Rhodium Group

The Economic Benefits of Carbon Capture

Investment and Employment Estimates for Regional Carbon Capture Deployment Initiative States

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About this analysis

The Great Plains Institute (GPI) commissioned Rhodium Group to assess and quantify the economic benefits associated with carbon capture retrofit opportunities in specific states. The research was performed independently. The results presented in this report reflect the views of the authors, and not necessarily GPI's.

About Rhodium Group

Rhodium Group is an independent research provider combining economic data and policy insight to analyze global trends. Rhodium's Energy & Climate team analyzes the market impact of energy and climate policy and the economic risks of global climate change. This interdisciplinary group of policy experts, economic analysts, energy modelers, data engineers, and climate scientists supports decision-makers in the public, financial services, corporate, philanthropic and non-profit sectors. More information is available at www.rhg.com.

John Larsen is a Director at Rhodium Group and leads the firm's US power sector and energy systems research. John specializes in analysis of national and state clean energy policy and market trends. Previously, John worked for the US Department of Energy's Office of Energy Policy and Systems Analysis where he served as an electric power policy advisor.

Whitney Herndon is an Associate Director at Rhodium Group and manages the firm's US energy research. Whitney manages a team of analysts that use a range of energy and economic models to analyze the impact of policy proposals and market shifts on the US energy system and macroeconomy. Her expertise includes carbon capture, energy and electric power systems modeling, and economy-wide decarbonization.

Galen Hiltbrand is a Research Analyst at Rhodium Group, focusing on US energy policy and carbon management. She uses quantitative tools to assess the role that carbon capture and carbon removal technologies can play in decarbonizing the US energy system.

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Contents

SECTION 1

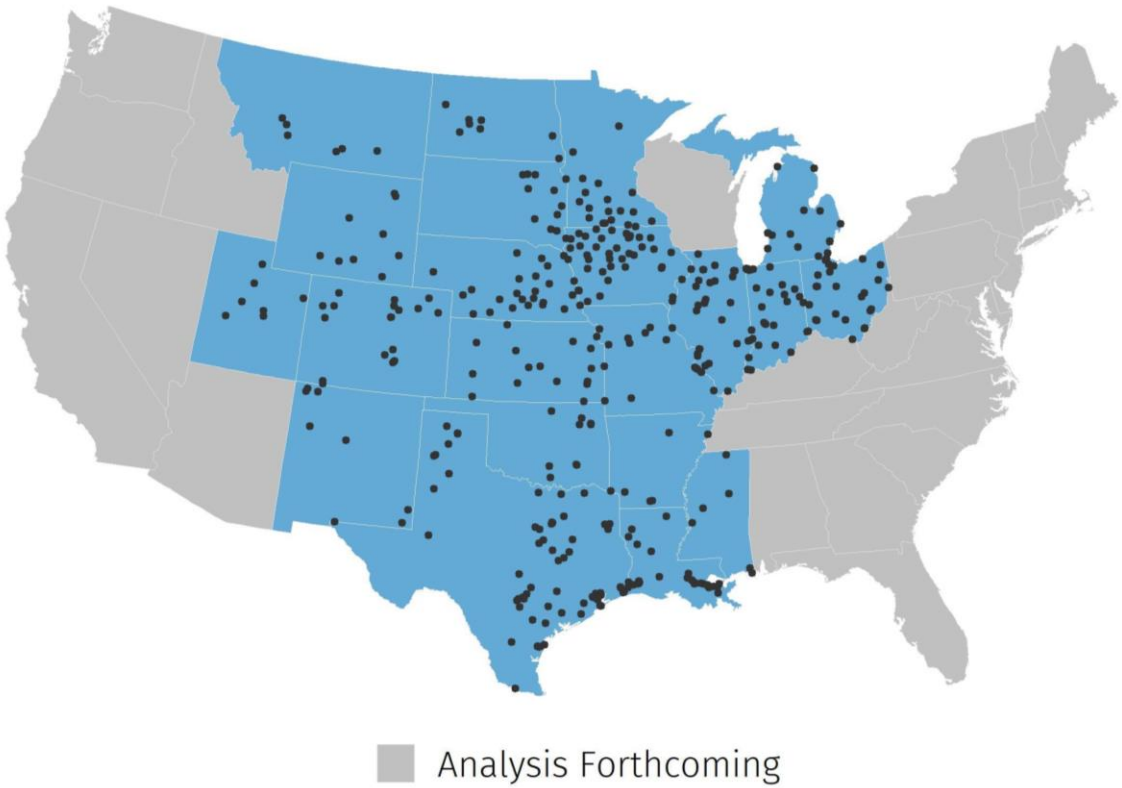
Study Objectives, Methodology, and Assumptions

Study Objectives

This report is a state-by-state analysis exploring the economic benefits associated with carbon capture retrofit opportunities at existing industrial and electric power facilities. GPI identified the facilities examined in this analysis as carbon capture projects with near- to intermediate-term feasibility. The direct economic benefits considered include private sector investment and employment opportunities associated with the construction and operation of carbon capture retrofits.

For this study, we focus on opportunities in 21 of the states participating in the Regional Carbon Capture Deployment Initiative. In forthcoming analysis, Rhodium will explore the economic benefits of carbon capture retrofits in the remaining lower-48 states.

Examined Regional Carbon Capture Deployment Initiative States
Facilities with carbon capture opportunities pinpointed in dark gray



Source: Rhodium Group analysis, The Great Plains Institute

Methodology and Assumptions

Employment Analysis

- We assume the carbon capture retrofits and corresponding transport infrastructure will be built over a 15-year time period from 2021 to 2035
- This assumption does not represent Rhodium Group's view on carbon capture opportunities or infrastructure deployment
- We use the economic model IMPLAN's state level tools for this analysis
- Results only include jobs associated with transport infrastructure and retrofitting of facilities
- We estimate in-state jobs associated with the investment for carbon capture within each state
- Jobs associated with capital investments are the average annual jobs over 15 years spurred by retrofitting facilities with carbon capture
- Annual operation jobs represent the on-site and off-site jobs associated with operating the carbon capture retrofit equipment at each facility each year
- Employment per industrial output is assumed to stay constant over time

Facility Identification

- Facilities analyzed in this study were identified by GPI
- These facilities represent GPI's views on near to intermediate term carbon capture retrofit opportunities in the Regional Carbon Capture Department Initiative states
- For purposes of analysis it is assumed that any identified facilities remain operational through the study period regardless of their current or future economic viability
- Transport infrastructure buildout scenarios and CO_2 transport networks were devised from the Regional Carbon Capture Deployment Initiative's use of SimCCS modeling

Cost Characterization

- Capital and operations & maintenance costs are independently assessed by Rhodium
- Carbon capture at each plant is determined as part of the cost analysis
- Transport infrastructure costs are from the National Energy Technology Laboratory (NETL) model

SECTION 1

Methodology

Employment Analysis

Step 1: Apply Costs

- Take GPI's near to intermediate facility data
- Apply Rhodium's own capital and operations and maintenance (O&M) costs to each facility
  - Apply capacity decisions
  - High and low capital and O&M costs
- Aggregate costs in each study region state by present industries
  - Ammonia, cement, coal power plant, ethanol, hydrogen, gas power plant, gas processing, steel

Step 2: IMPLAN Inputs

- Conduct in-depth research on how distribution of costs for carbon capture vary by industry
  - Each facility type requires different equipment, materials, maintenance, and energy inputs which lead to different costs
- Apply cost breakdowns for each industry and sort into appropriate IMPLAN sectors
- Run state-specific IMPLAN analysis with a high and low scenario for each present industry

Step 3: Aggregate Jobs

- Jobs Associated with Capital Investment: include jobs associated with retrofitting the facility with carbon capture
  - Equipment, materials, construction, engineering
- Operation Jobs: include the increase in jobs associated with operating the retrofit facility
  - Can include maintenance, labor, chemicals, water treatment, and energy
  - Includes both on-site and off-site jobs necessary for retrofit operations. On-site jobs are approximately 5-15% of total operation jobs depending on the industry.

SECTION 2

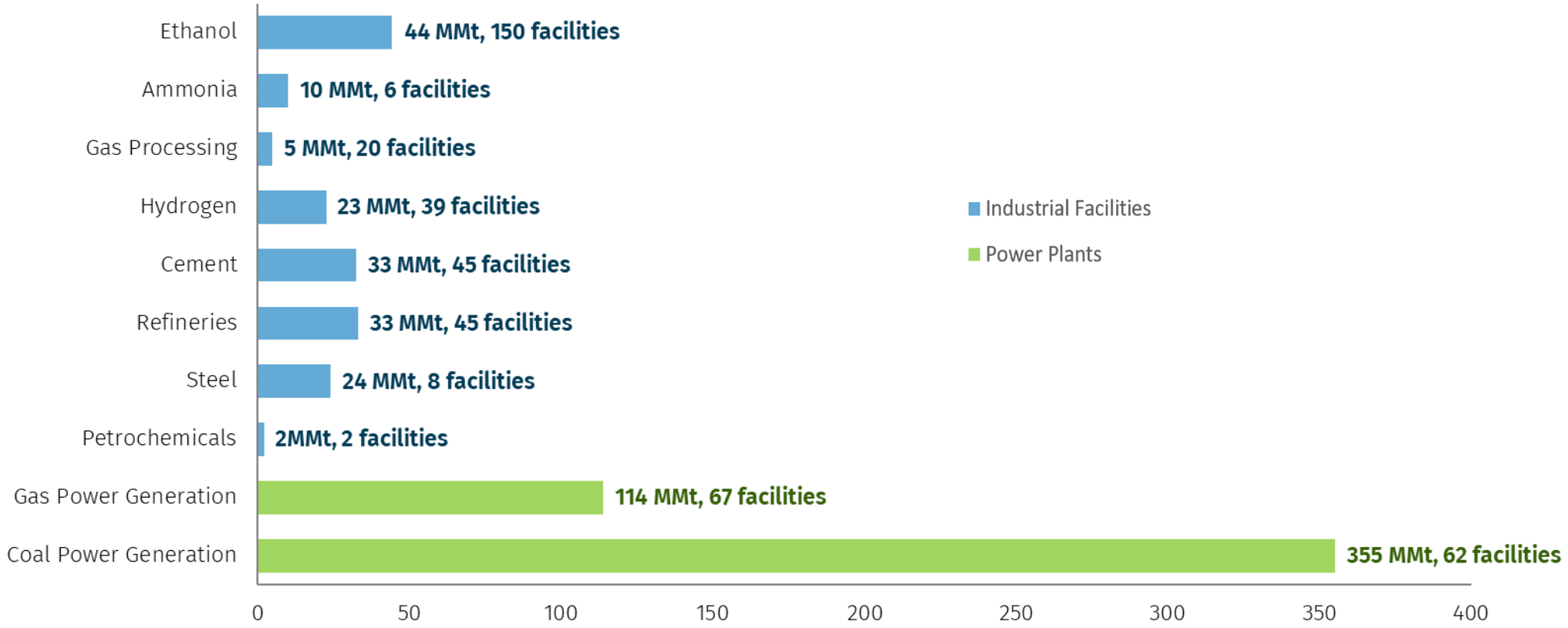
Regional Summary

Study Region: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons (MMt) of annual CO_2 capture



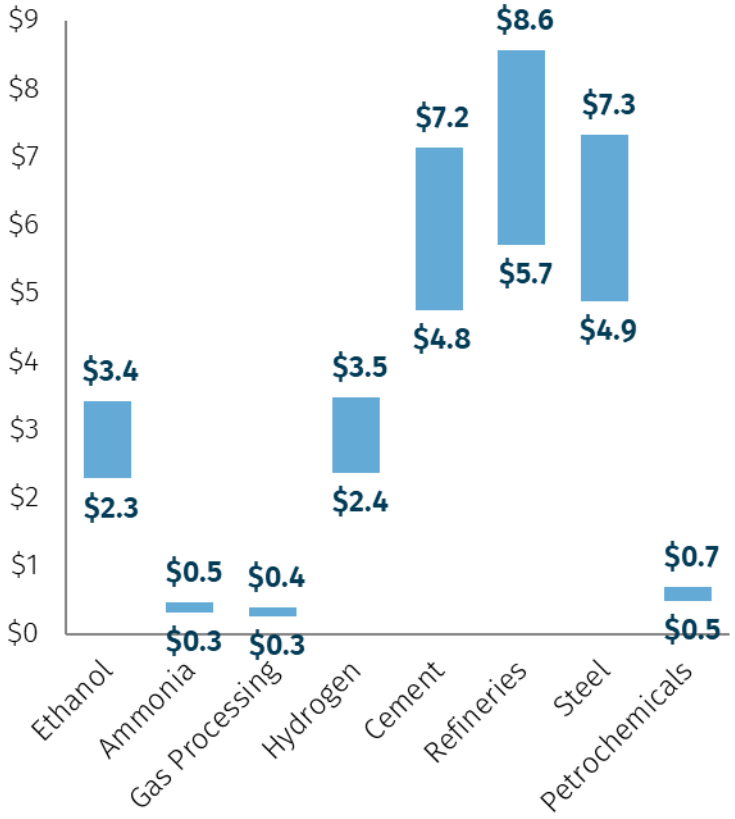
Source: Rhodium Group analysis, The Great Plains Institute

Study Region: Industrial Facilities

Carbon capture opportunities

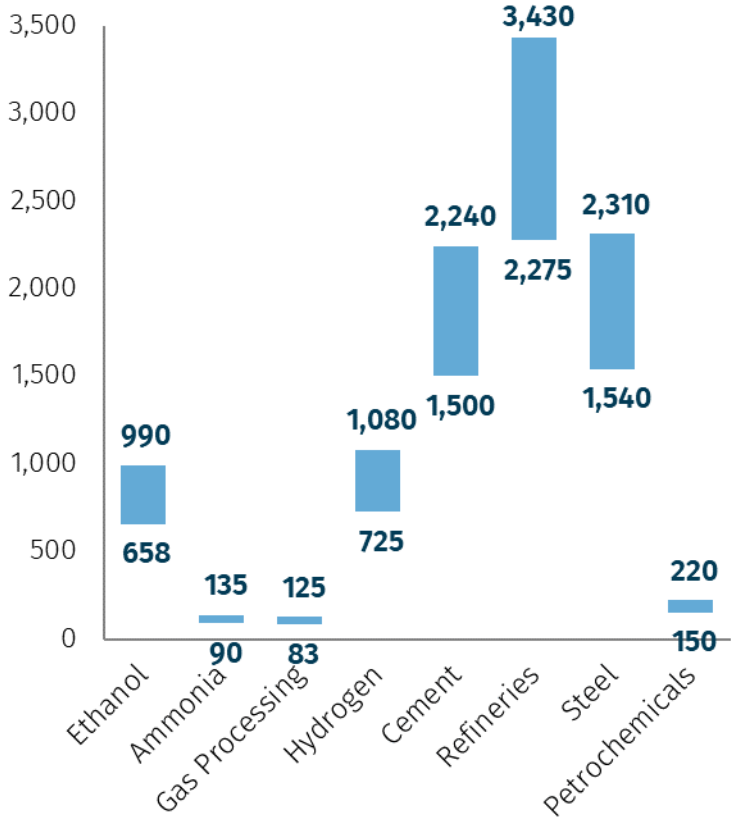
Capital Investment Requirement

Billion $ USD



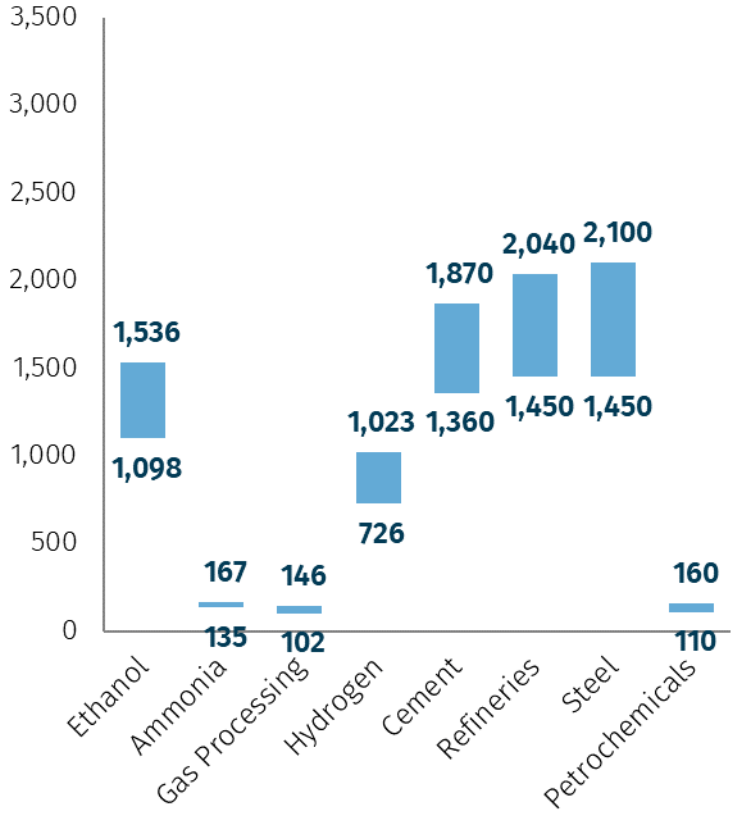
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs. Ongoing jobs include on-site and off-site jobs.

Study Region: Electric Power Sector

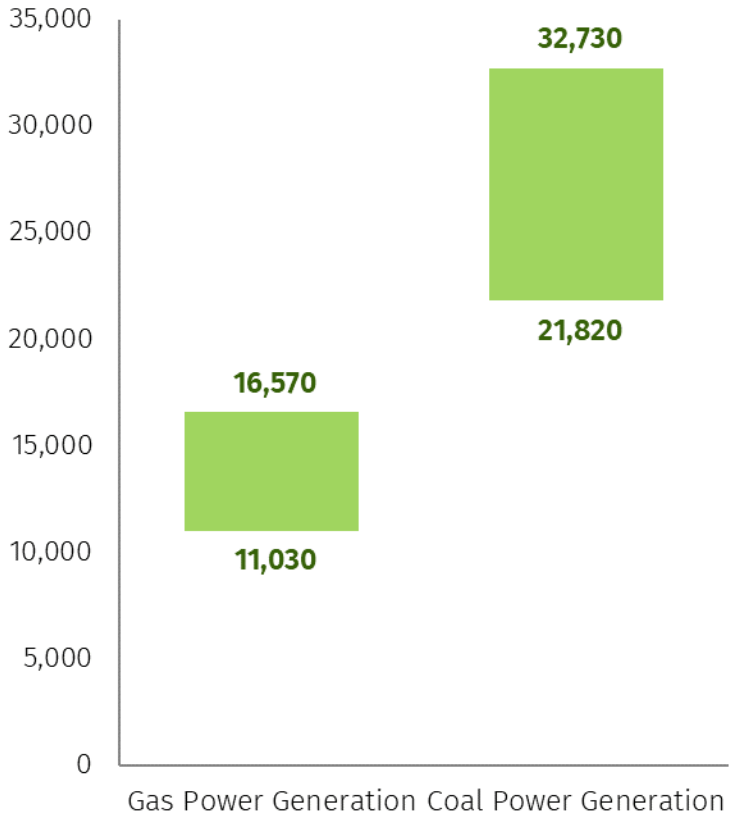
Carbon capture opportunities

Capital Investment Requirement

Billion $ USD

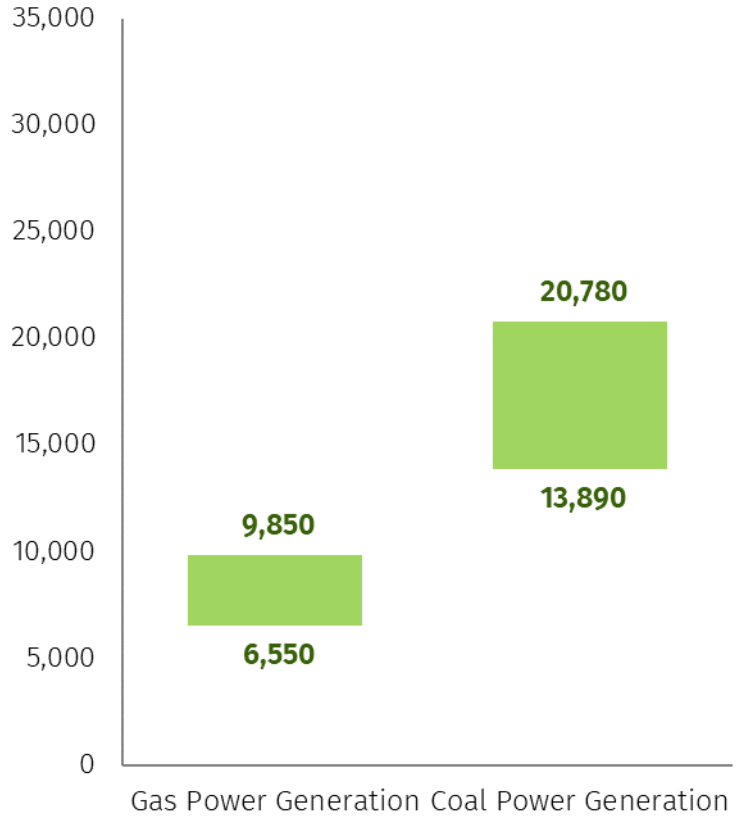
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



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SECTION 3

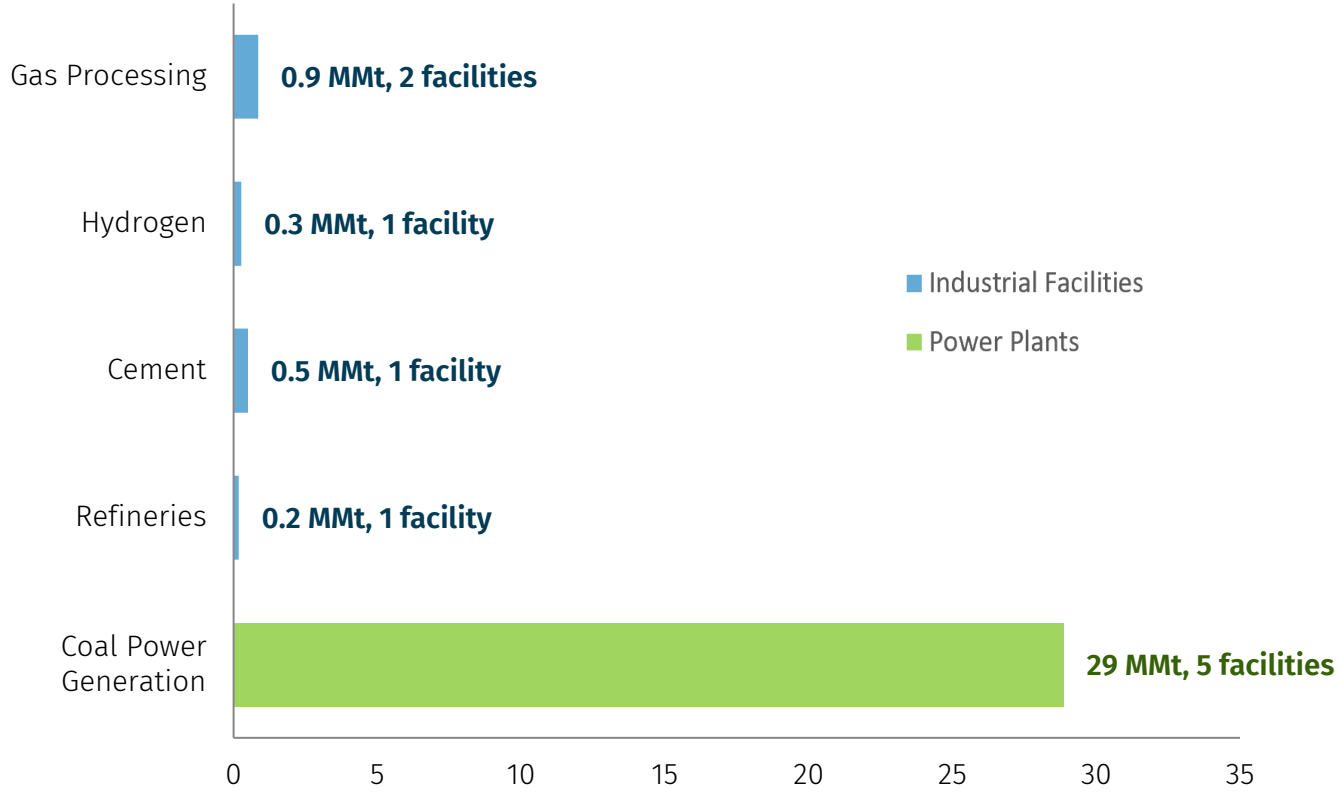
Example States: Wyoming, Montana, and Louisiana

Wyoming: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

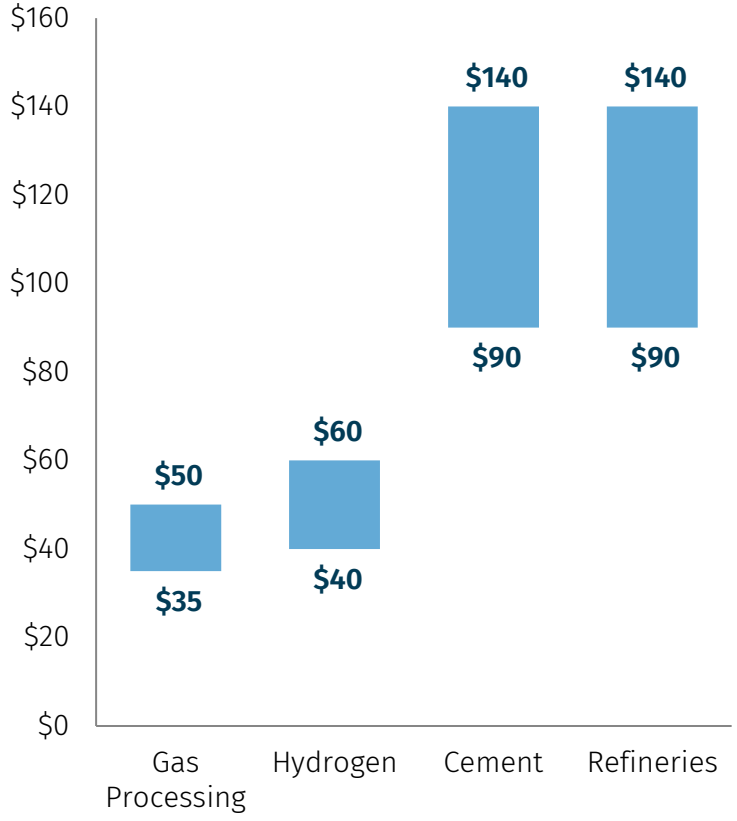
- If all near to intermediate term opportunities in Wyoming are pursued, $6 to $10 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Wyoming total 1,760 to 2,650 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 1,320 to 1,964 ongoing jobs.
- In addition, $1.6 billion in transport infrastructure will be required to support these projects. This investment will create 690 jobs on average each year over a 15-year deployment period.

