



# Southern Ohio Diversification Initiative



Photo: US Department of Energy (DOE)

## COMBINED CYCLE GAS TURBINE (CCGT) FACILITY

### PORTS REFERENCE CCGT

**Capacity:** 1,000 MW (1 GW)

**Estimated Cost:** \$900 million

#### Employment per IMPLAN Analysis:

Type	Construction	Operation
Direct	500	25
Indirect	68	23
Induced	106	23
<b>Total</b>	<b>673</b>	<b>71</b>

Economic Indicator	Construction (Typically 30 Months)	Operations (Typically 30 years)
Total Annual Average Jobs	673	71
Total Value Paid to Workers	\$25,461,521	\$5,490,546
Gross Regional Product	\$37,314,487	\$26,923,439
Direct Industry Product	\$73,324,451	\$53,159,861

PORTS has the electrical grid capacity (4,860 MW) to support about 5 Referenced CCGT's, which excludes on-site electrical demand.

Cooling Water Requirement for Reference CCGT: ~8 MGPD during summer, assuming a closed loop cooling system employing a wet cooling tower.

## 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 CCGT

PORTS has the electrical grid capacity (4,860 MW) to support about 5 Referenced CCGT's, which excludes on-site electrical demand.

- 90% duty cycle (capacity factor)
- Net heat rate = 6500 kJ/kWh = 6500 MJ/MWh = 6 500 000 MJ/GWh
- Calorific value of natural gas = 9.8 kWh/m<sup>3</sup> or 35.2 MJ/m<sup>3</sup>

Gas required per annum at 90% duty cycle = 1,455,872,273 m<sup>3</sup> = 51,413,644,110 cf  
 One trillion cubic feet of gas would thus provide 1,000 MW of power for approximately 20 years

## Natural Gas Power Plants



Contact SODI at [sodilaw@outlook.com](mailto:sodilaw@outlook.com) or 740.897.2122

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:

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