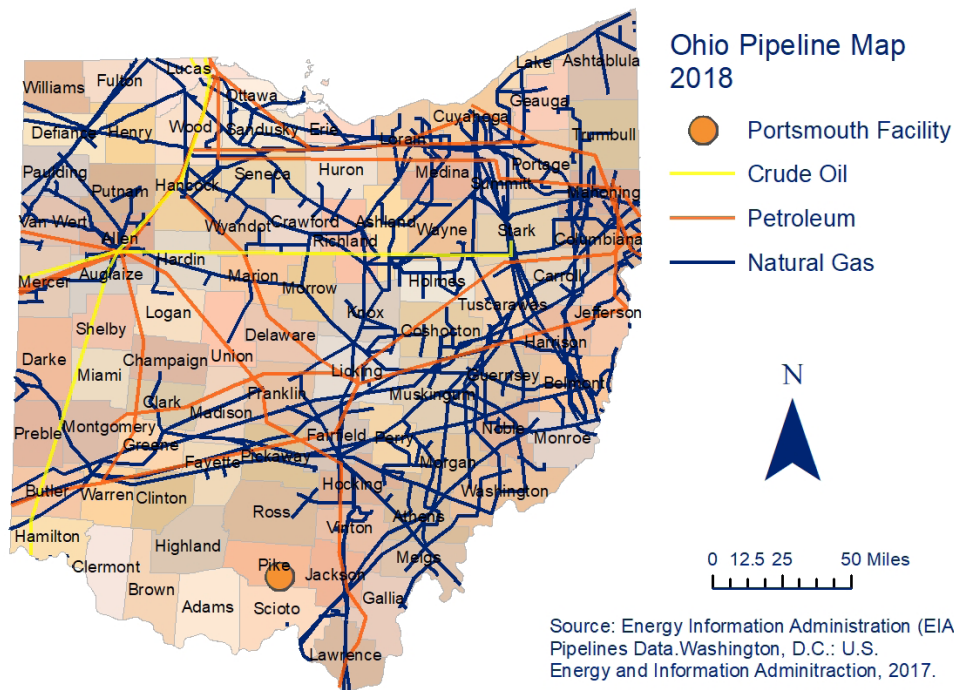
44,097 cfm of natural gas is required by referenced Refinery, assuming the following parameters.

- 19 million barrels of crude refined per day in USA, in 2016
- 881,611 million cubic feet (cf) of natural gas consumed per year by USA refineries, in 2016

Natural Gas (cf) per barrel of crude oil = 127 cf/barrel

Natural Gas (cf) required by reference refinery = (127 cf /barrel) (500,000 barrels/day) = 63,500,000 cfd or 44,097 cfm

PIPELINES IN OHIO



BENEFITS OF INLAND PETROLEUM REFINERY IN OHIO

- Reduced vulnerability to natural or man-made events
- Proximity to market
- Proximity to Utica and Marcellus shale oil and gas
 - Natural gas availability for producing hydrogen
- Proximity to coal reserves for future coal-to-liquids conversion



Contact SODI at sodilaw@outlook.com or 740.289.2576

Our Mission for the Southern Ohio Diversification Initiative (SODI) is to improve the quality of life for Jackson, Pike, Ross, and Scioto Counties through economic diversification, development of underutilized land and facilities on the Department of Energy (DOE) Portsmouth Gaseous Diffusion Plant Site, and continued support of local industry.

References:

Rover Pipeline, www.roverpipelinefacts.com

Energy Information Agency (EIA), www.eia.gov

National Pipeline Mapping System (NPMS), www.npms.phmsa.dot.gov

List of power stations in Ohio, Wikipedia, https://en.wikipedia.org/wiki/List_of_oil_refineries#Ohio

Pipeline and Hazardous Materials Safety Administration (PHMSA), www.phmsa.dot.gov

Ohio Pipeline Awareness, <http://oh.pipeline-awareness.com>