Wyoming: Industrial Facilities

Carbon capture opportunities

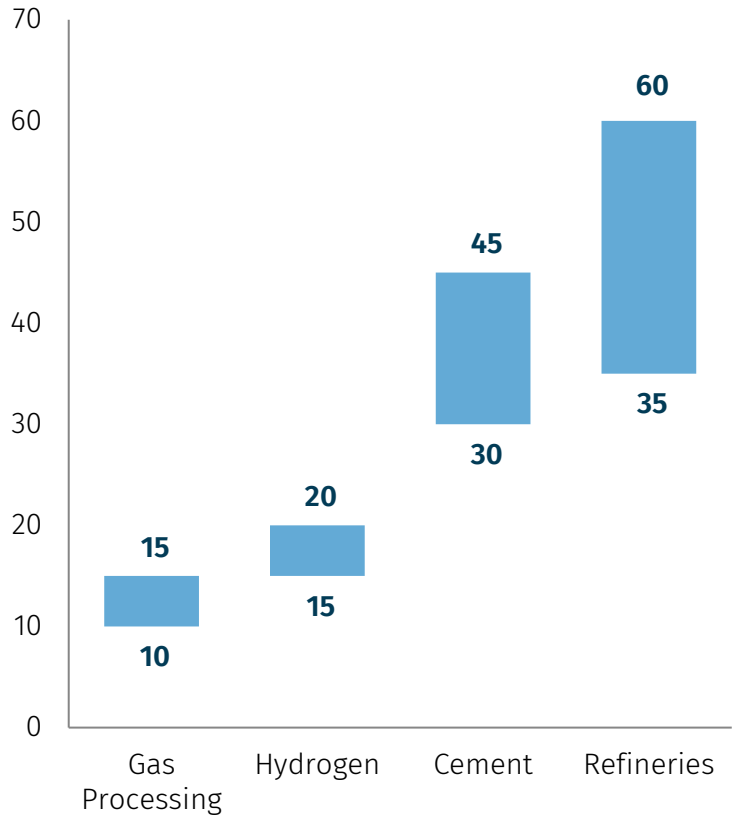
Capital Investment Requirement

Million $ USD



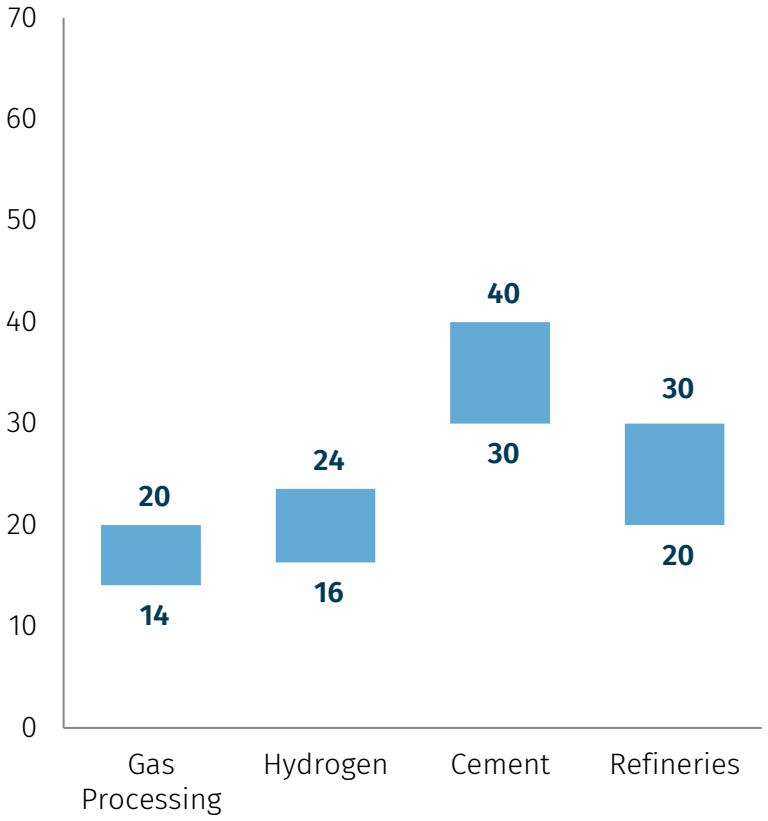
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



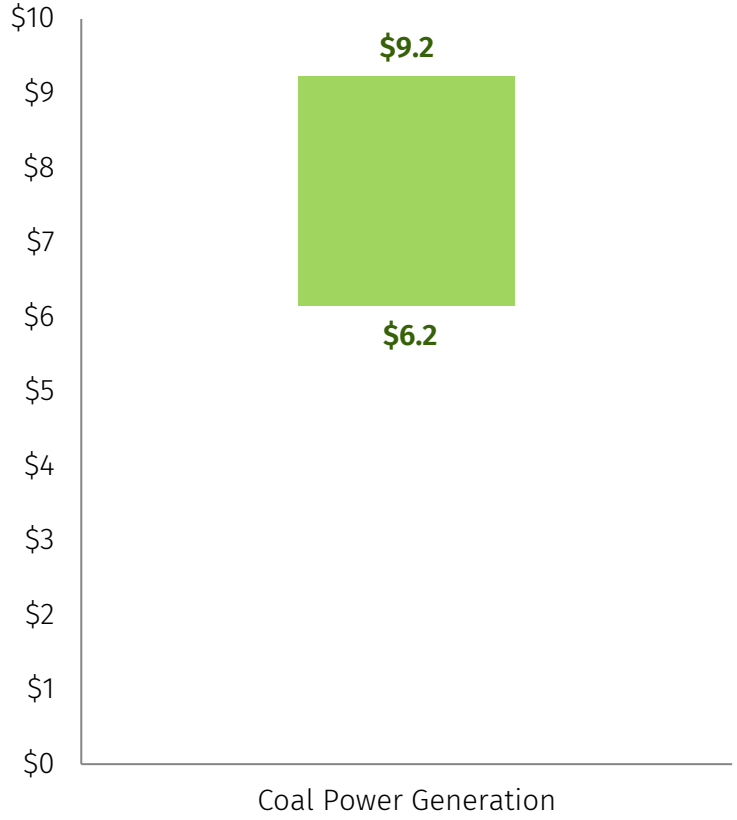
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Wyoming: Electric Power Sector

Carbon capture opportunities

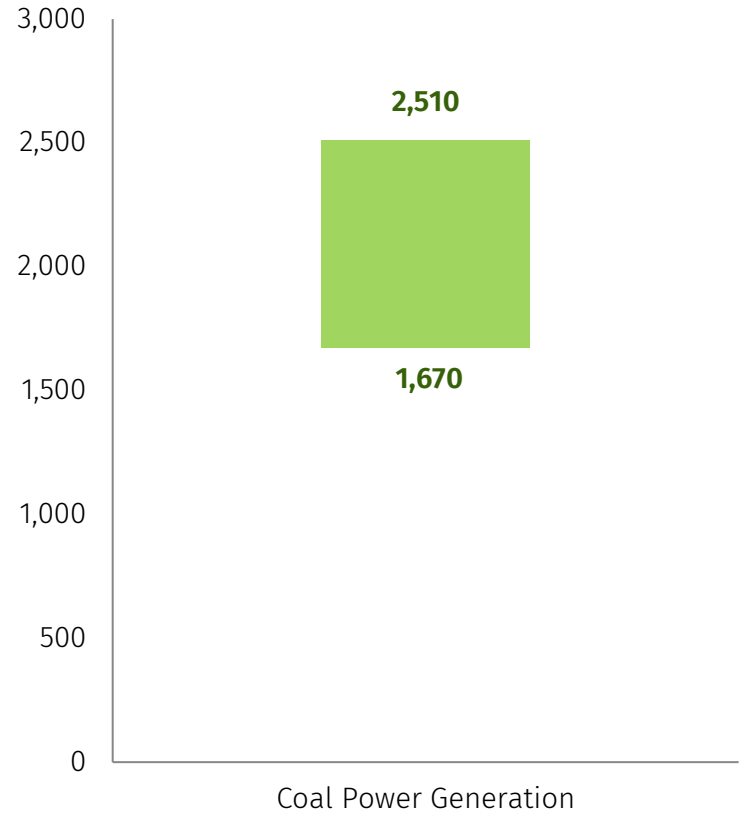
Capital Investment Requirement

Billion $ USD



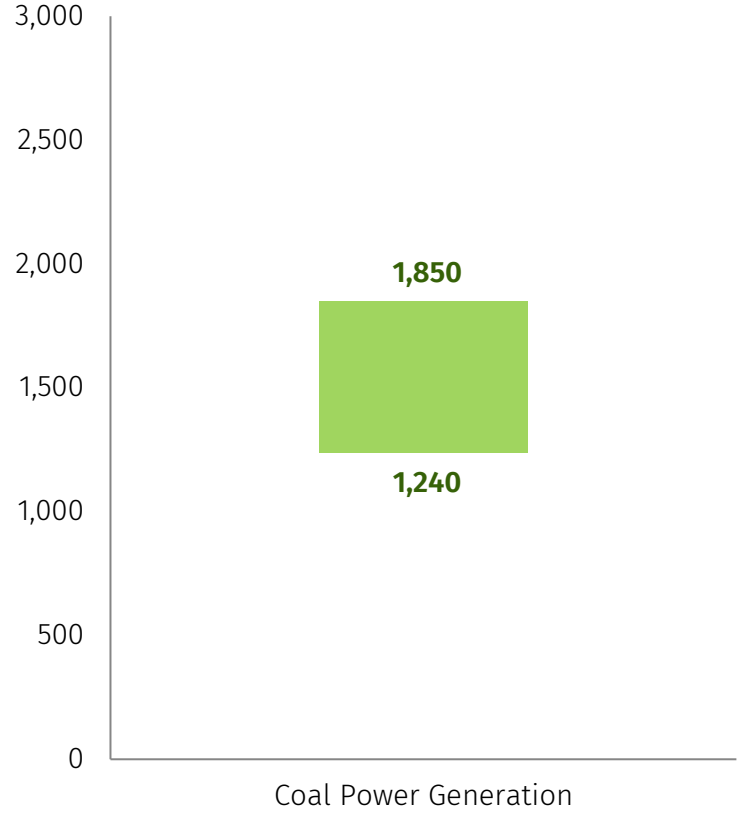
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



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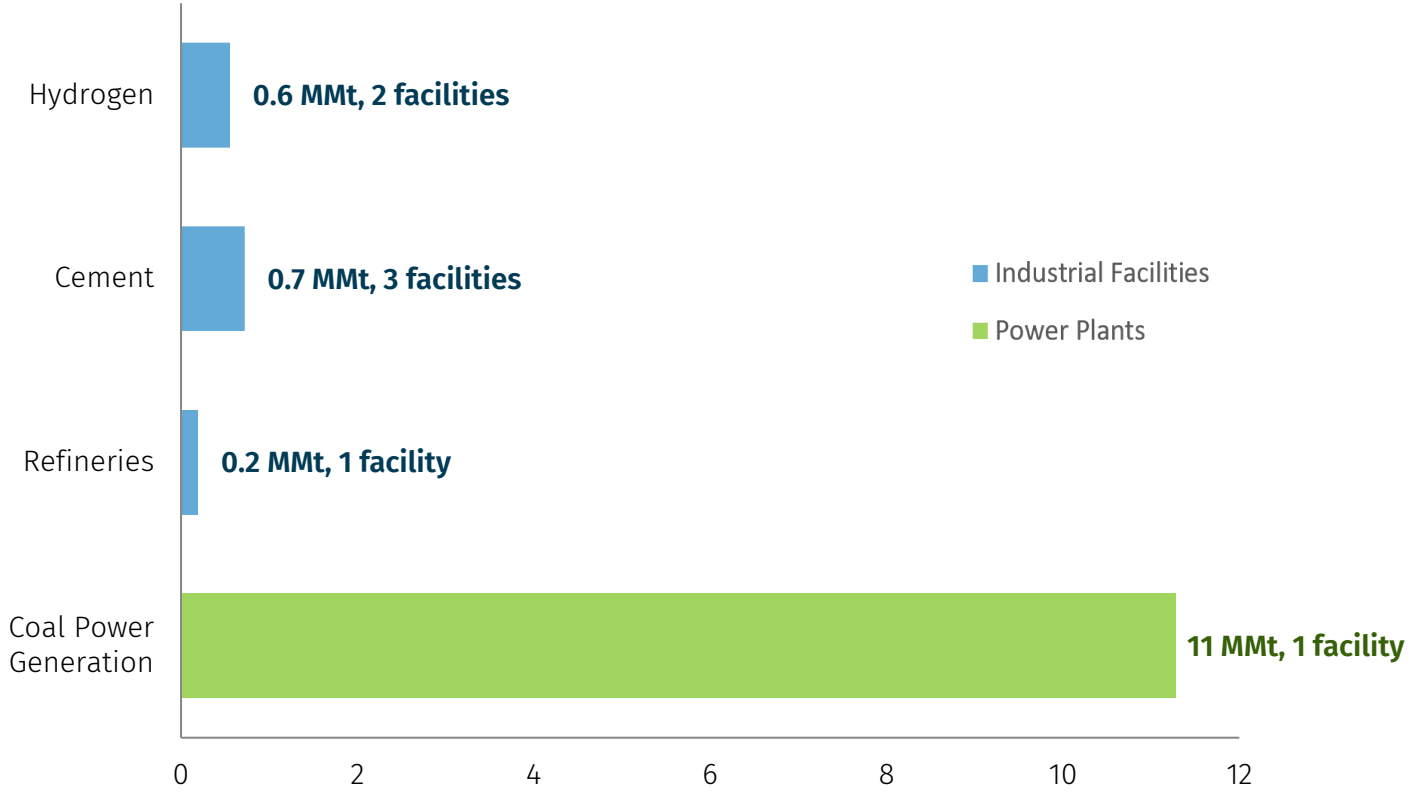
Montana: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

- If all near to intermediate term opportunities in Montana are pursued, $2.7 to $4 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Montana total 880 to 1,330 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 640 to 940 ongoing jobs.
- In addition, $0.9 billion in transport infrastructure will be required to support these projects. This investment will create 510 jobs on average each year over a 15-year deployment period.

Montana: Industrial Facilities

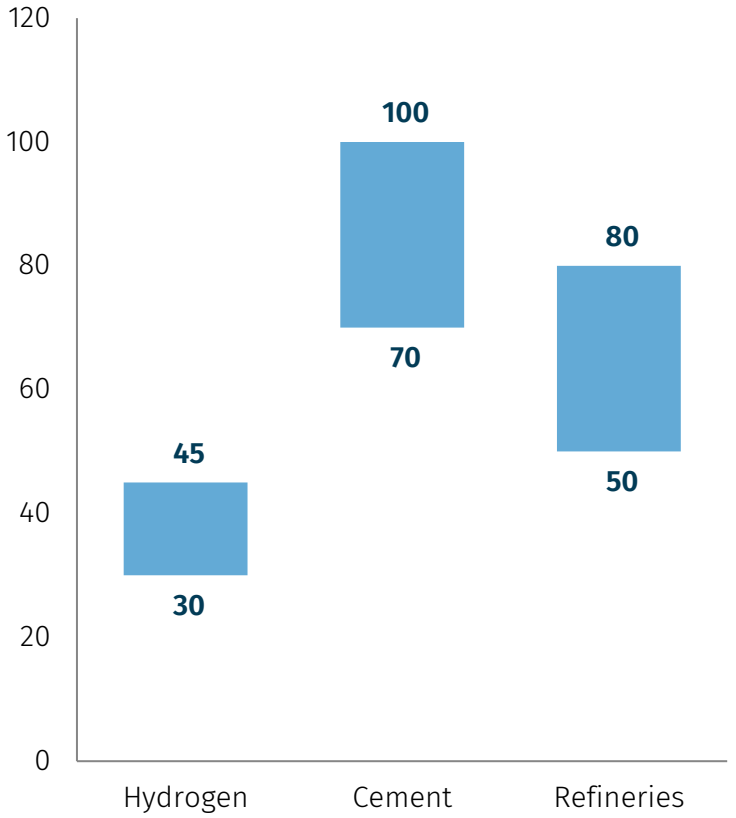
Carbon capture opportunities

Capital Investment Requirement

Million $ USD

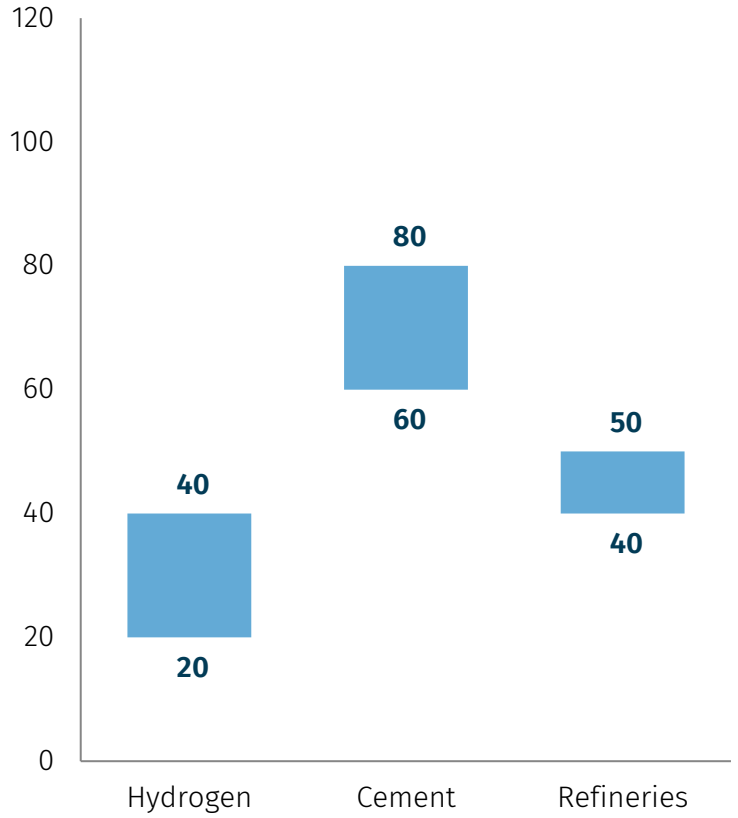
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



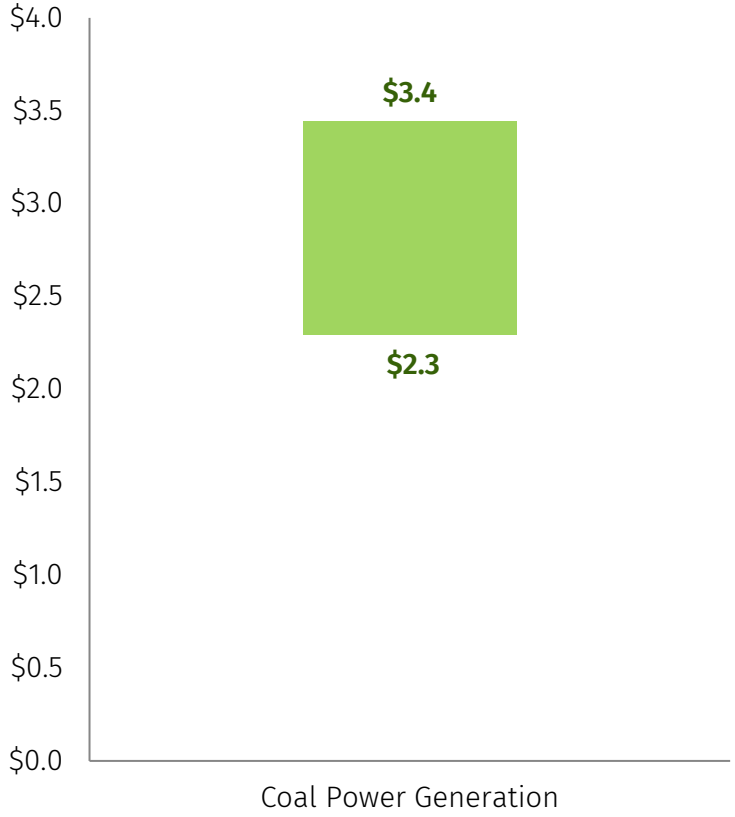
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Montana: Electric Power Sector

Carbon capture opportunities

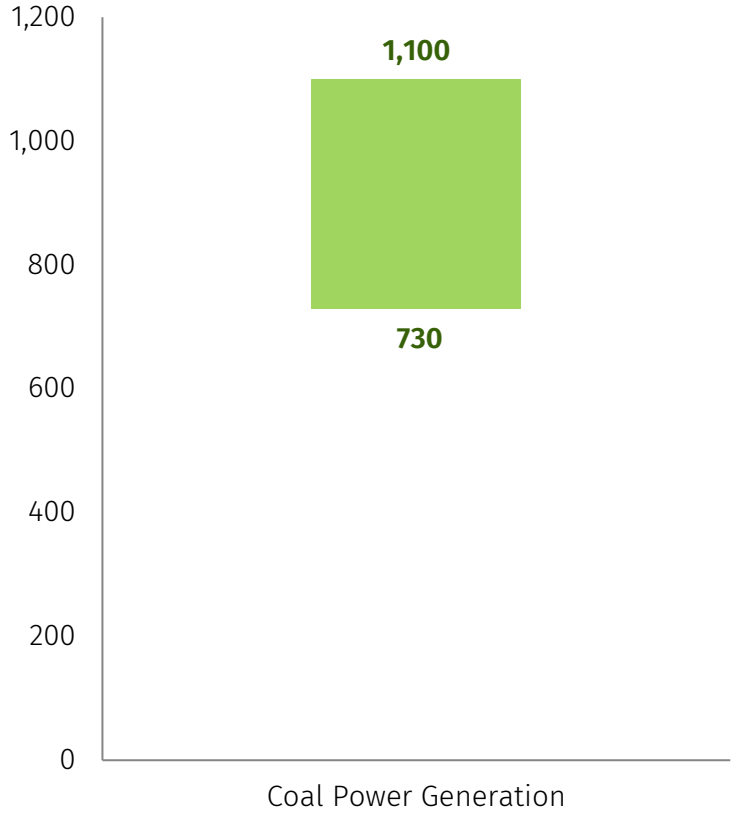
Capital Investment Requirement

Billion $ USD



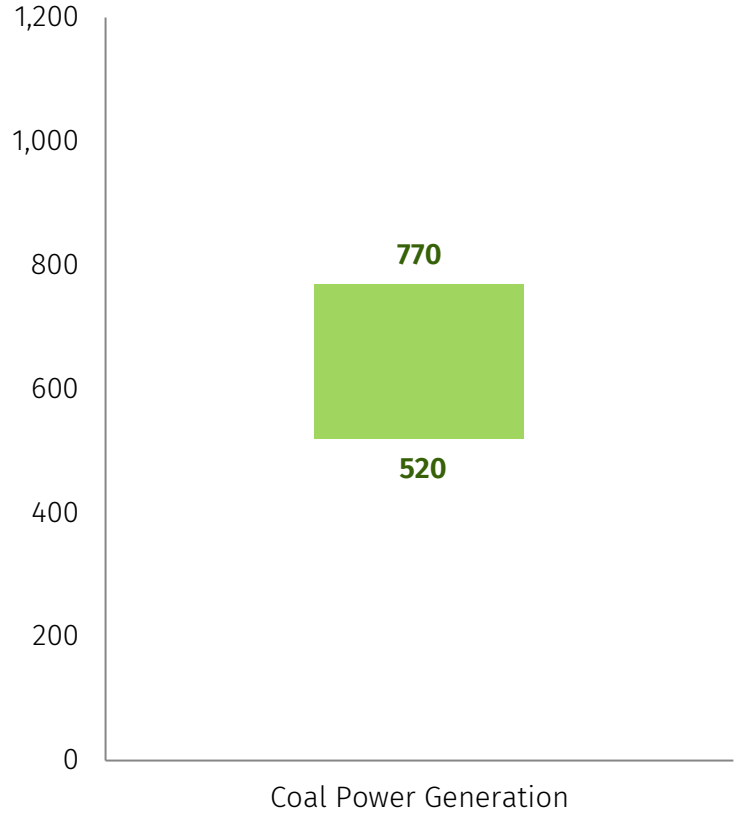
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



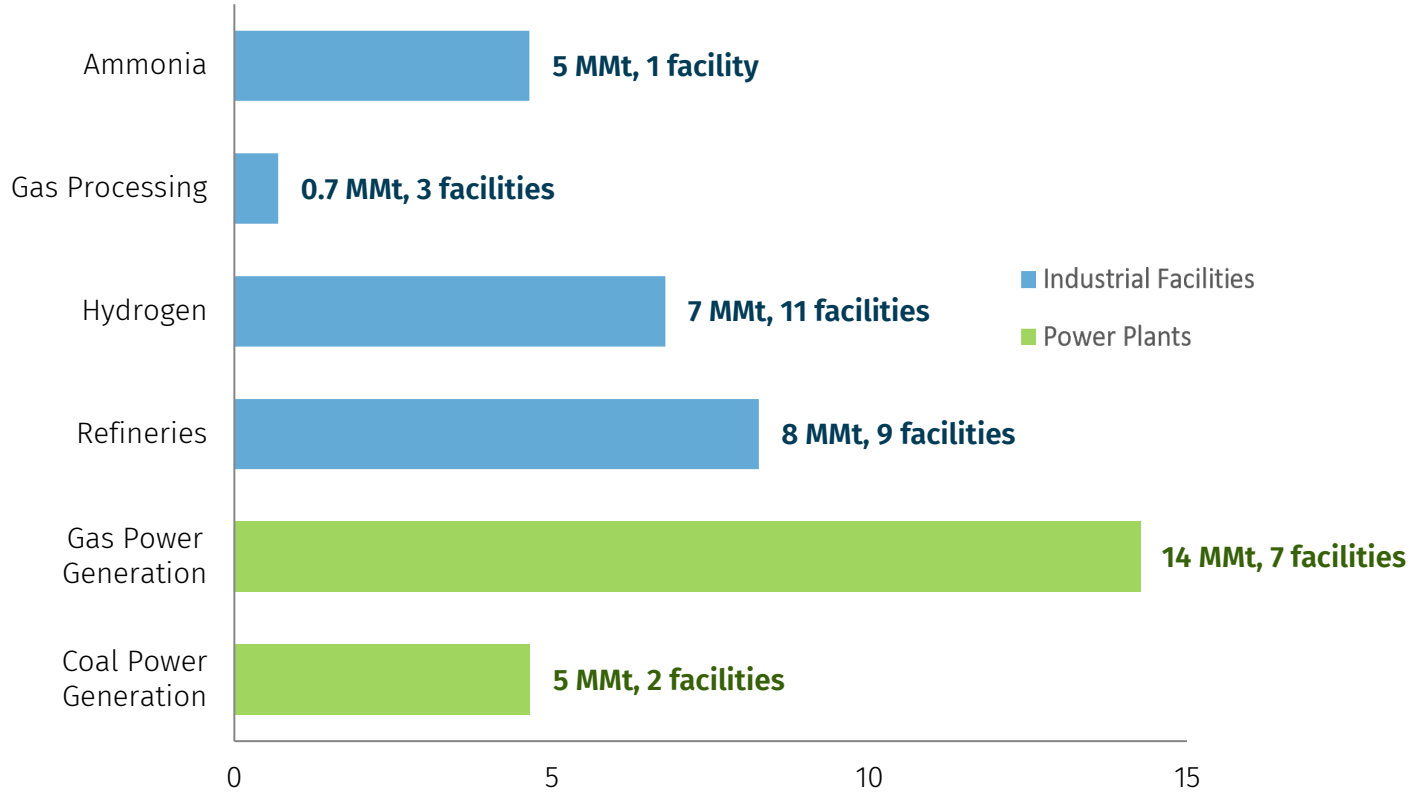
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Louisiana: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

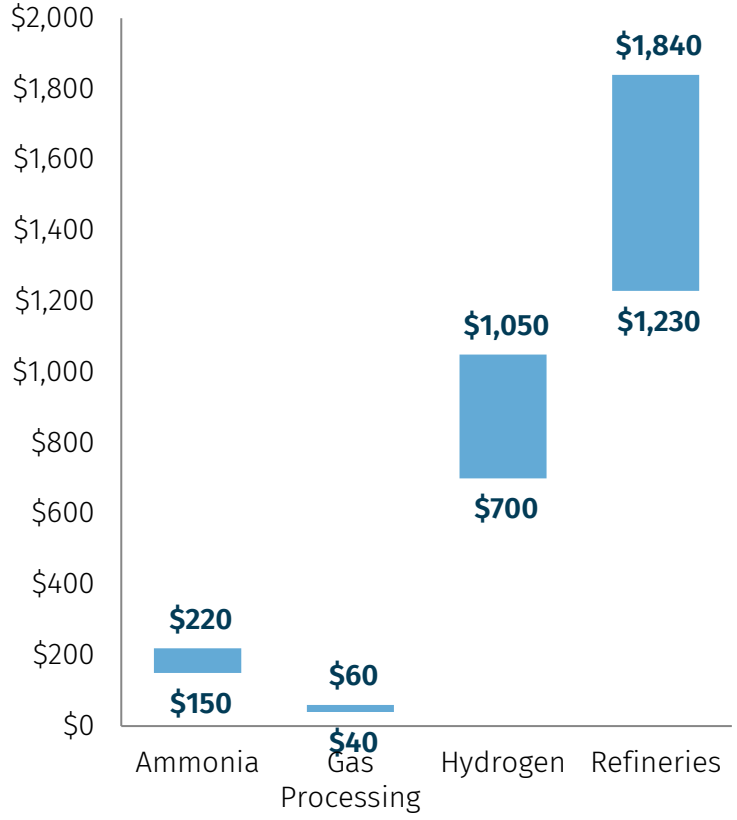
- If all near to intermediate term opportunities in Louisiana are pursued, $8 to $12 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Louisiana total 2,710 to 4,060 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 1,690 to 2,500 ongoing jobs.
- In addition, $1.3 billion in transport infrastructure will be required to support these projects. This investment will create 860 jobs on average each year over a 15-year deployment period.

Louisiana: Industrial Facilities

Carbon capture opportunities

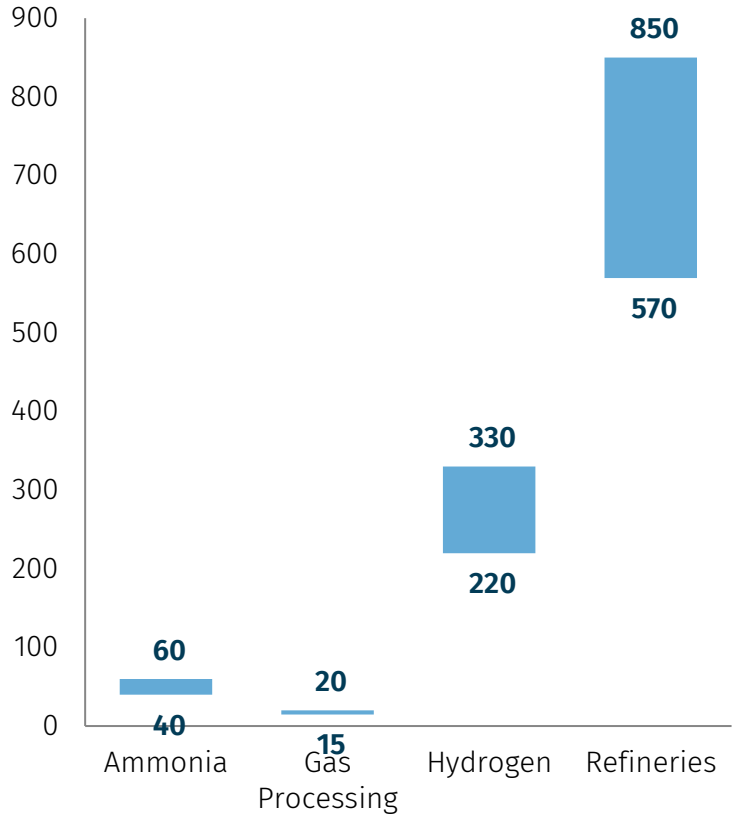
Capital Investment Requirement

Million $ USD



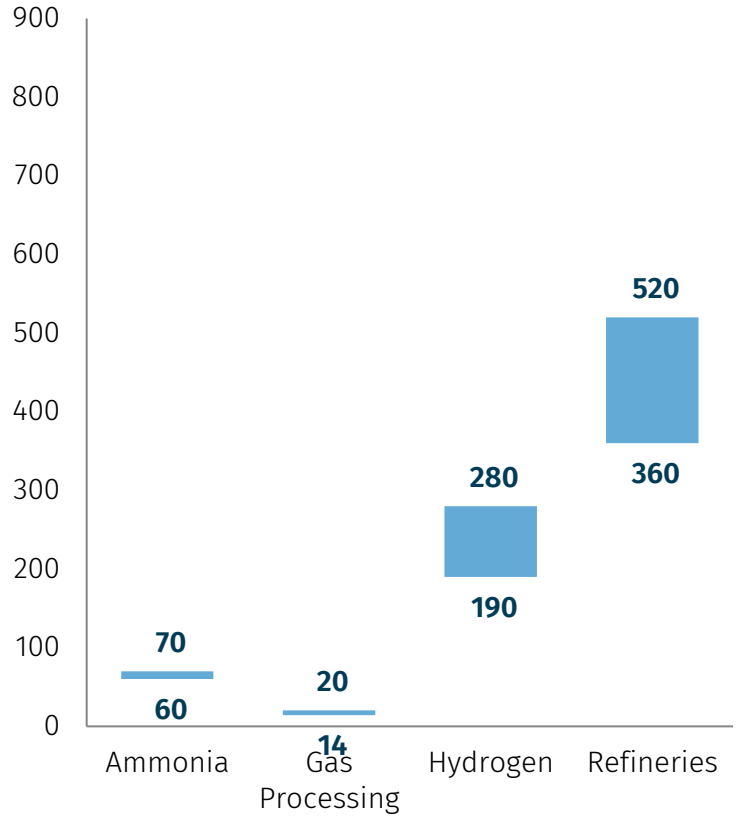
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



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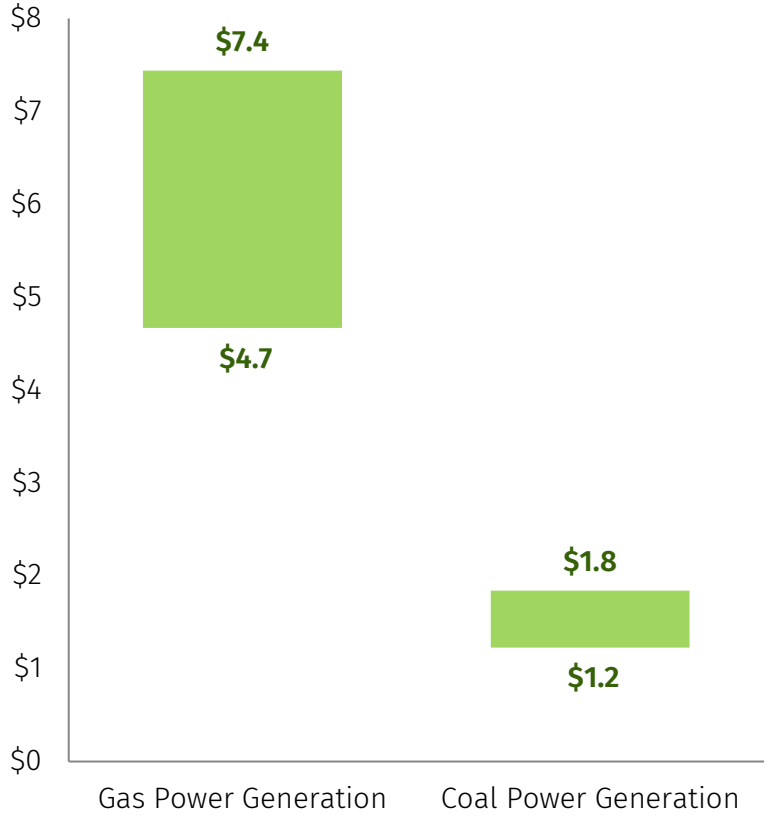
Louisiana: Electric Power Sector

Carbon capture opportunities

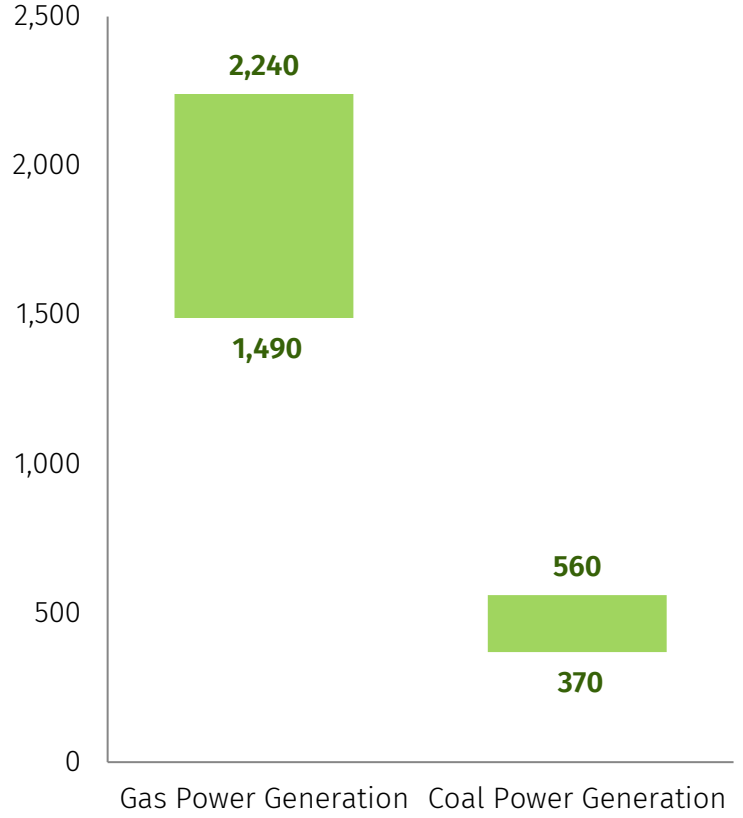
Capital Investment Requirement

Billion $ USD



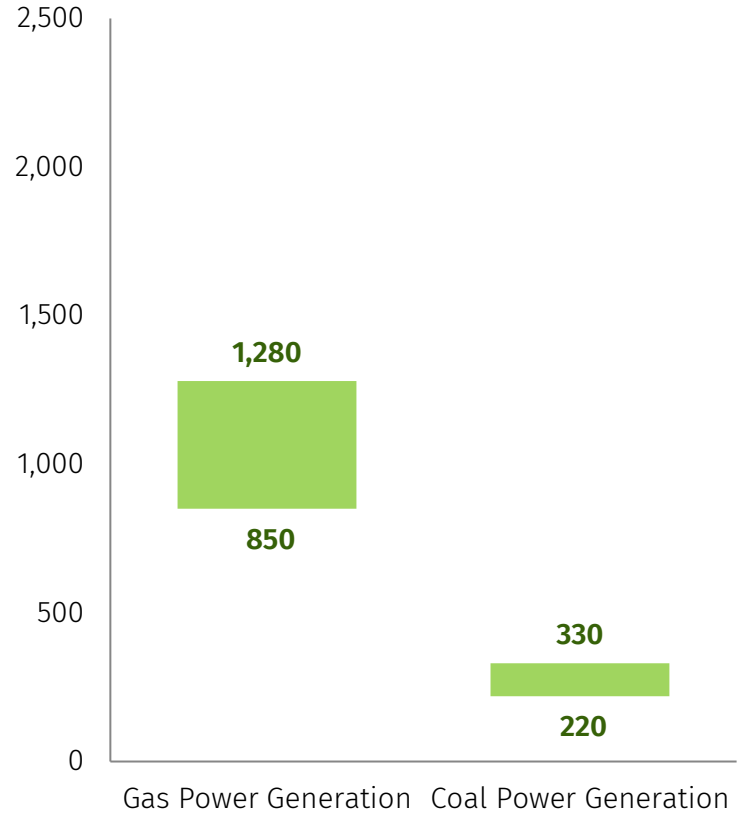
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

SECTION 4

Industry Highlights & Key Takeaways

Steel: Study Region States with Most Carbon Capture Opportunity

Ranked by million metric tons of annual CO_2 capture

1. Indiana (18 MMt)

- Facilities: 4
- Capital investment: $2.8 - $4.3 billion
- Jobs associated with investment: 910 - 1,360 annual average jobs
- Operation jobs: 870 – 1,250 annually

2. Ohio (4 MMt)

- Facilities: 2
- Capital investment: $1.1 - $1.7 billion
- Jobs associated with investment: 350 – 530 average annual jobs
- Operation jobs: 340 – 490 annually

3. Michigan (2 MMt)

- Facilities: 2
- Capital investment: $0.9 - $1.4 billion
- Jobs associated with investment: 280 – 420 average annual jobs
- Operation jobs: 240 – 360 annually

Source: Rhodium Group analysis, The Great Plains Institute. Note: See state specific slides for more in-depth analysis.

Ethanol: Study Region States with Most Carbon Capture Opportunity

Ranked by million metric tons of annual CO_2 capture

1. Iowa (11 MMt)

- Facilities: 38
- Capital investment: $590 - $880 million
- Jobs associated with investment: 170 – 260 average annual jobs
- Operation jobs: 280 – 390 annually

2. Minnesota (9 MMt)

- Facilities: 16
- Capital investment: $340 – $520 million
- Jobs associated with investment: 100 – 140 average annual jobs
- Operation jobs: 180 – 240 annually

3. Nebraska (6 MMt)

- Facilities: 22
- Capital investment: $320 - $480 million
- Jobs associated with investment: 100 – 140 average annual jobs
- Operation jobs: 150 – 210 annually

Source: Rhodium Group analysis, The Great Plains Institute. Note: See state specific slides for more in-depth analysis.

Cement: Study Region States with Most Carbon Capture Opportunity

Ranked by million metric tons of annual CO_2 capture

1. Missouri (9 MMt)

- Facilities: 7
- Capital investment: $0.9 – $1.4 billion
- Jobs associated with investment: 300 – 450 average annual jobs
- Operation jobs: 290 – 390 annually

2. Texas (8 MMt)

- Facilities: 11
- Capital investment: $1.2 - $1.8 billion
- Jobs associated with investment: 350 – 520 average annual jobs
- Operation jobs: 310 – 430 annually

3. Michigan (2 MMt)

- Facilities: 2
- Capital investment: $280 - $410 million
- Jobs associated with investment: 80 – 130 average annual jobs
- Operation jobs: 80 – 110 annually

Source: Rhodium Group analysis, The Great Plains Institute. Note: See state specific slides for more in-depth analysis.

Top Study Region States in Other Industries

Ranked by million metric tons of annual CO_2 capture

Ammonia

1. Louisiana
2. Iowa
3. Ohio

Gas Processing

1. Colorado
2. New Mexico
3. Texas

Hydrogen

1. Texas
2. Louisiana
3. Indiana

Refineries

1. Texas
2. Louisiana
3. Illinois

Petrochemicals

1. Texas

Source: Rhodium Group analysis, The Great Plains Institute. Note: See state specific slides for more in-depth analysis.

Key Takeaways

Carbon capture is a multibillion-dollar investment opportunity

Pursuing all carbon capture opportunities across Regional Deployment Initiative states will require $132-$200 billion in capital investment over the next 15 years.

Carbon capture investment will lead to good jobs

Jobs associated with carbon capture retrofits in these states total 67,000-100,000 on average per year over the next 15 years.*

A diverse array of opportunities are available

Jobs can be created in a variety of industries from electric power generation to steel, cement, ethanol and refining.

Carbon capture can play to each states' strengths

Economic opportunities associated with carbon capture are available in all states regardless of their energy and economic profile. States that are large electricity producers have opportunities, so do manufacturing heavy states as well as oil and gas producers.

*These total jobs figures include the jobs associated with capital investment plus the annual operation jobs. Capital investment jobs are the average jobs over the 15-year study period from 2021-2035. The annual operation jobs last for as long as the plant is in operation, which for this analysis we assume will be at least 15 years.

SECTION 5

All Study Region States Provided for Reference

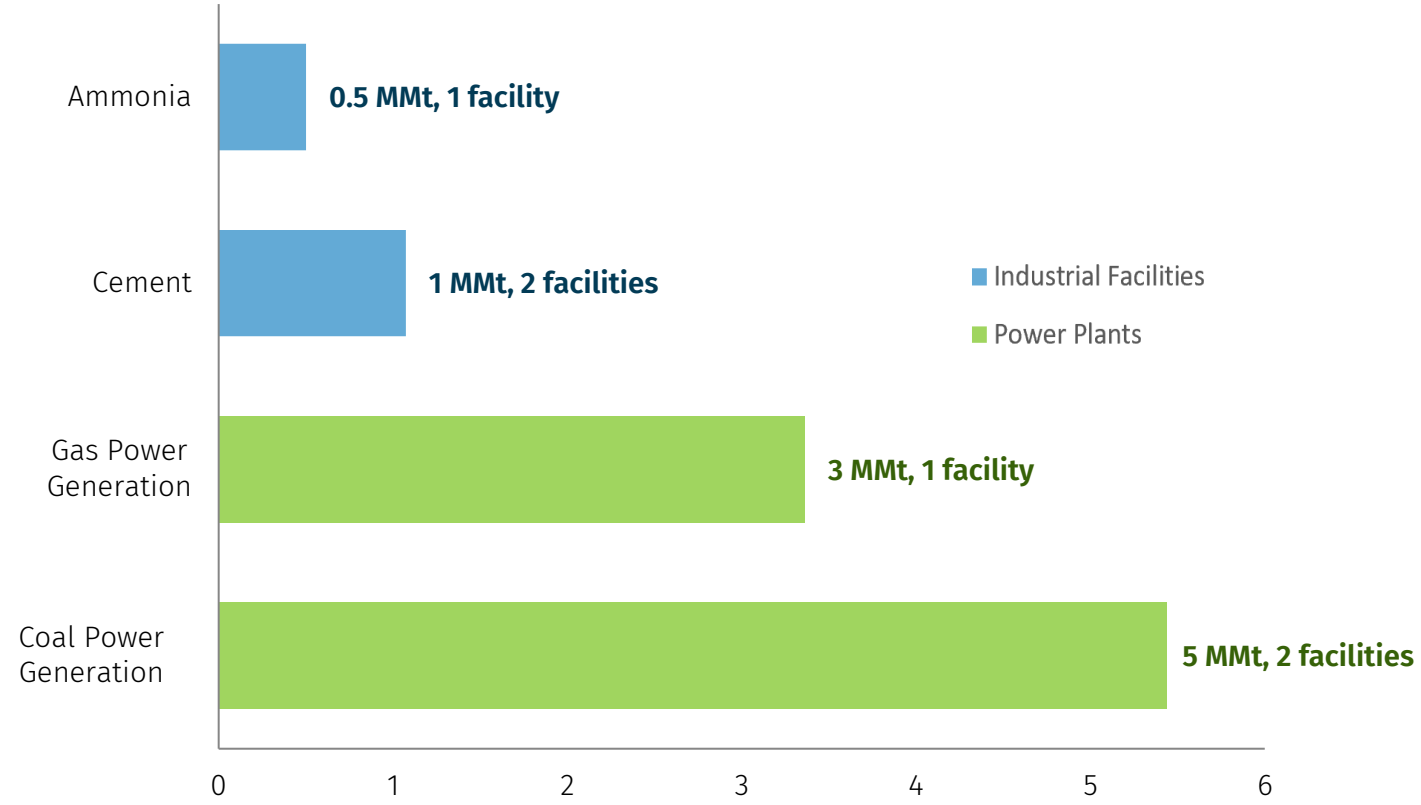
1. Arkansas
2. Colorado
3. Illinois
4. Indiana
5. Iowa
6. Kansas
7. Louisiana
8. Michigan
9. Minnesota
10. Mississippi
11. Missouri
12. Montana
13. New Mexico
14. North Dakota
15. Nebraska
16. Ohio
17. Oklahoma
18. South Dakota
19. Texas
20. Utah
21. Wyoming

Arkansas: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

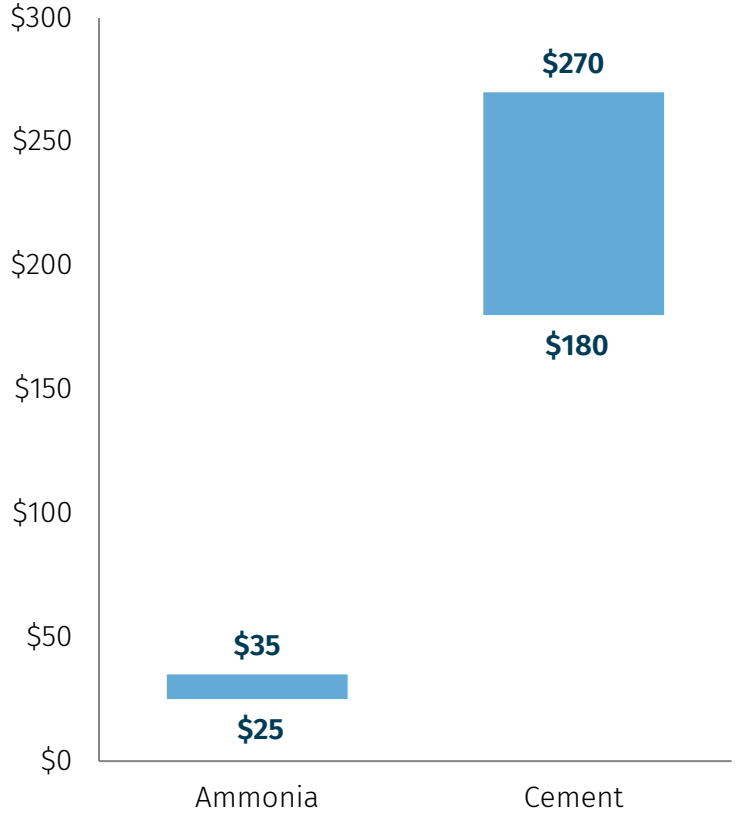
- If all near to intermediate term opportunities in Arkansas are pursued, $2.6 to $3.9 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Arkansas total 860 to 1,290 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 540 to 800 ongoing jobs.
- In addition, $1.7 billion in transport infrastructure will be required to support these projects. This investment will create 980 jobs on average each year over a 15-year deployment period.

Arkansas: Industrial Facilities

Carbon capture opportunities

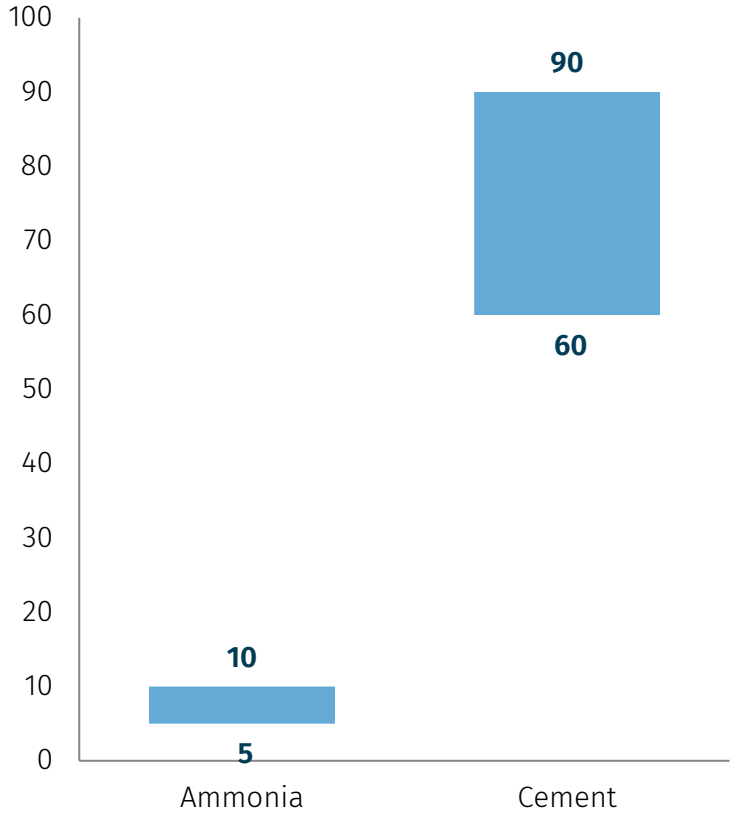
Capital Investment Requirement

Million $ USD



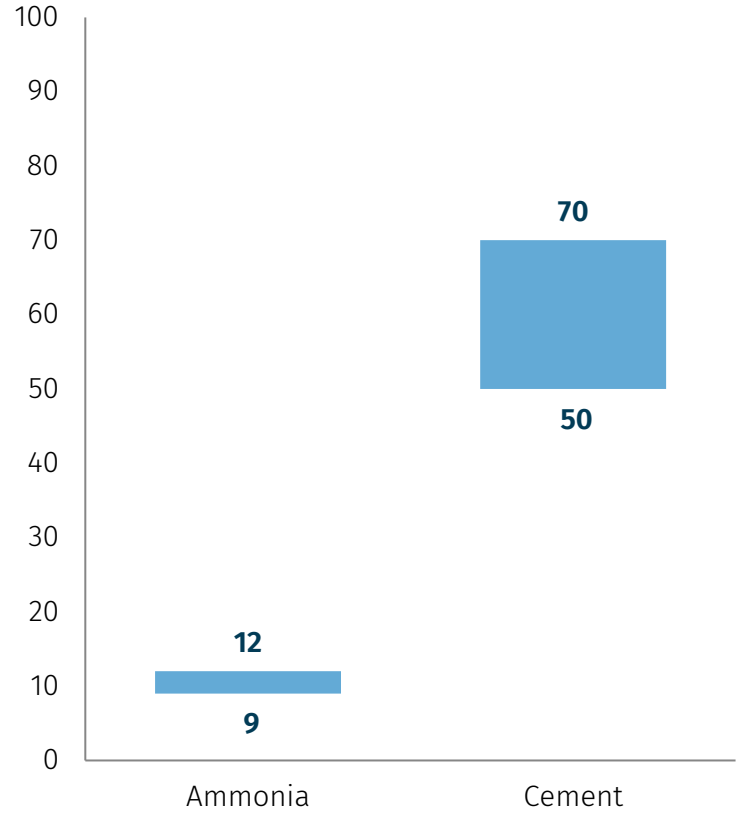
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



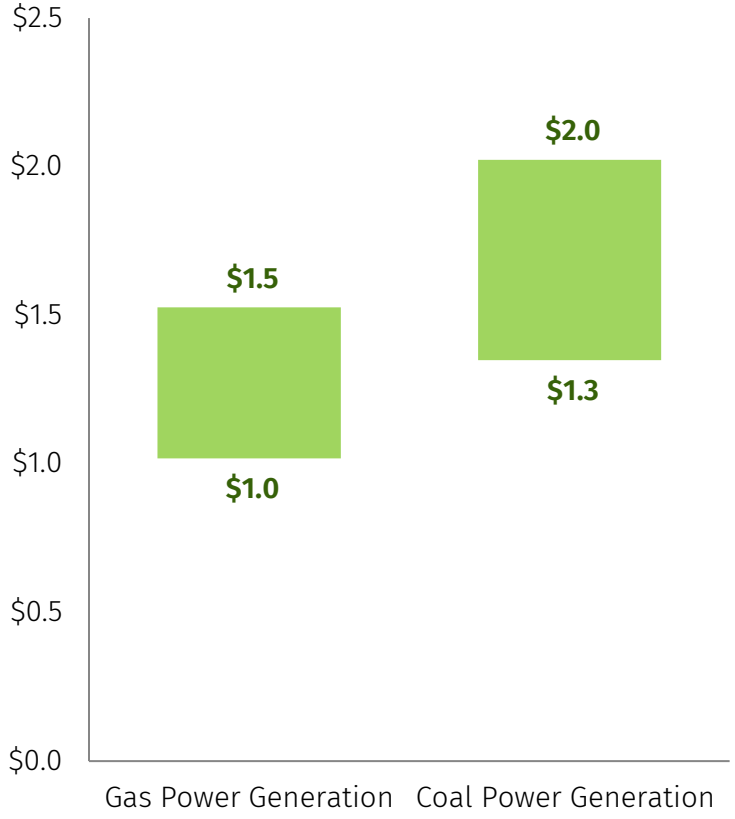
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Arkansas: Electric Power Sector

Carbon capture opportunities

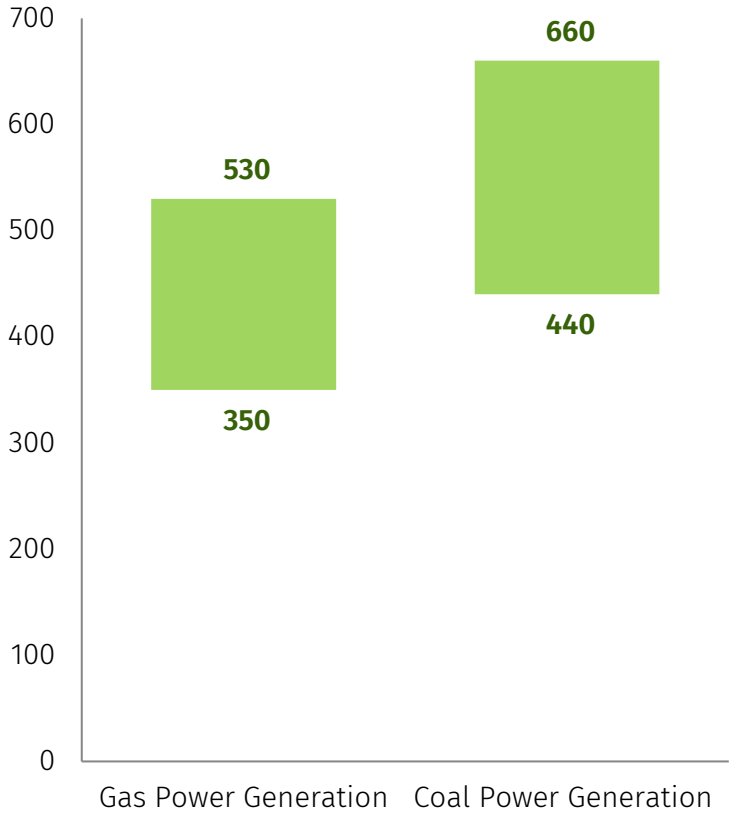
Capital Investment Requirement

Billion $ USD



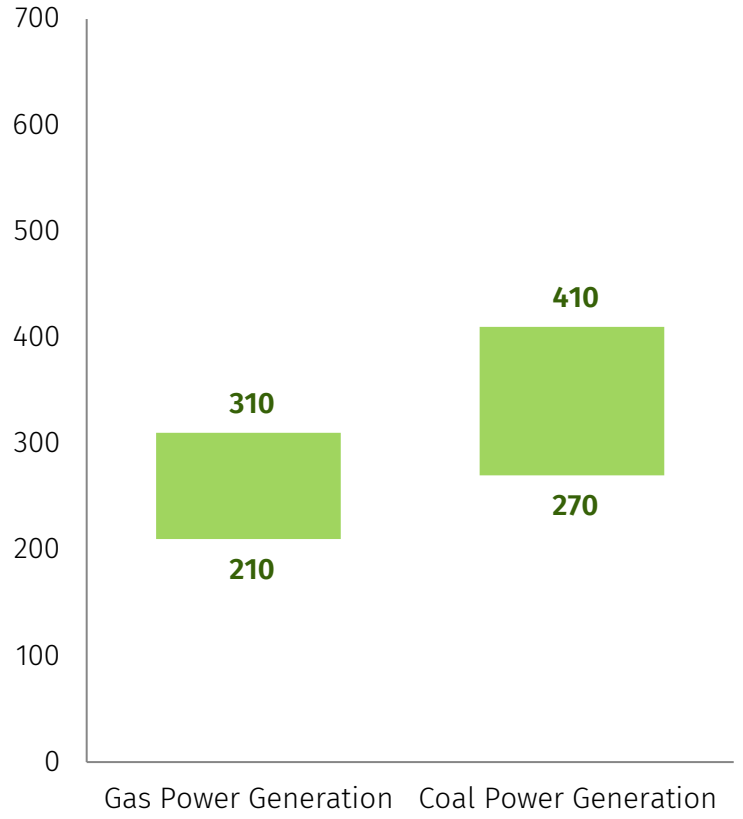
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



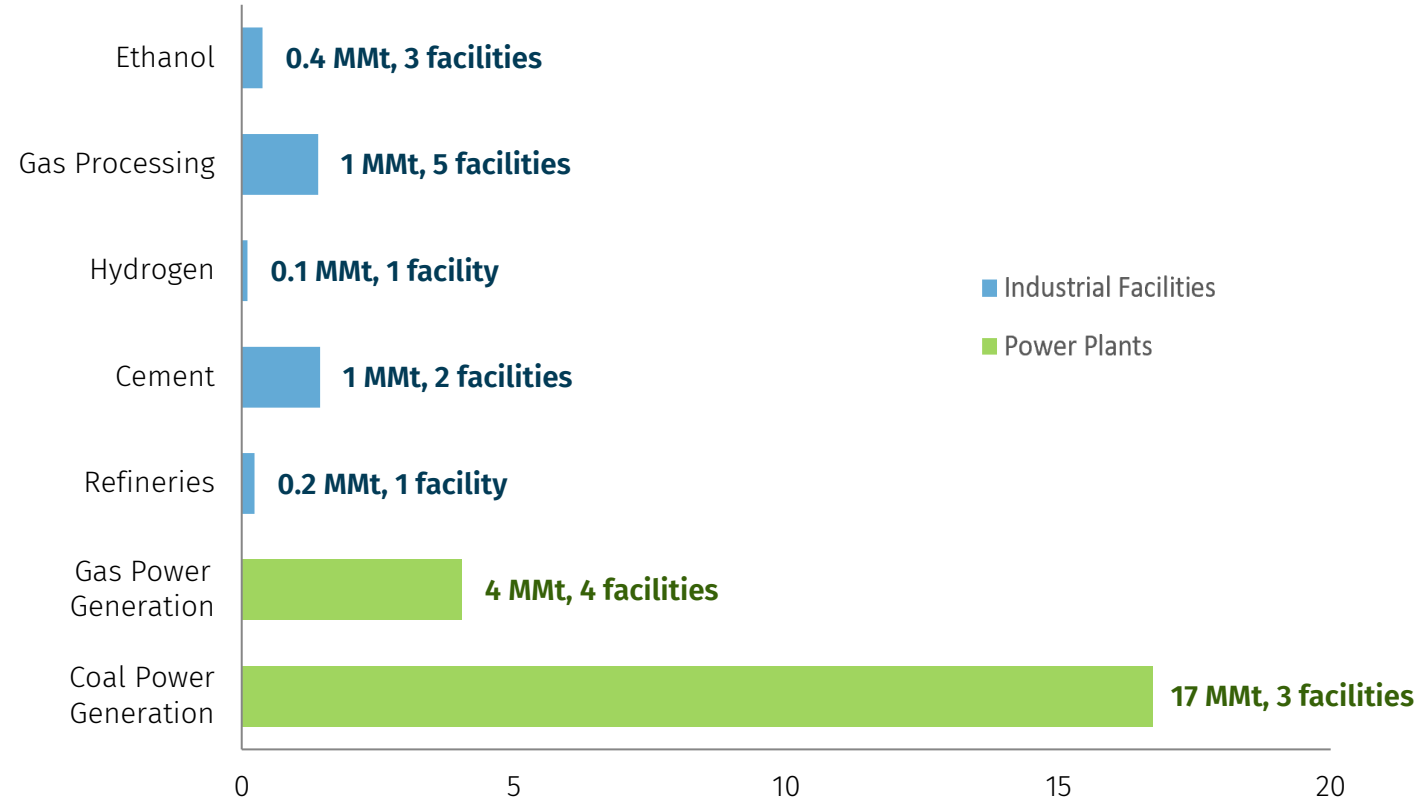
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Colorado: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

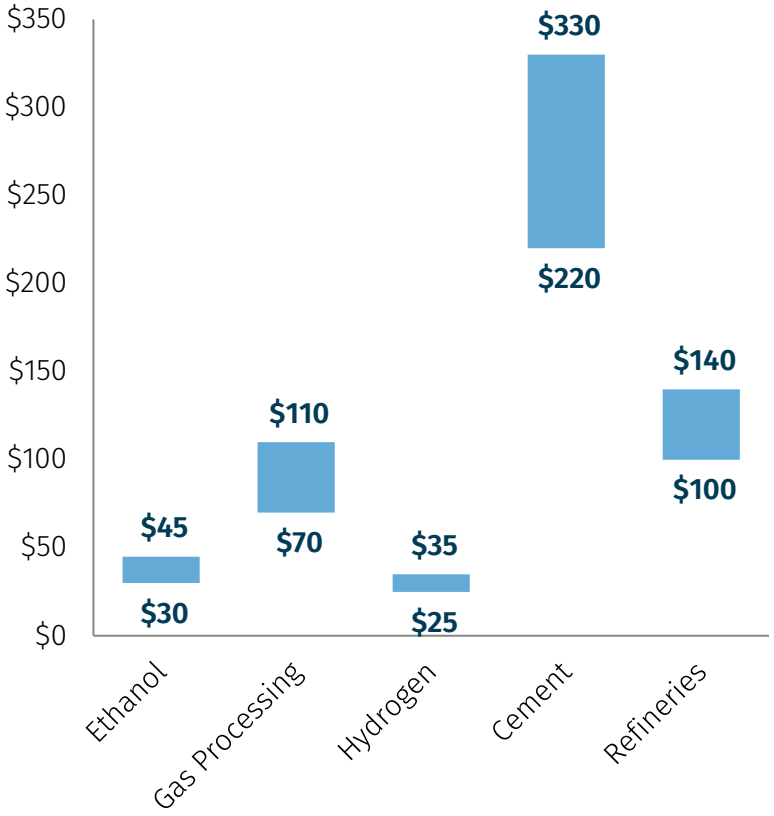
- If all near to intermediate term opportunities in Colorado are pursued, $5.6 to $8.4 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Colorado total 1,650 to 2,480 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 1,060 to 1,580 ongoing jobs.
- In addition, $0.9 billion in transport infrastructure will be required to support these projects. This investment will create 390 jobs on average each year over a 15-year deployment period.

Colorado: Industrial Facilities

Carbon capture opportunities

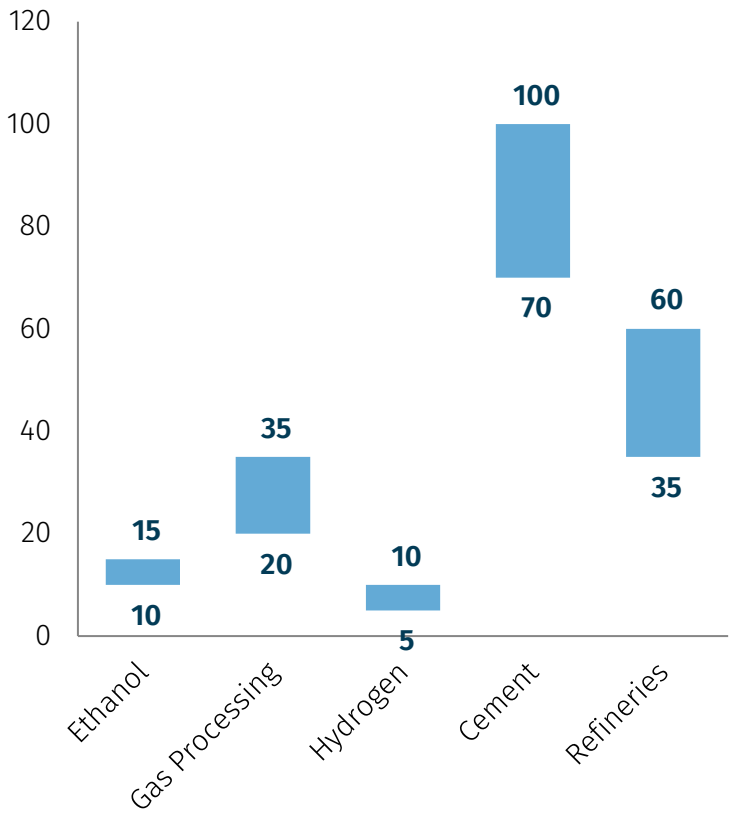
Capital Investment Requirement

Million $ USD



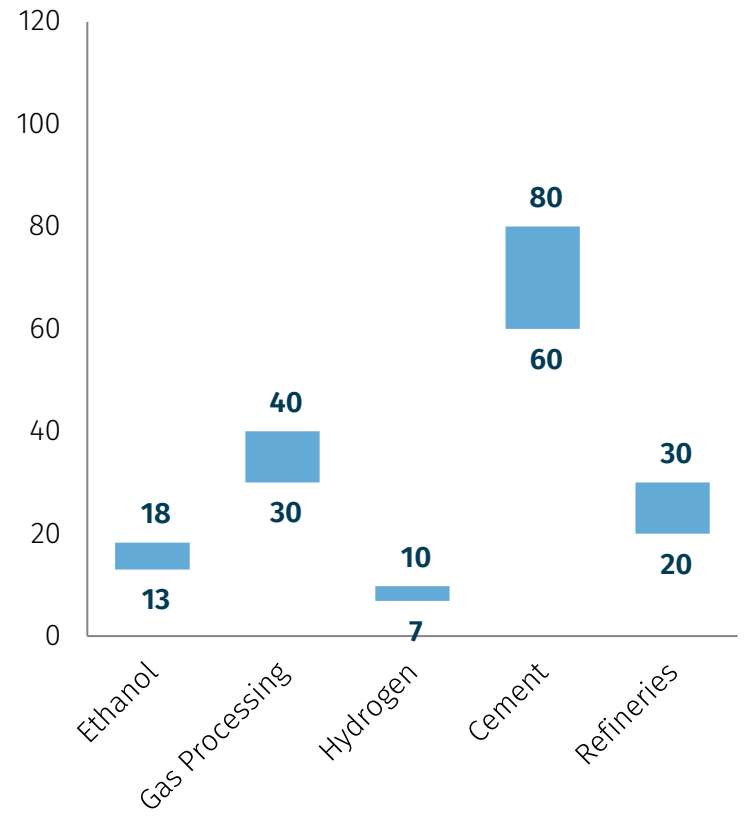
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



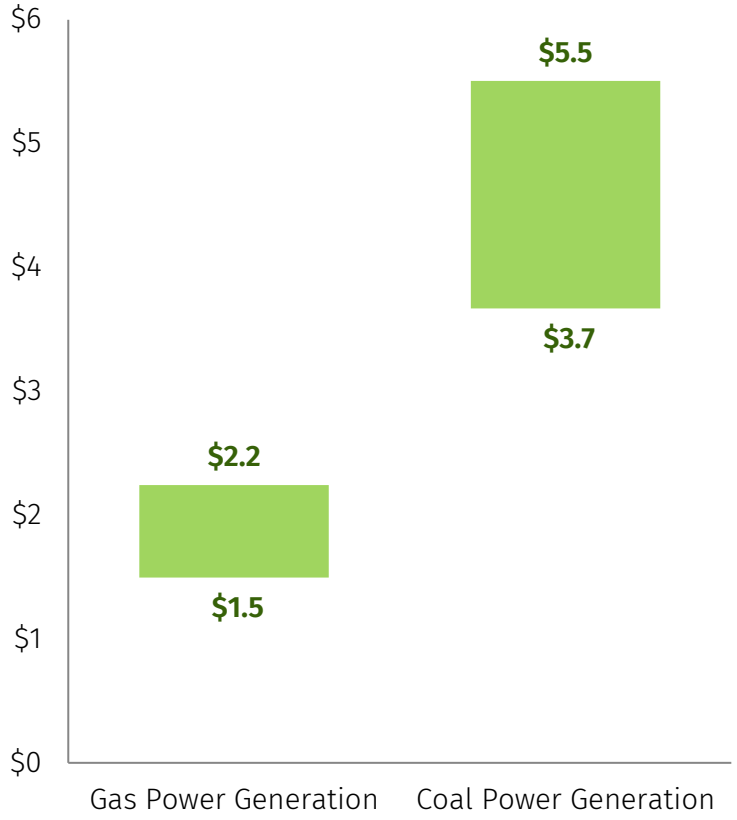
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Colorado: Electric Power Sector

Carbon capture opportunities

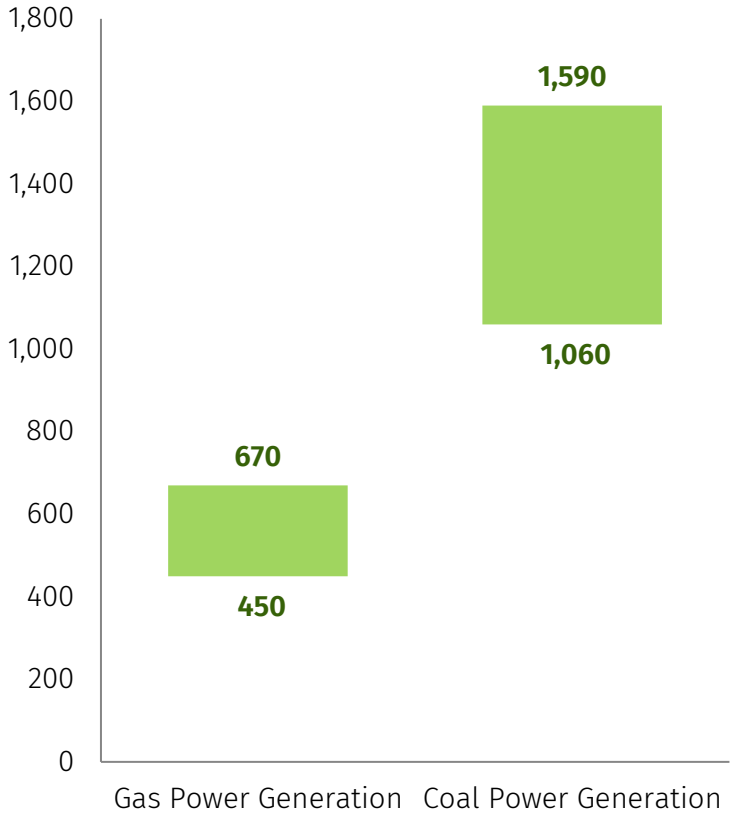
Capital Investment Requirement

Billion $ USD



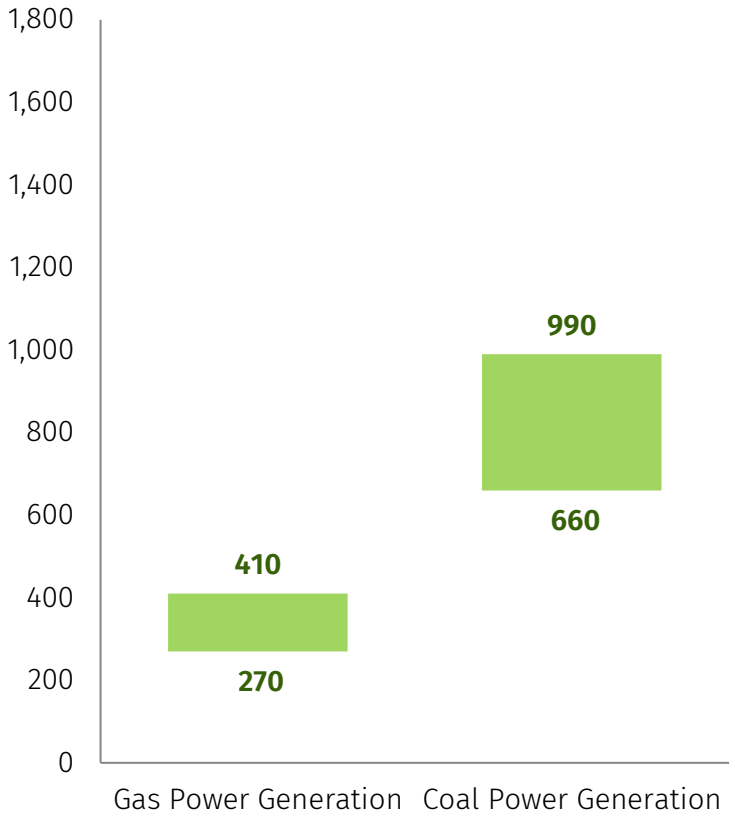
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



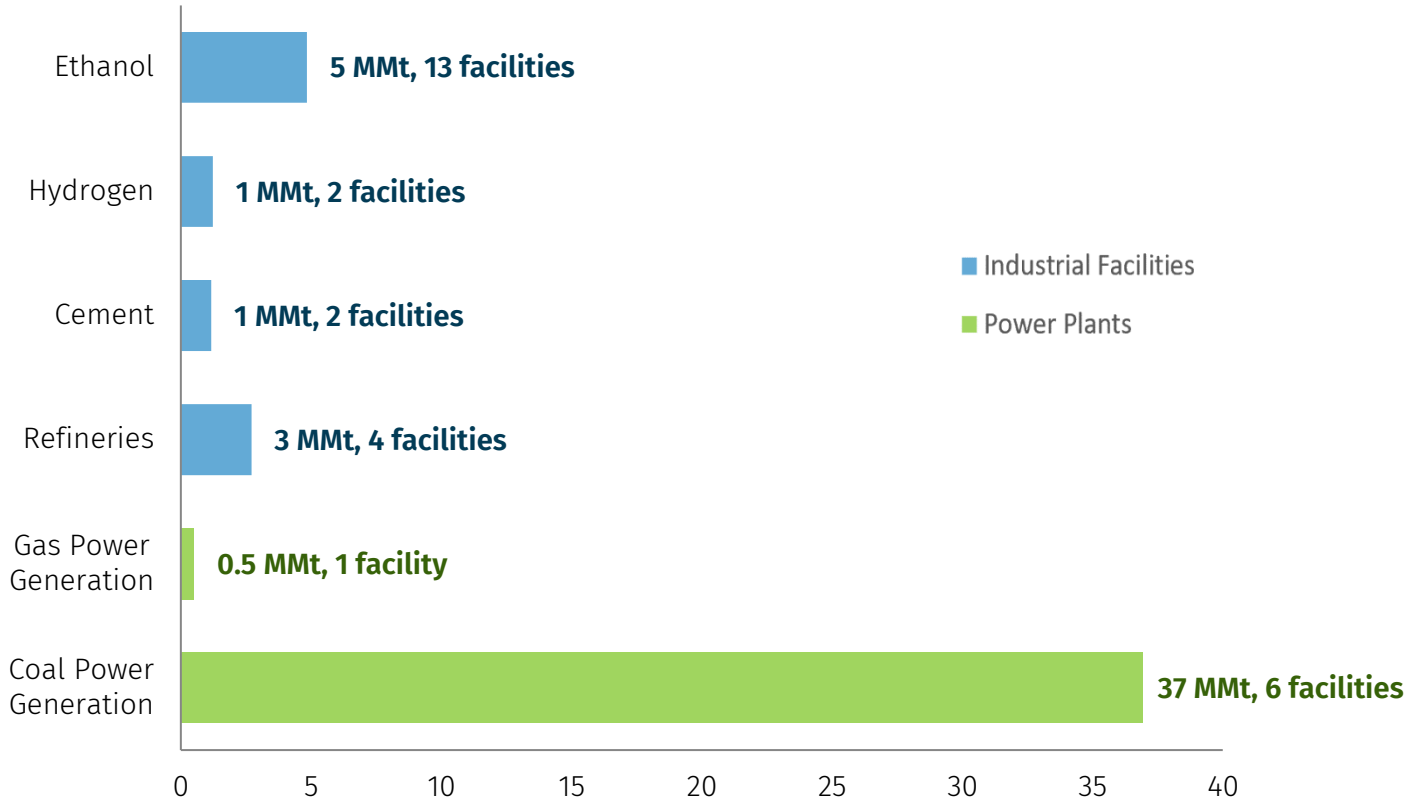
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Illinois: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

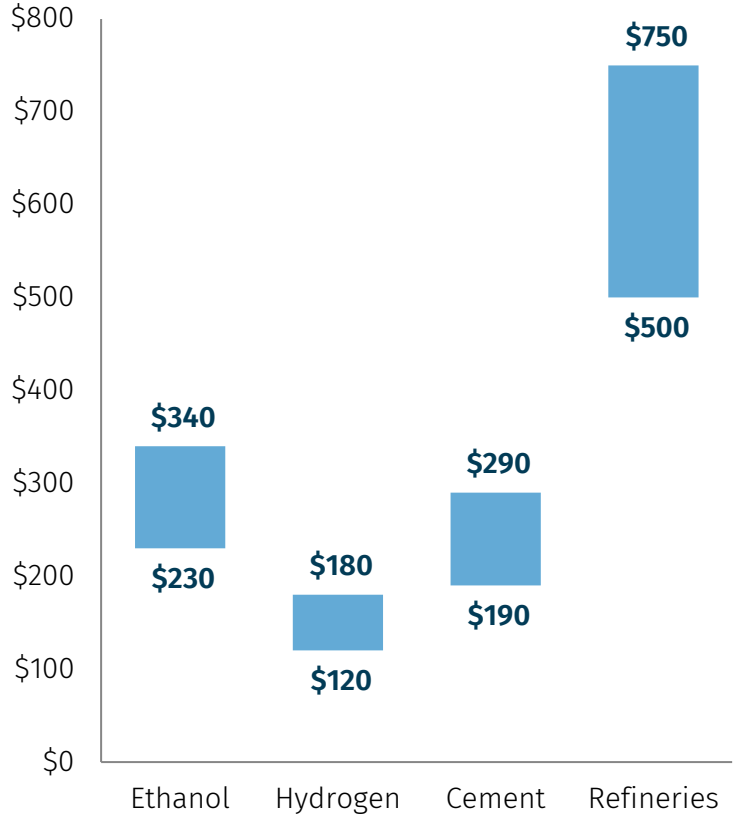
- If all near to intermediate term opportunities in Illinois are pursued, $9.3 to $14 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Illinois total 2,550 to 3,800 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 1,770 to 2,620 ongoing jobs.
- In addition, $1.3 billion in transport infrastructure will be required to support these projects. This investment will create 600 jobs on average each year over a 15-year deployment period.

Illinois: Industrial Facilities

Carbon capture opportunities

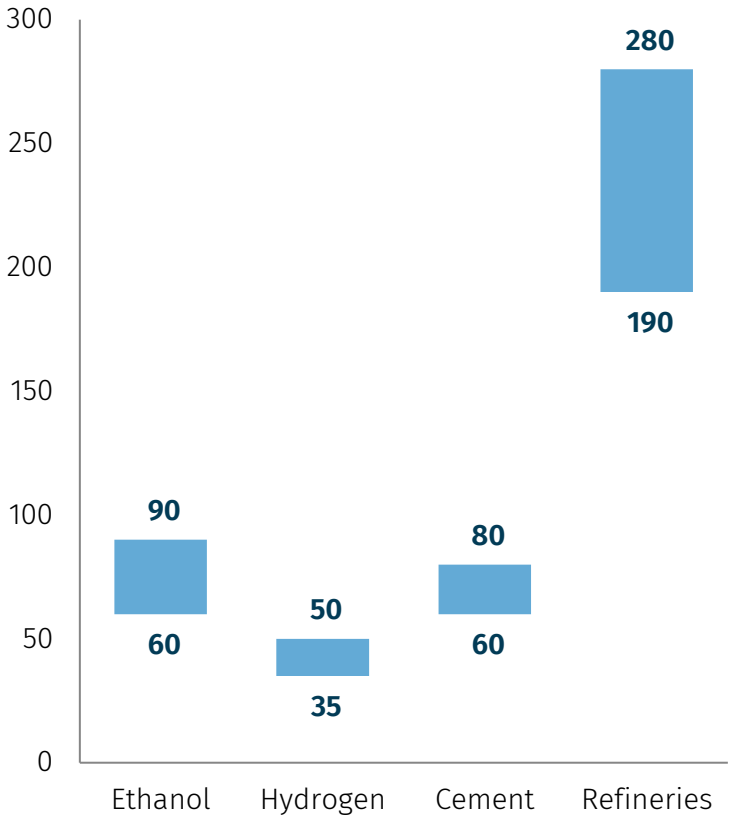
Capital Investment Requirement

Million $ USD



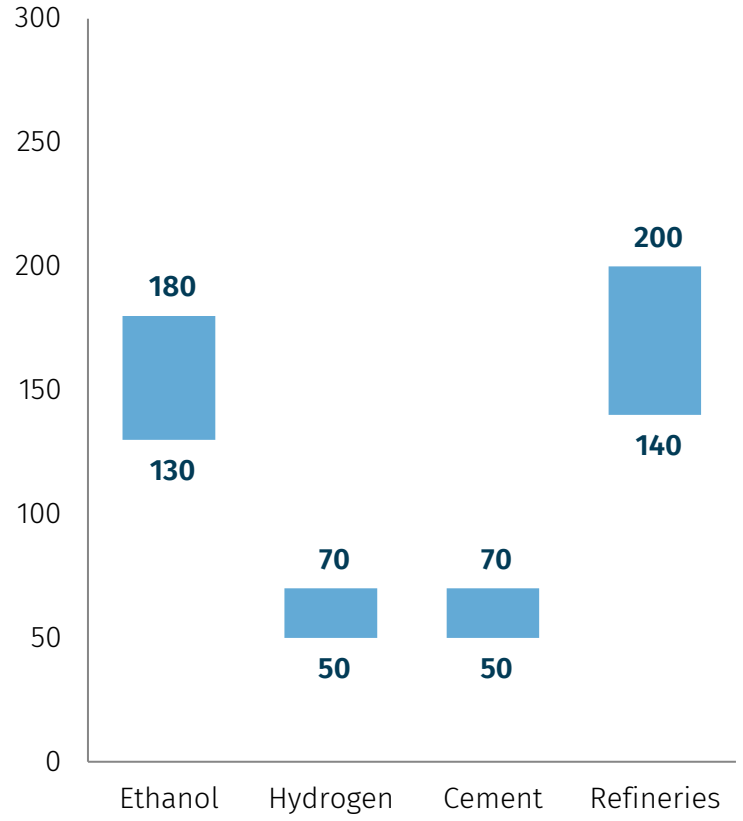
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



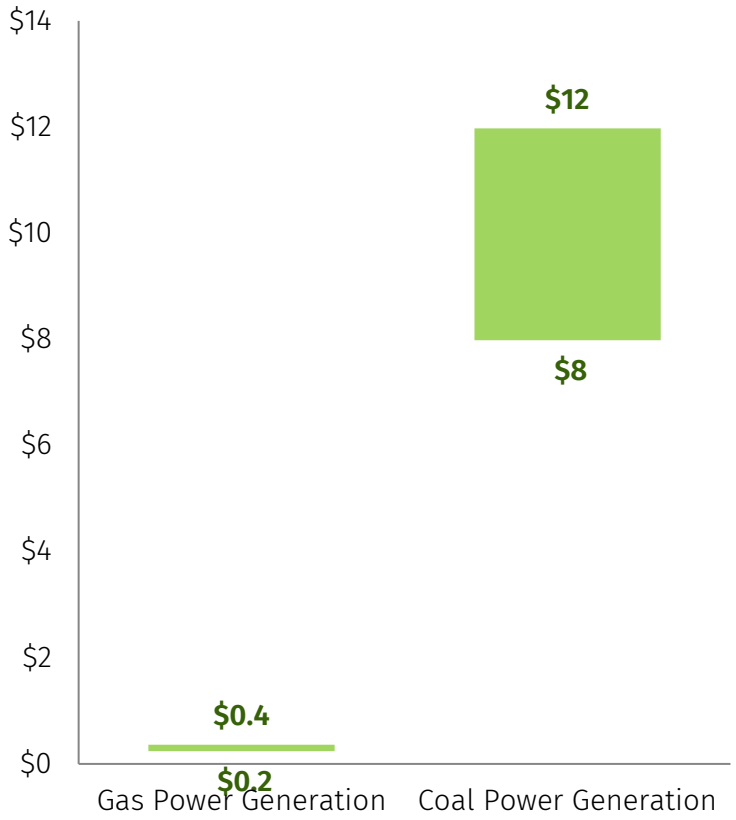
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Illinois: Electric Power Sector

Carbon capture opportunities

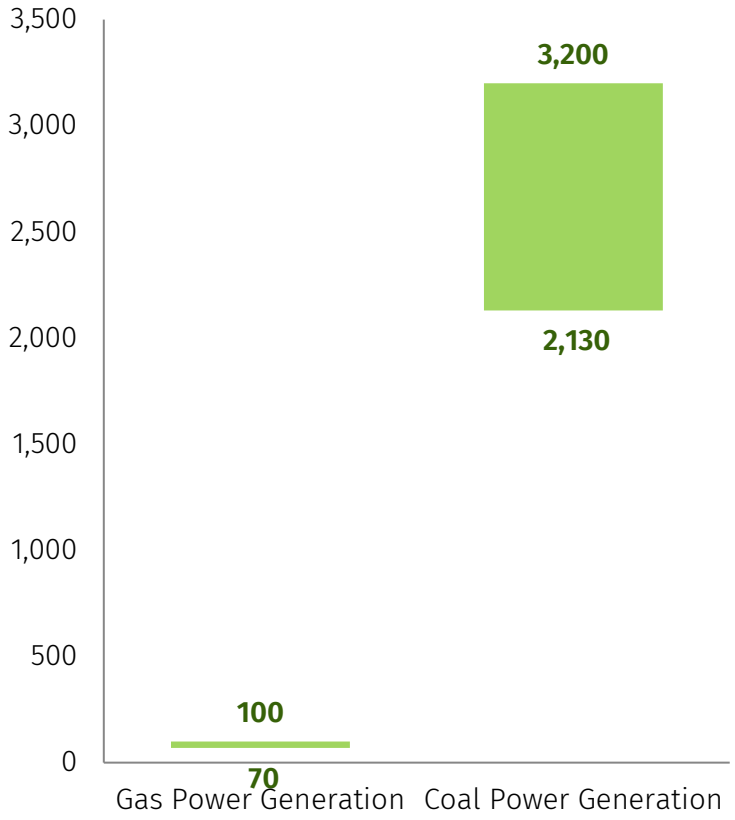
Capital Investment Requirement

Billion $ USD



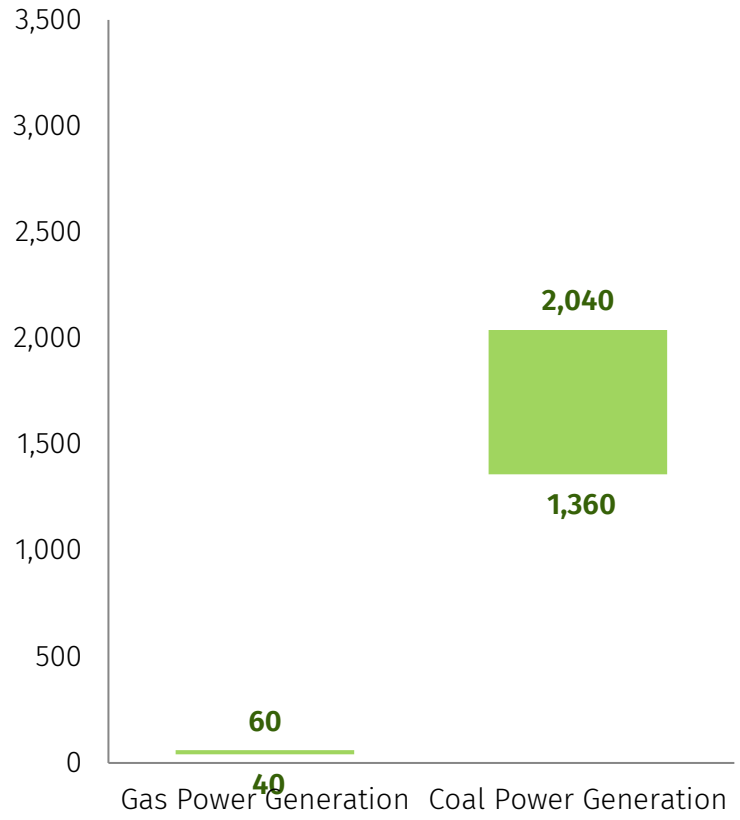
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



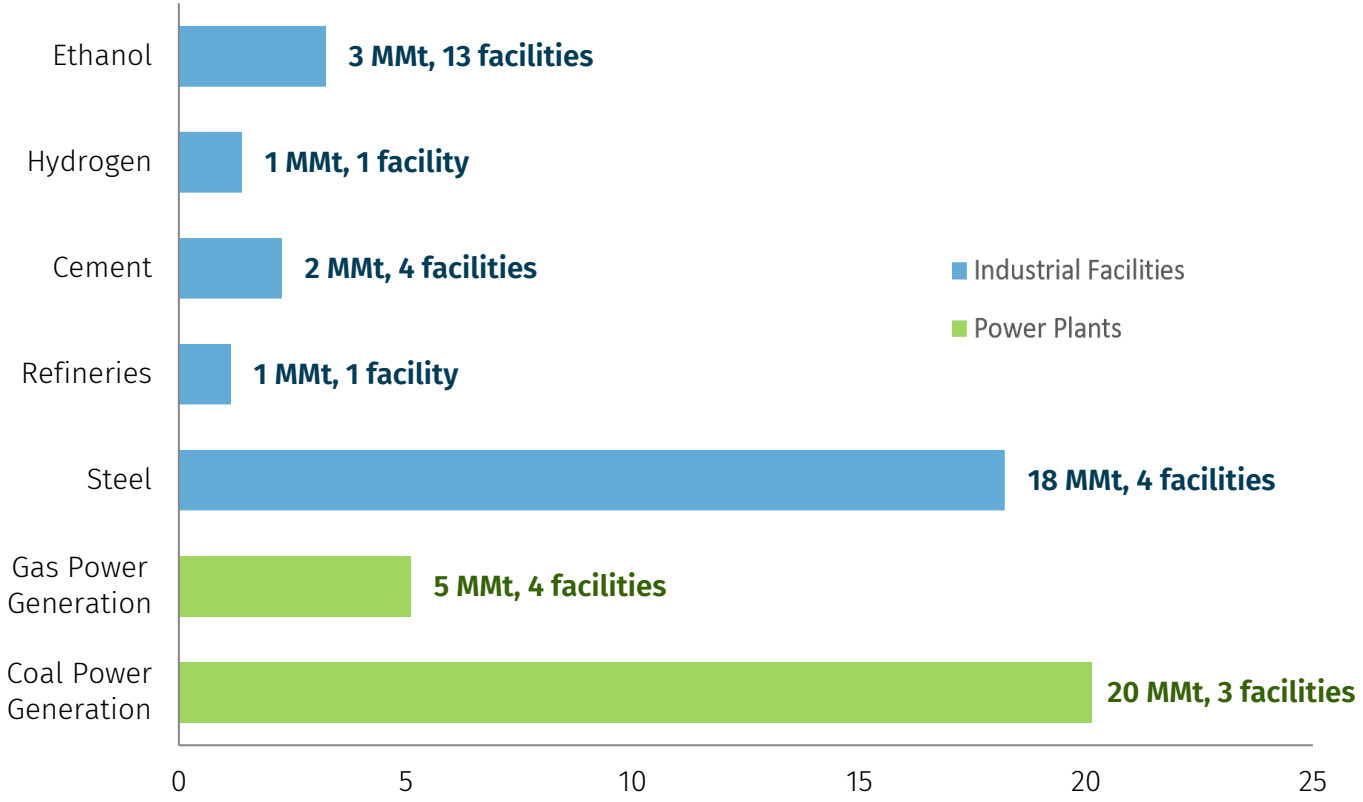
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Indiana: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

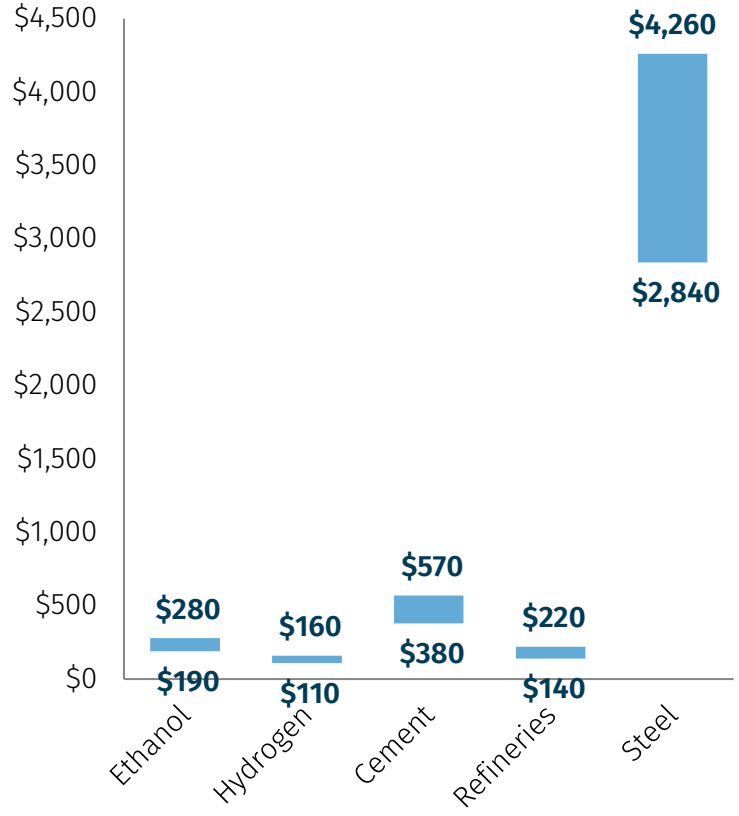
- If all near to intermediate term opportunities in Indiana are pursued, $10 to $14 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Indiana total 3,020 to 4,530 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 2,300 to 3,360 ongoing jobs.
- In addition, $0.6 billion in transport infrastructure will be required to support these projects. This investment will create 330 jobs on average each year over a 15-year deployment period.

Indiana: Industrial Facilities

Carbon capture opportunities

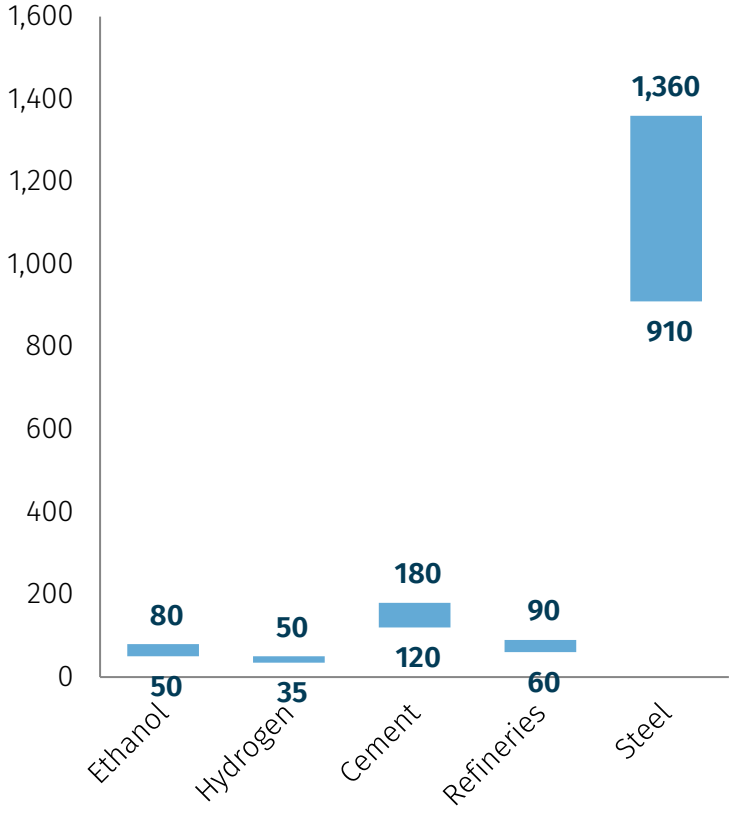
Capital Investment Requirement

Million $ USD



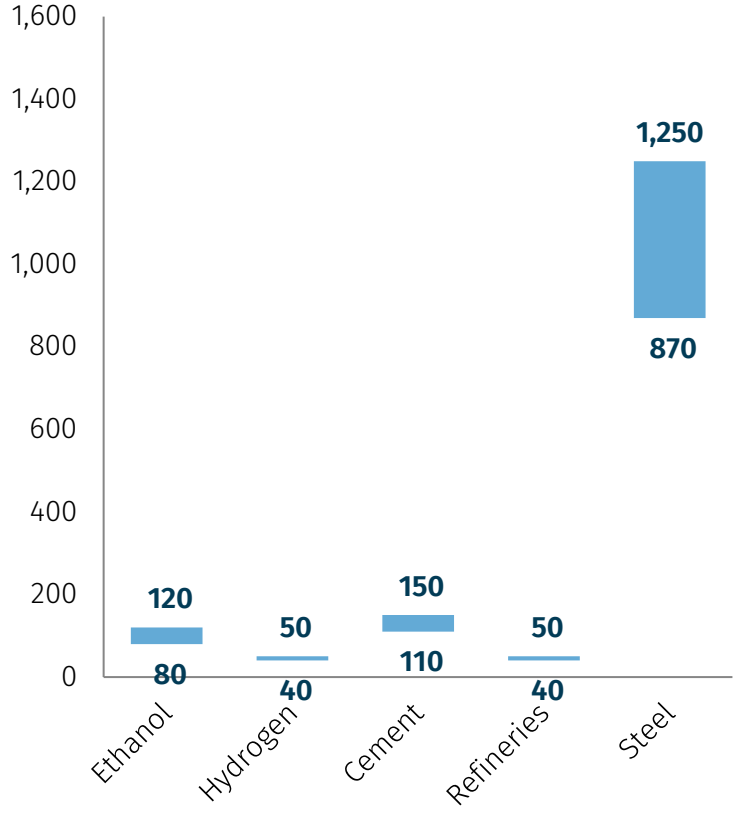
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



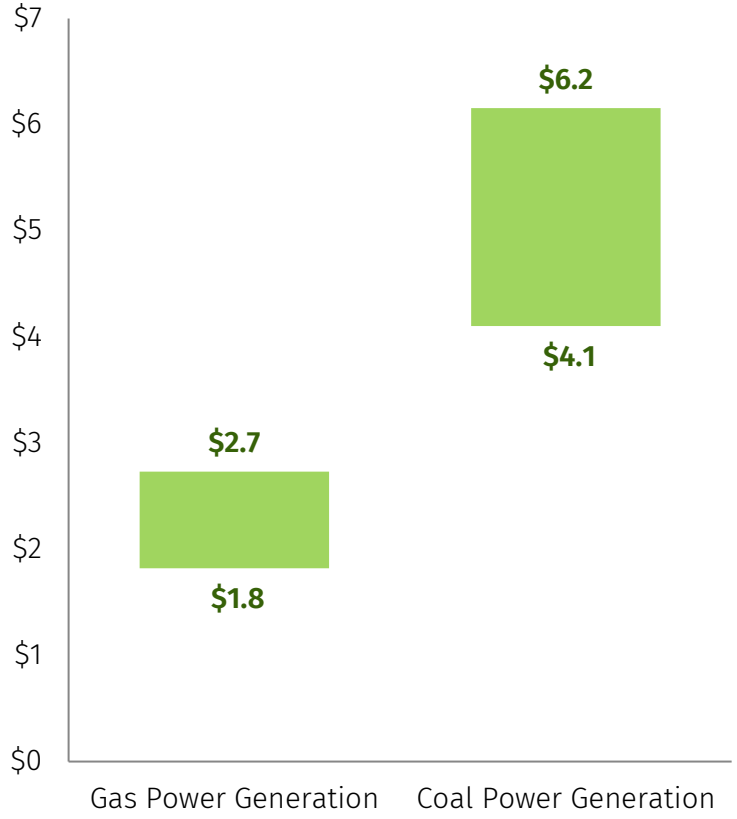
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Indiana: Electric Power Sector

Carbon capture opportunities

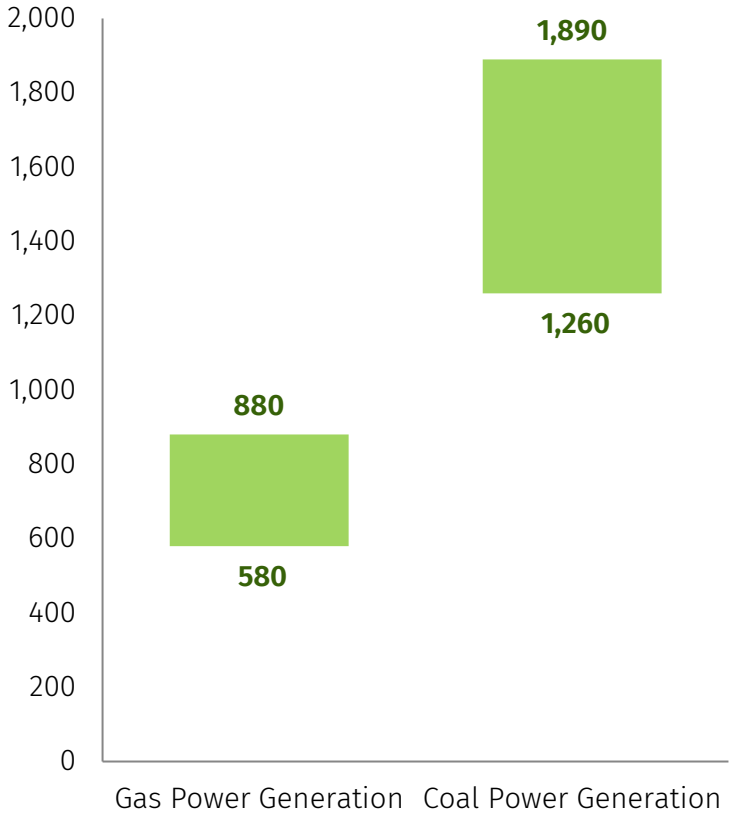
Capital Investment Requirement

Billion $ USD



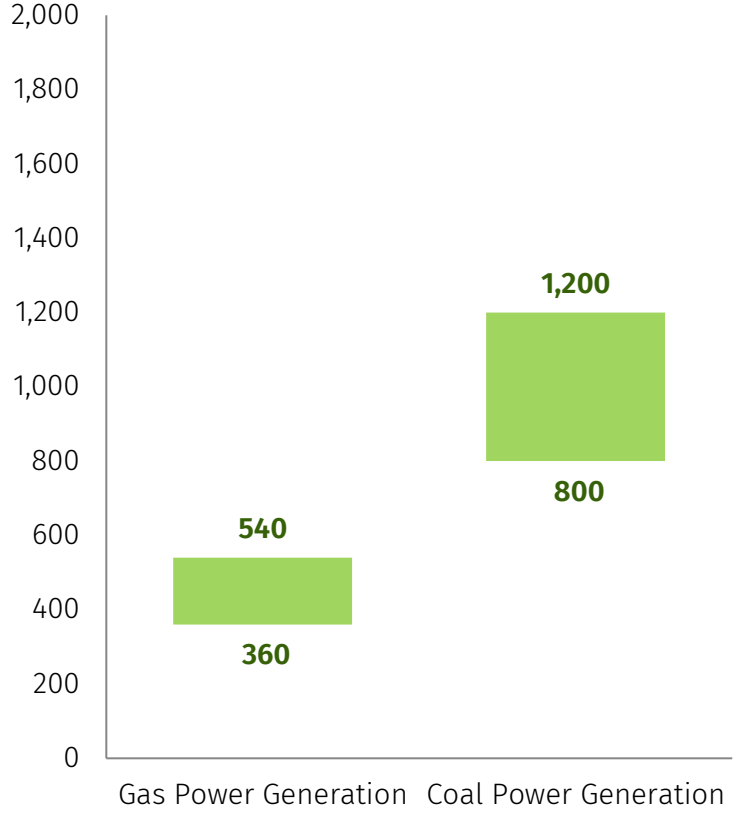
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



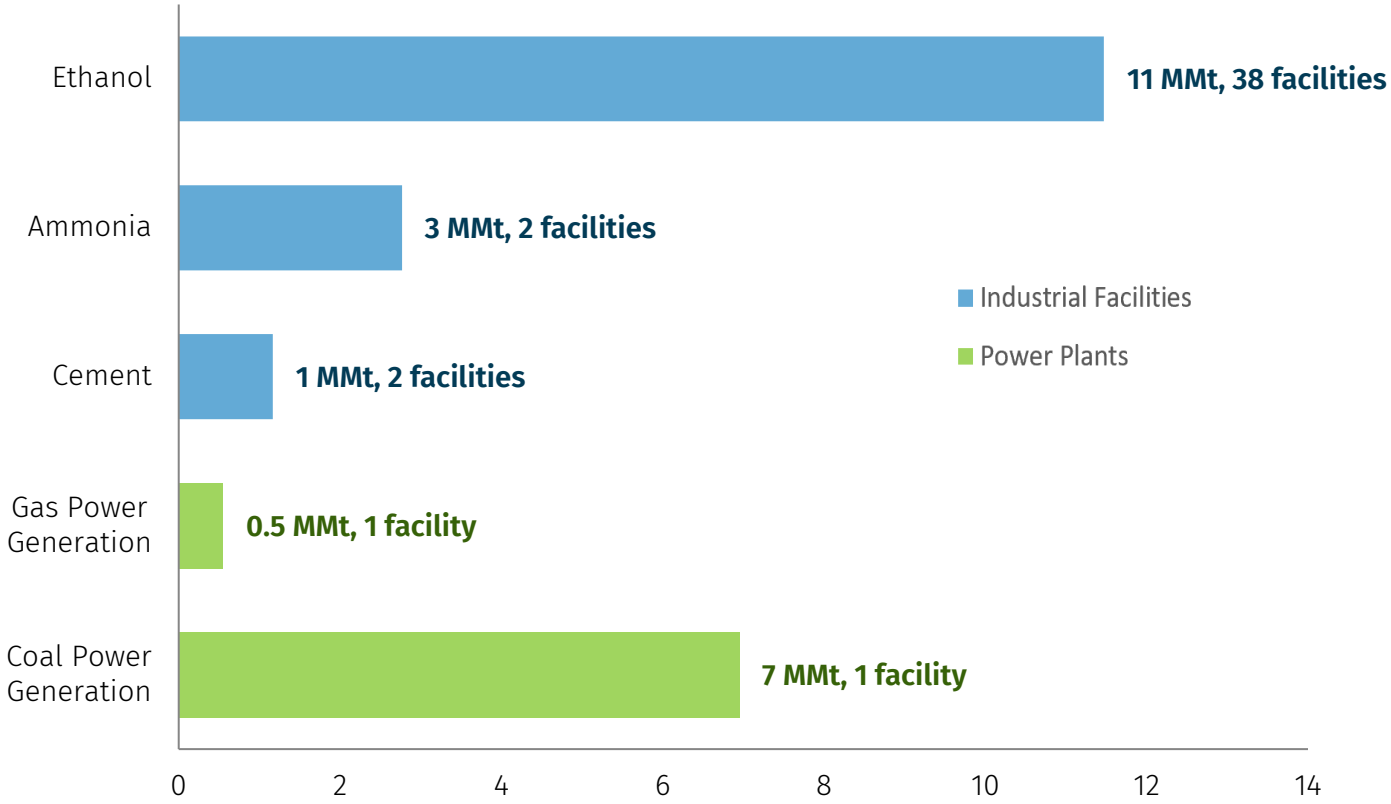
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Iowa: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

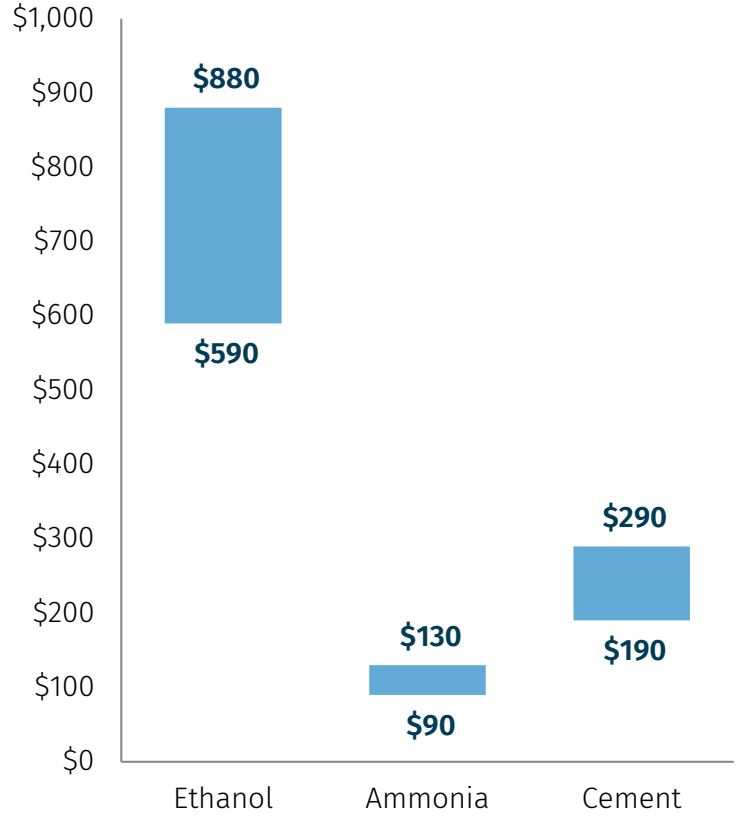
- If all near to intermediate term opportunities in Iowa are pursued, $2.6 to $3.9 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Iowa total 810 to 1,220 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 720 to 1,040 ongoing jobs.
- In addition, $1.5 billion in transport infrastructure will be required to support these projects. This investment will create 890 jobs on average each year over a 15-year deployment period.

Iowa: Industrial Facilities

Carbon capture opportunities

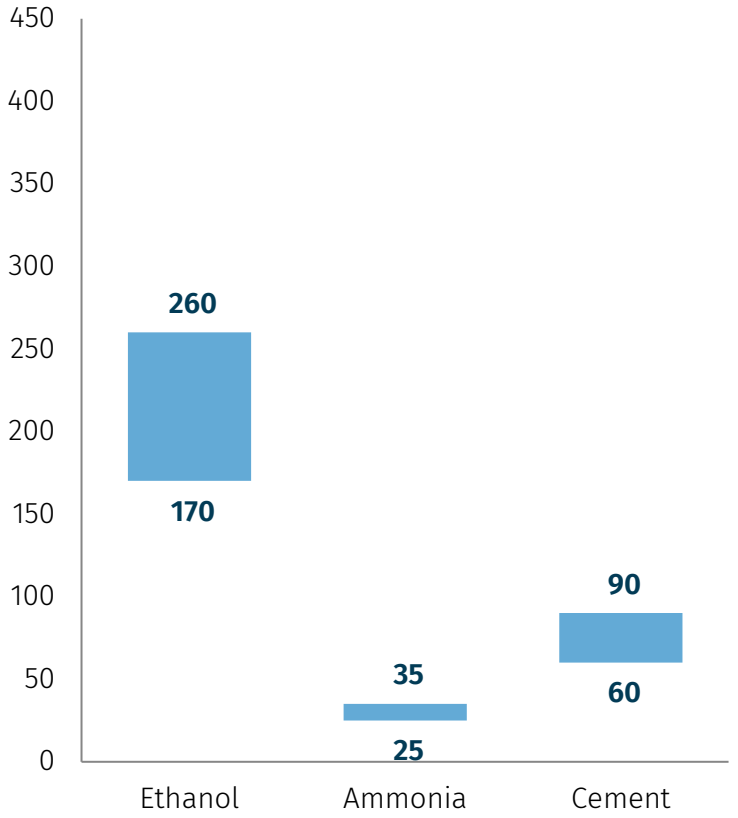
Capital Investment Requirement

Million $ USD



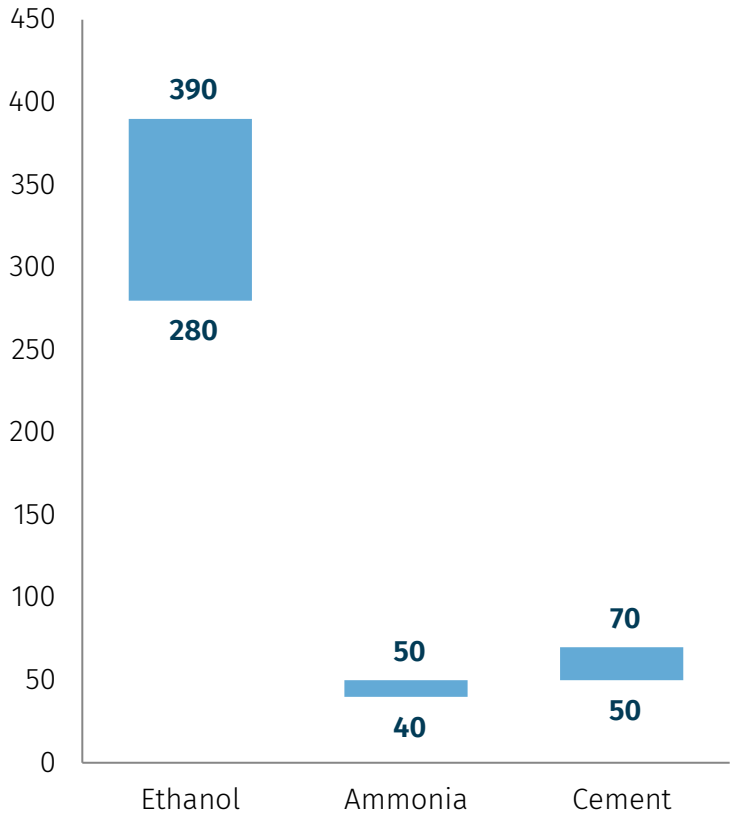
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



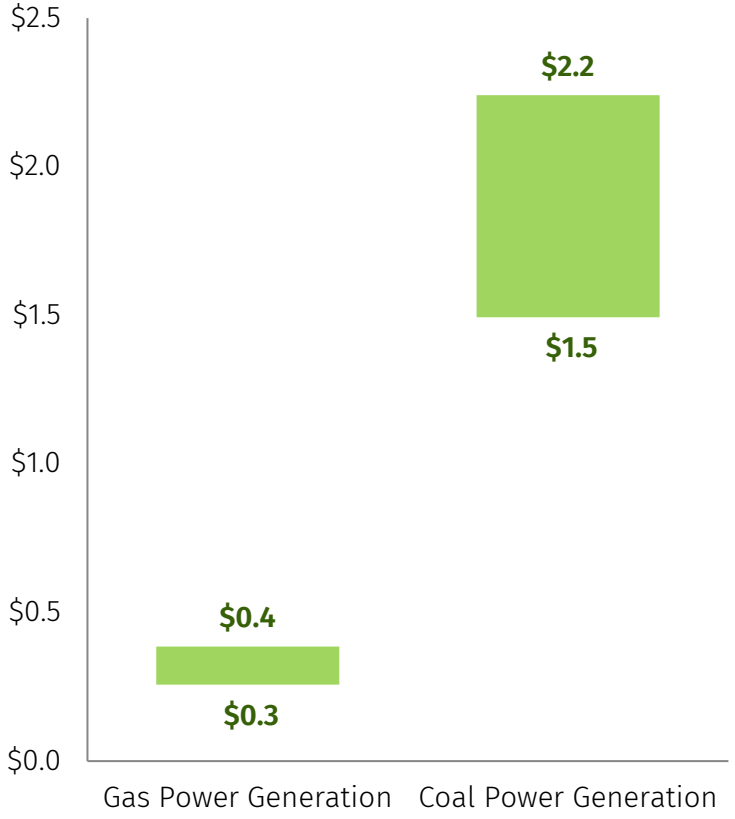
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Iowa: Electric Power Sector

Carbon capture opportunities

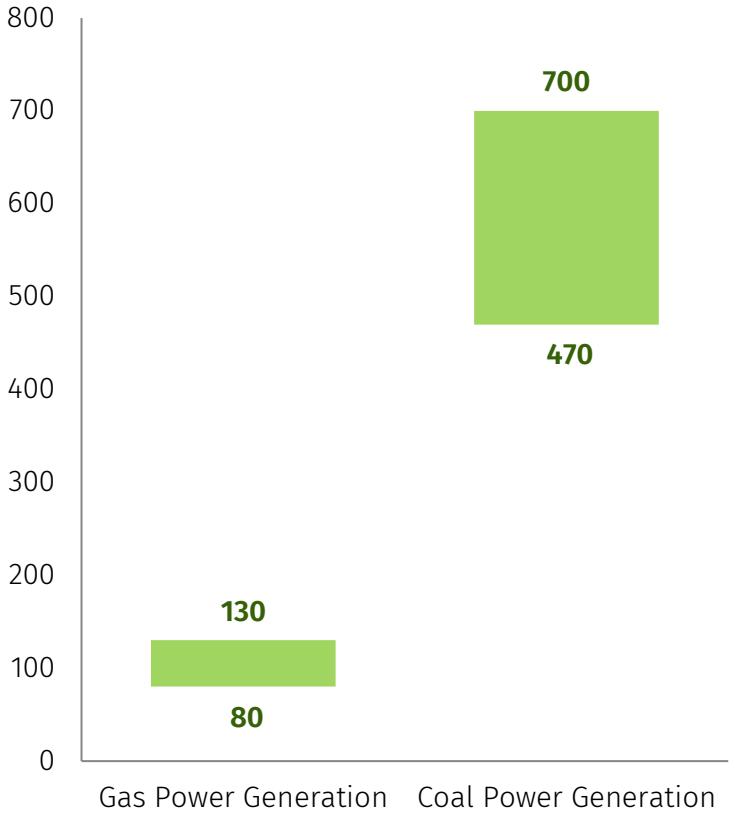
Capital Investment Requirement

Billion $ USD



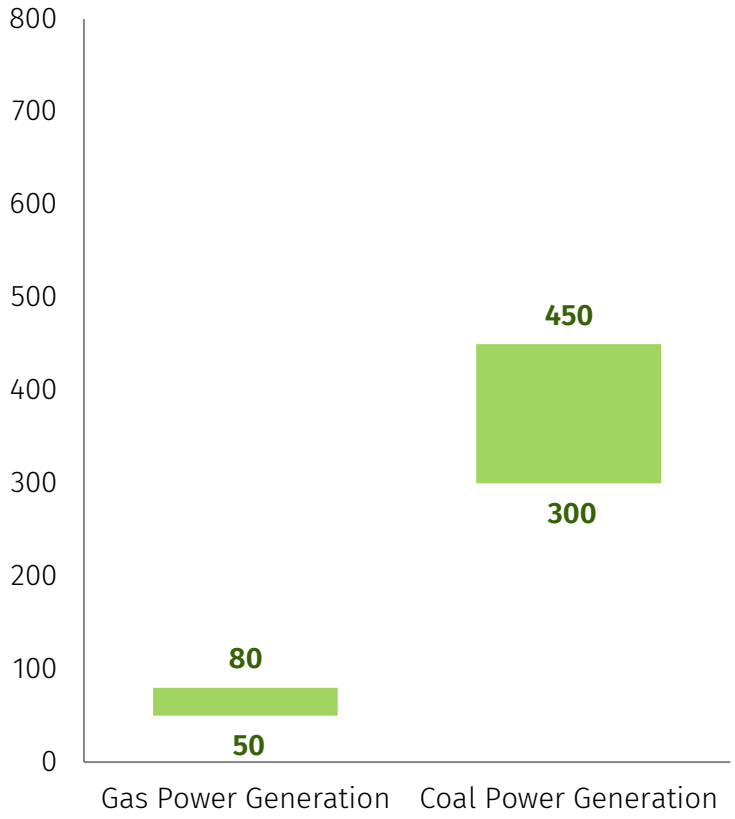
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



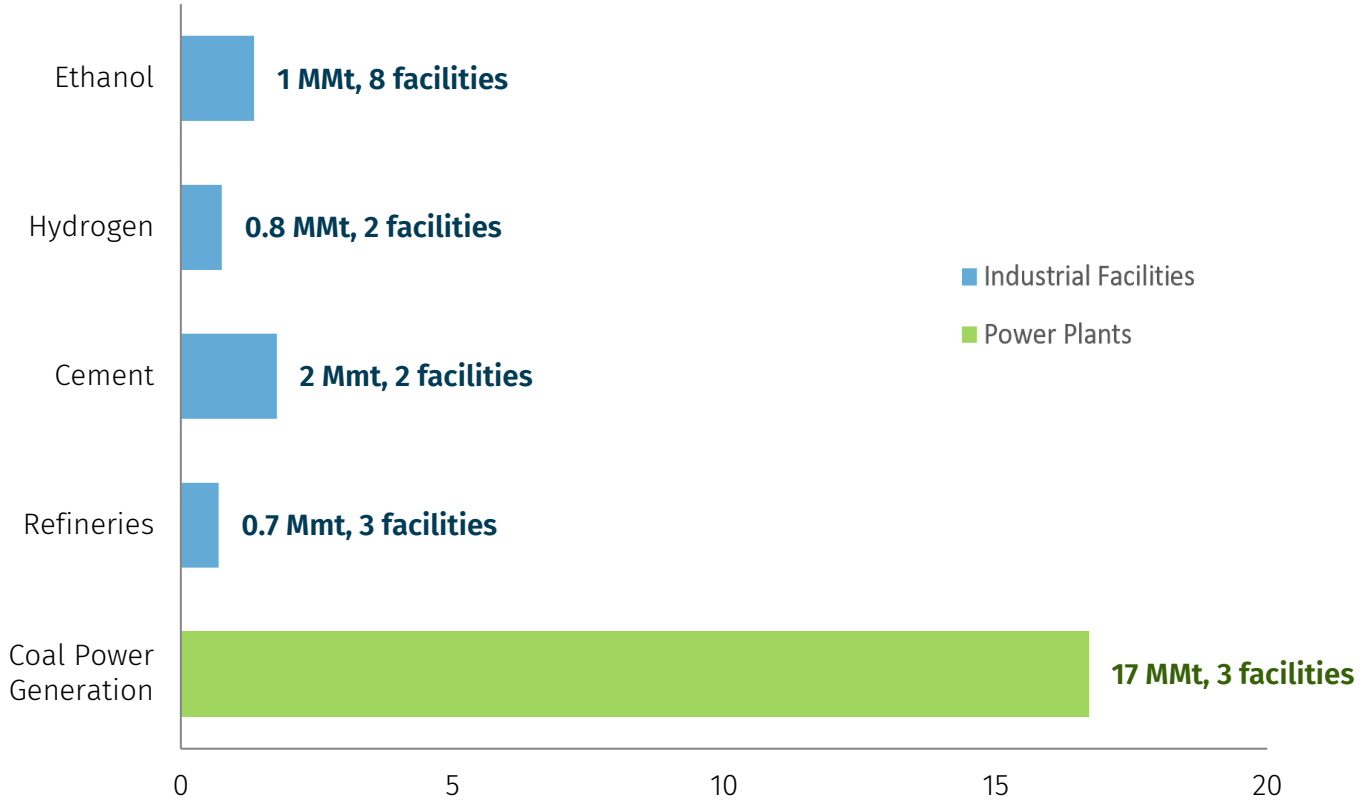
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Kansas: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

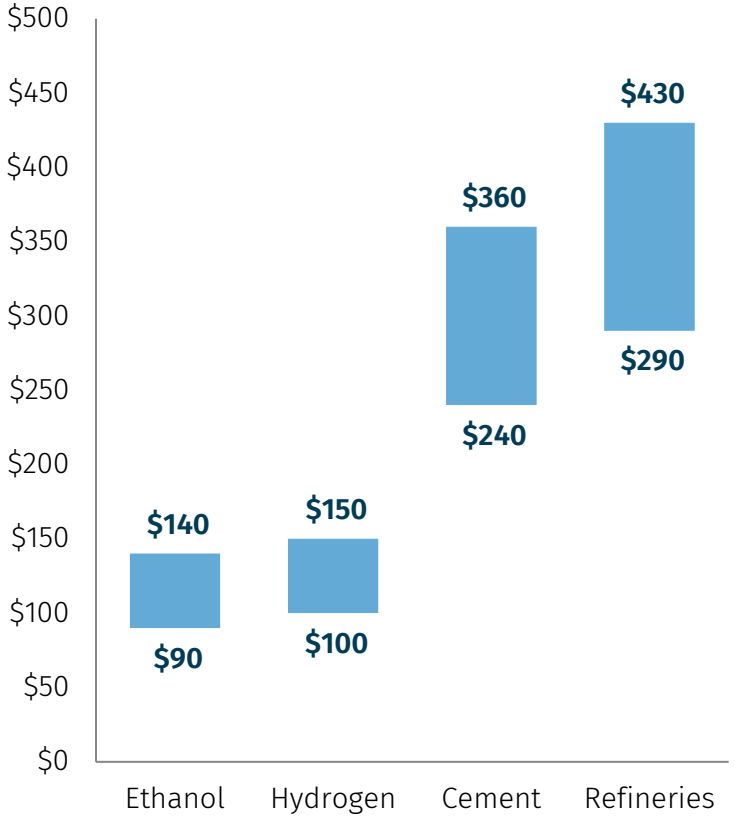
- If all near to intermediate term opportunities in Kansas are pursued, $4.4 to $6.6 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Kansas total 1,380 to 2,070 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 890 to 1,320 ongoing jobs.
- In addition, $2.8 billion in transport infrastructure will be required to support these projects. This investment will create 1,330 jobs on average each year over a 15-year deployment period.

Kansas: Industrial Facilities

Carbon capture opportunities

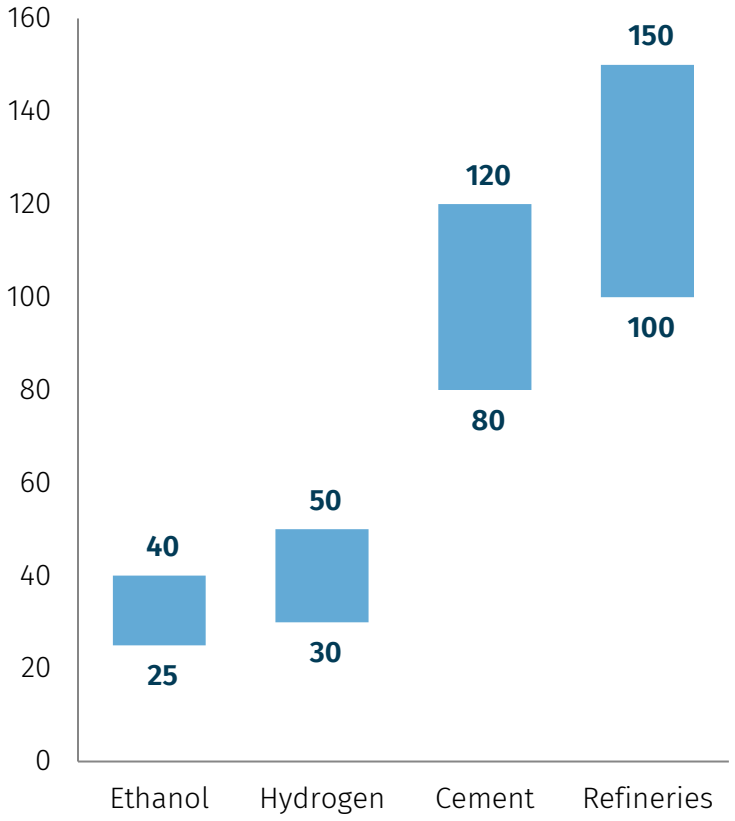
Capital Investment Requirement

Million $ USD



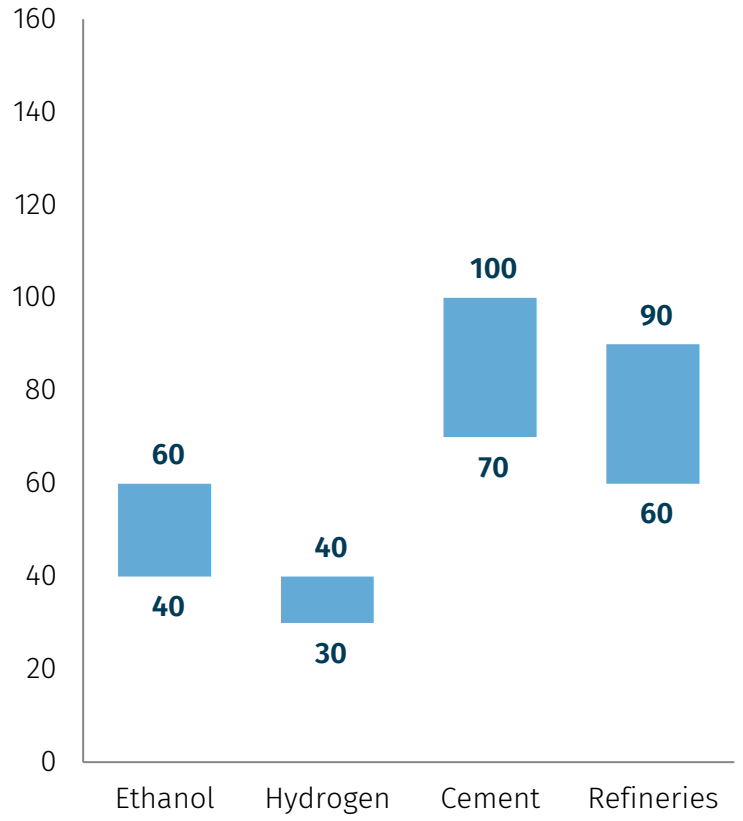
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



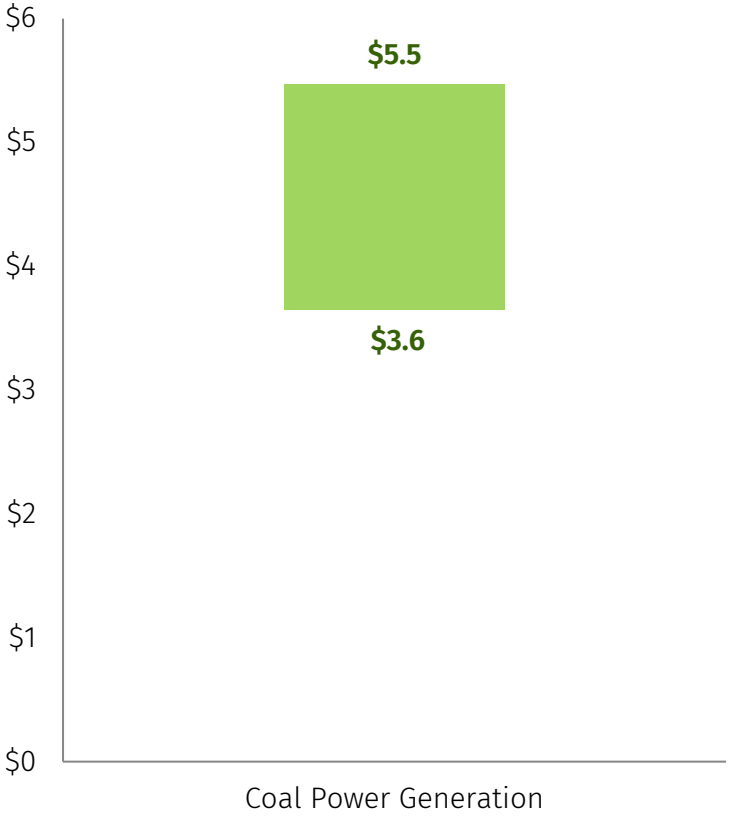
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Kansas: Electric Power Sector

Carbon capture opportunities

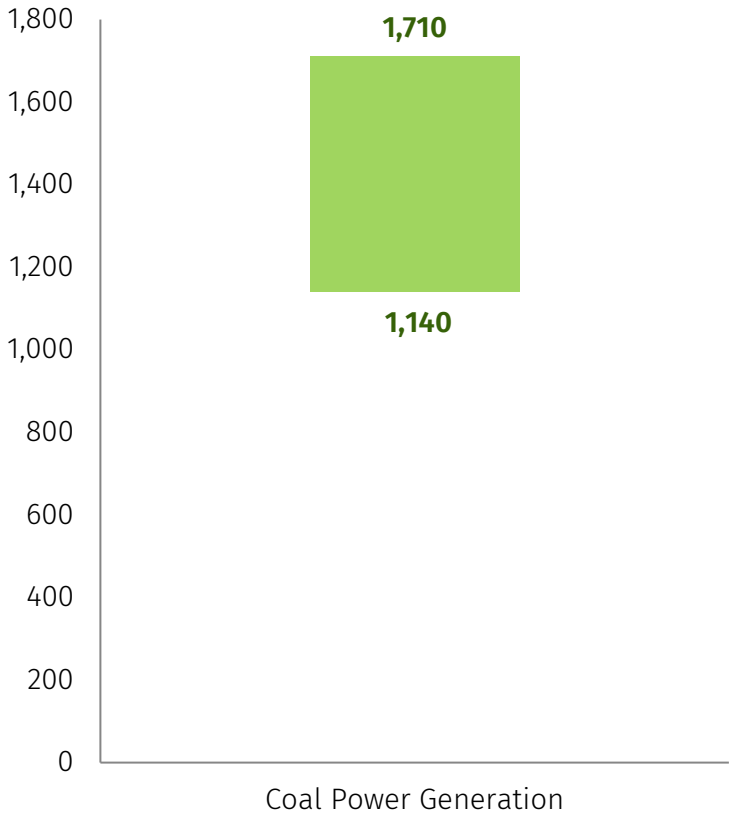
Capital Investment Requirement

Billion $ USD



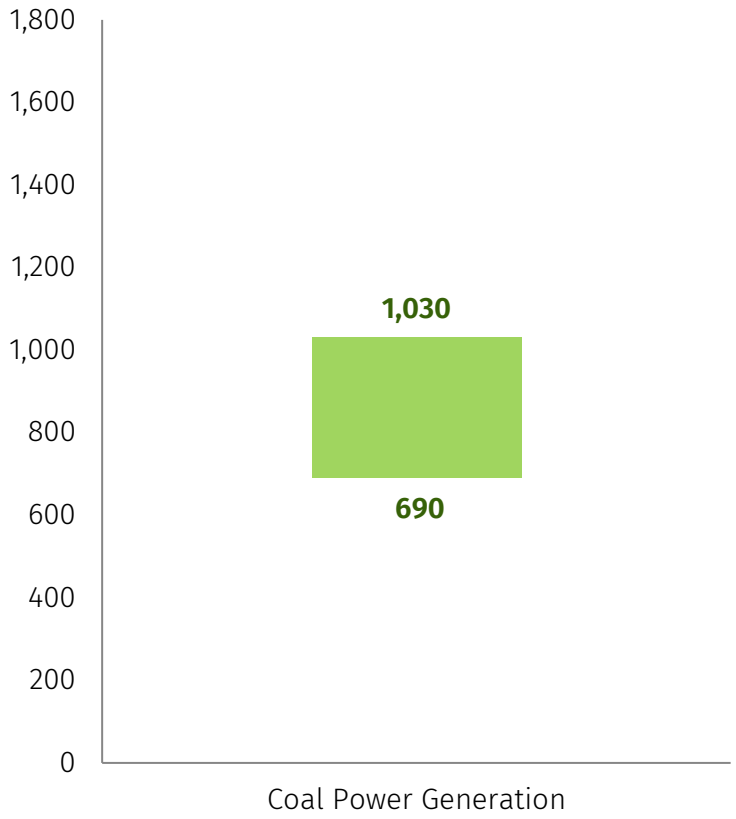
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



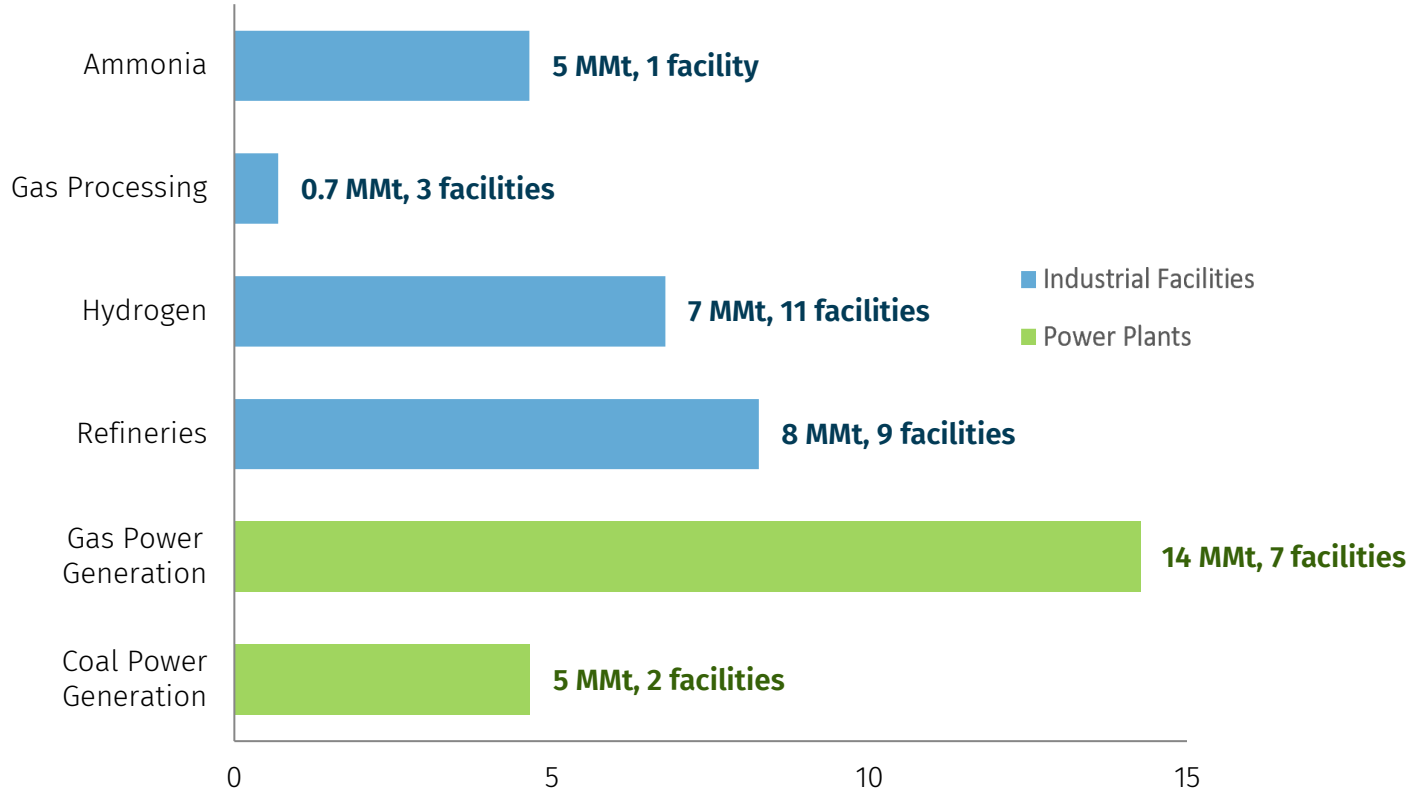
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Louisiana: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

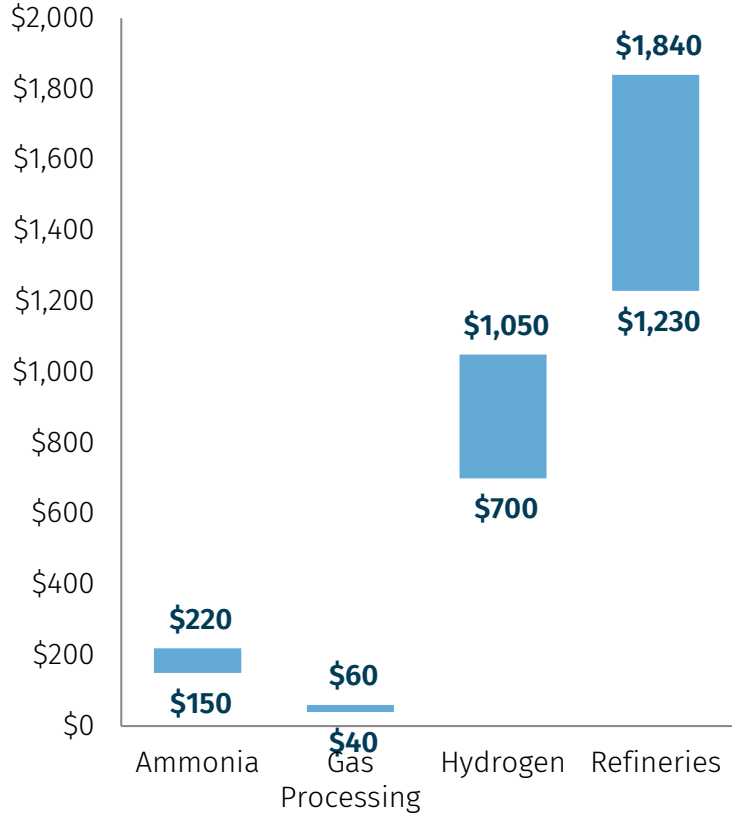
- If all near to intermediate term opportunities in Louisiana are pursued, $8 to $12 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Louisiana total 2,710 to 4,060 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 1,690 to 2,500 ongoing jobs.
- In addition, $1.3 billion in transport infrastructure will be required to support these projects. This investment will create 860 jobs on average each year over a 15-year deployment period.

Louisiana: Industrial Facilities

Carbon capture opportunities

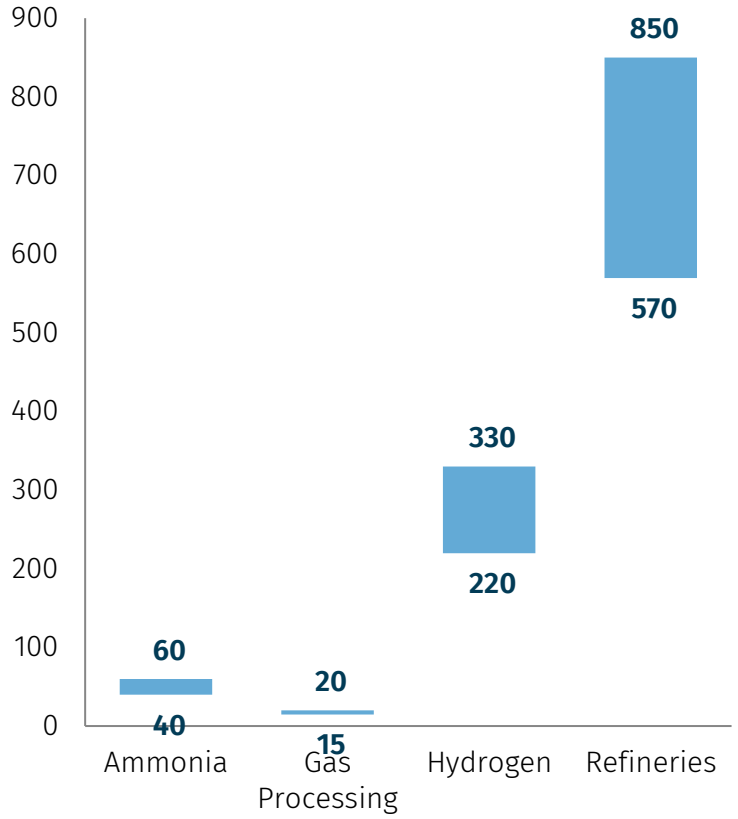
Capital Investment Requirement

Million $ USD



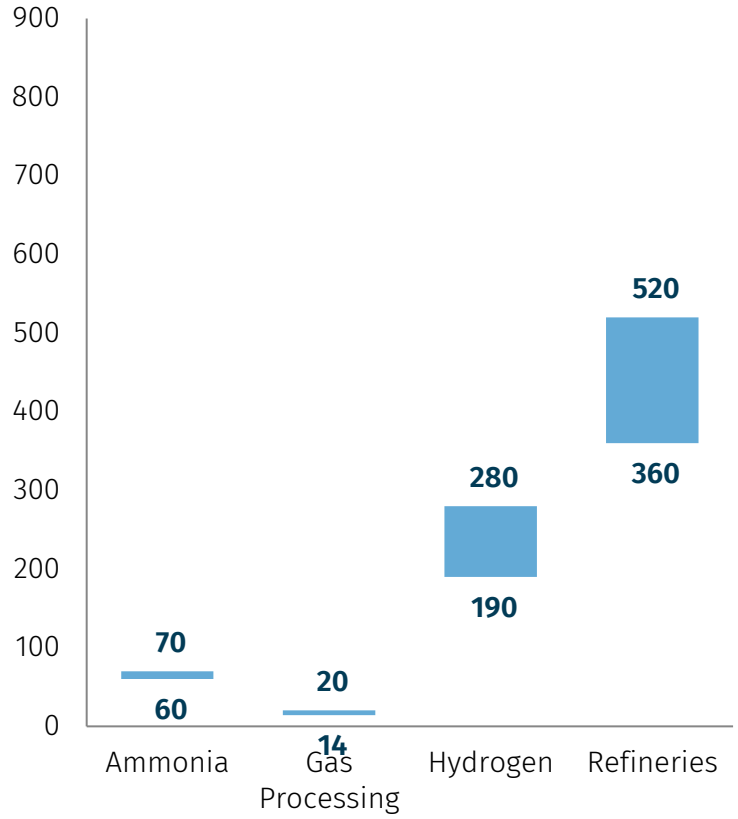
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



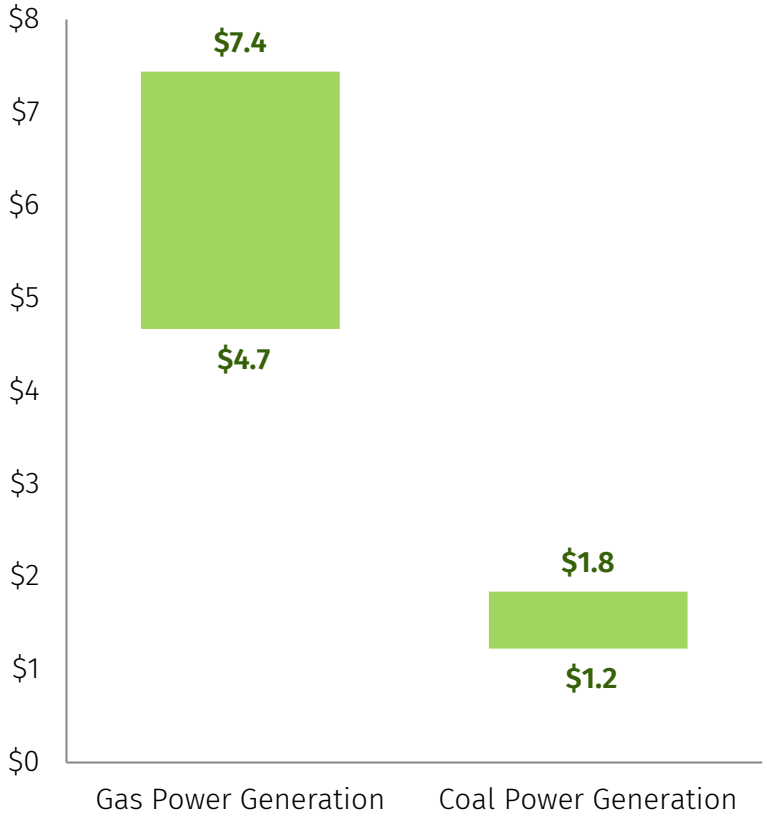
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Louisiana: Electric Power Sector

Carbon capture opportunities

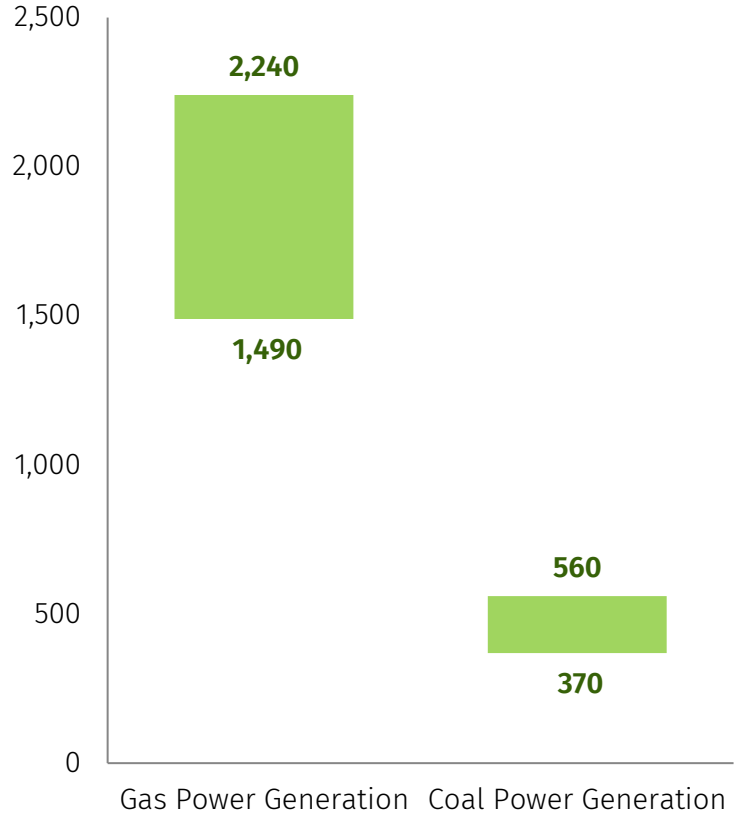
Capital Investment Requirement

Billion $ USD



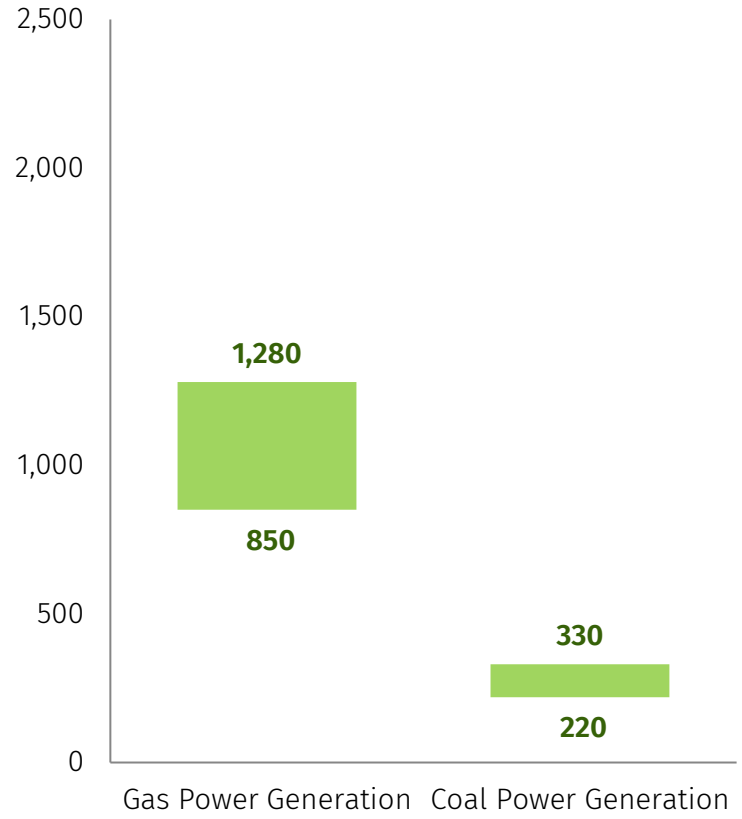
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



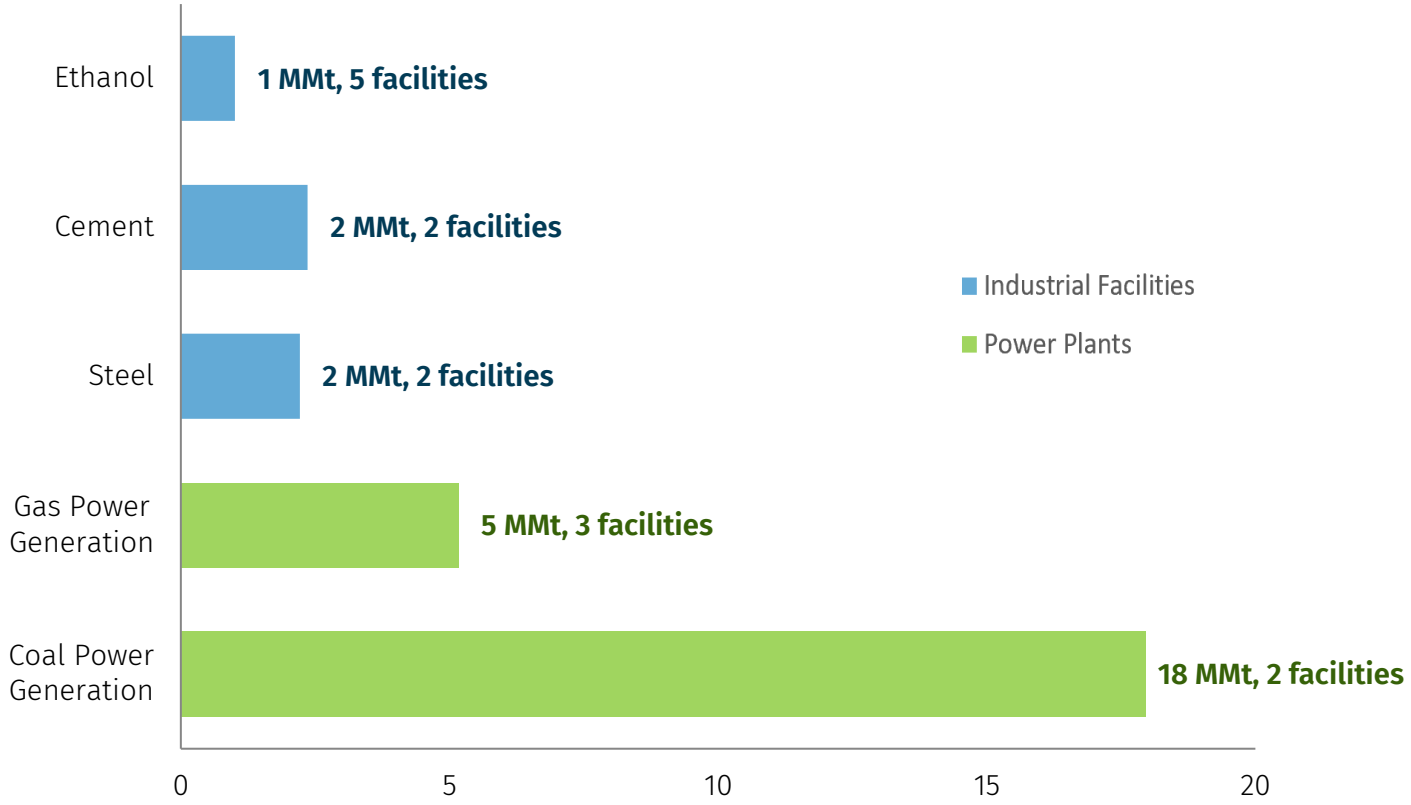
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Michigan: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

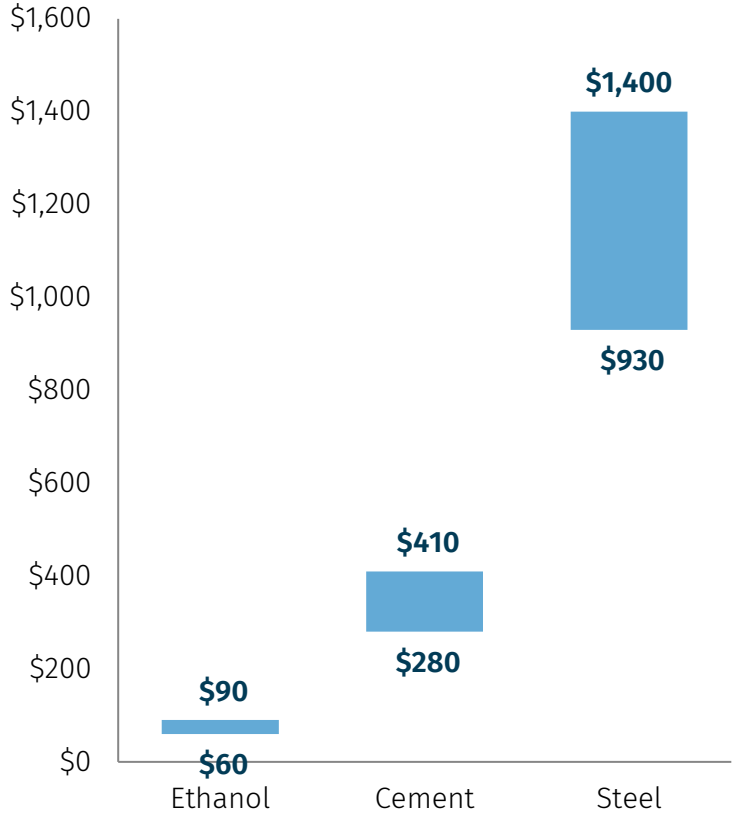
- If all near to intermediate term opportunities in Michigan are pursued, $6.8 to $10 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Michigan total 1,970 to 2,970 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 1,340 to 1,990 ongoing jobs.
- In addition, $0.6 billion in transport infrastructure will be required to support these projects. This investment will create 330 jobs on average each year over a 15-year deployment period.

Michigan: Industrial Facilities

Carbon capture opportunities

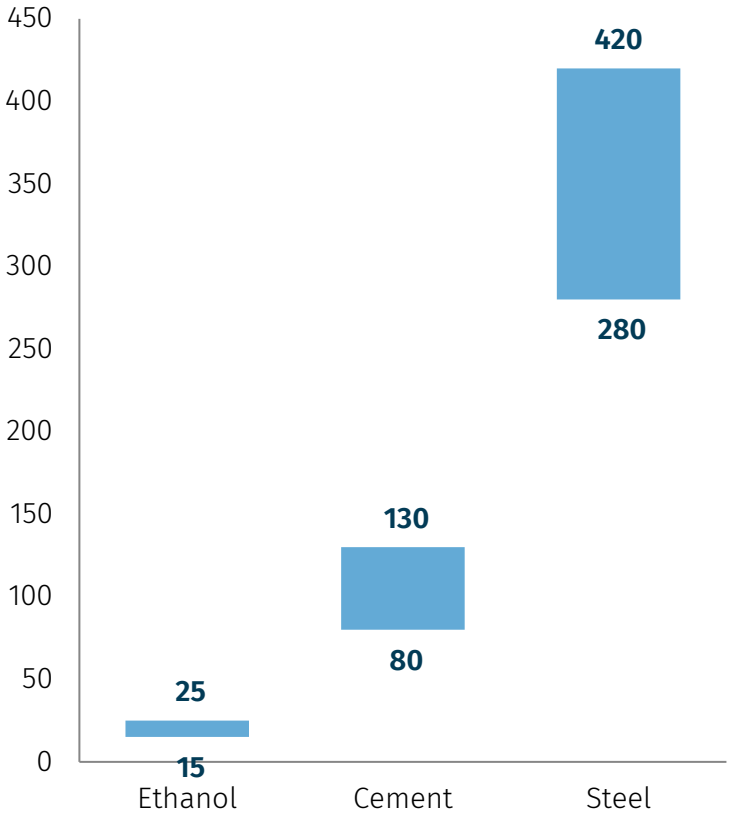
Capital Investment Requirement

Million $ USD



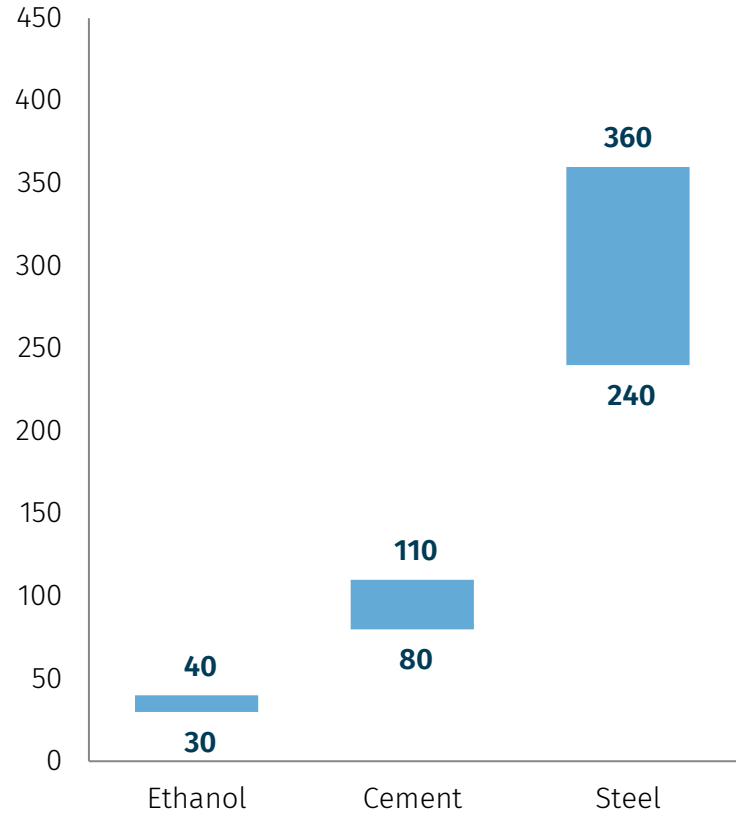
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



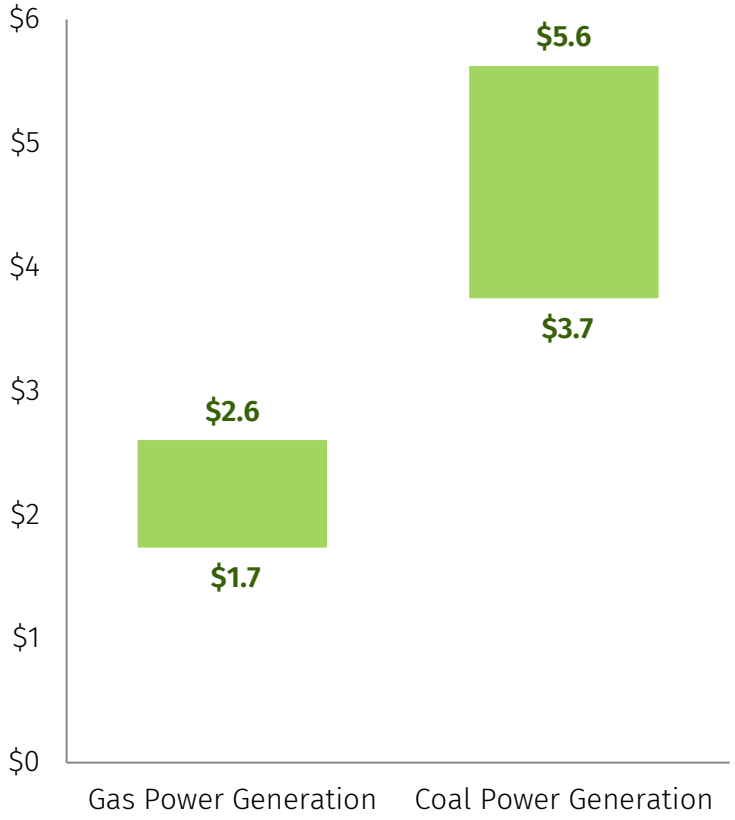
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Michigan: Electric Power Sector

Carbon capture opportunities

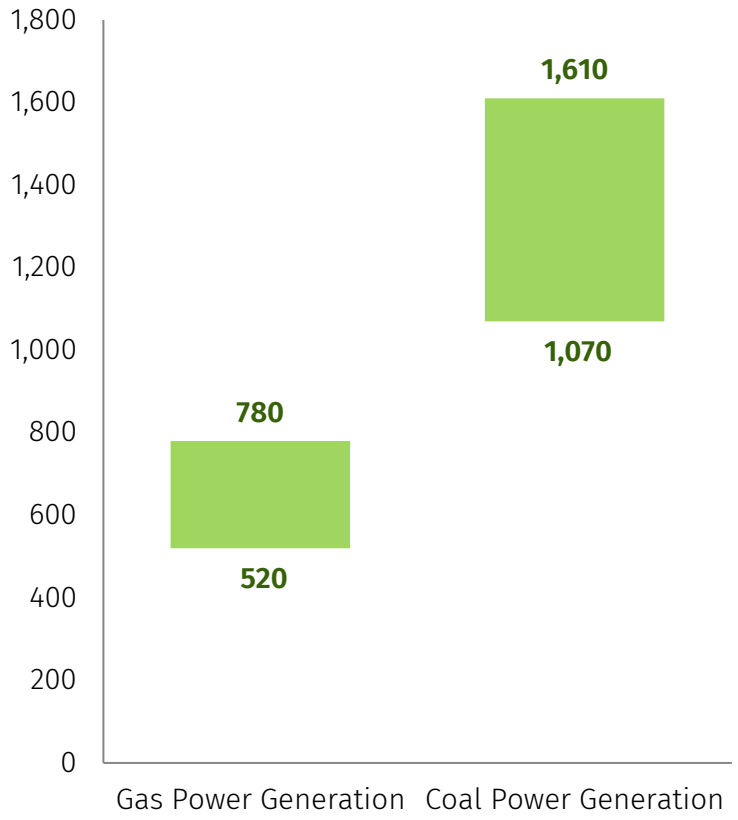
Capital Investment Requirement

Billion $ USD



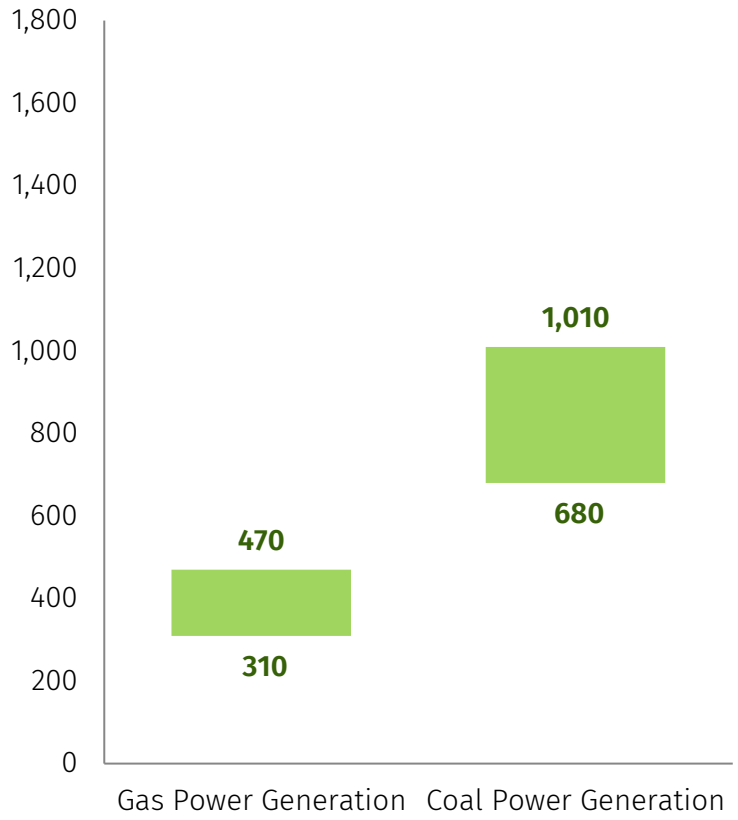
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



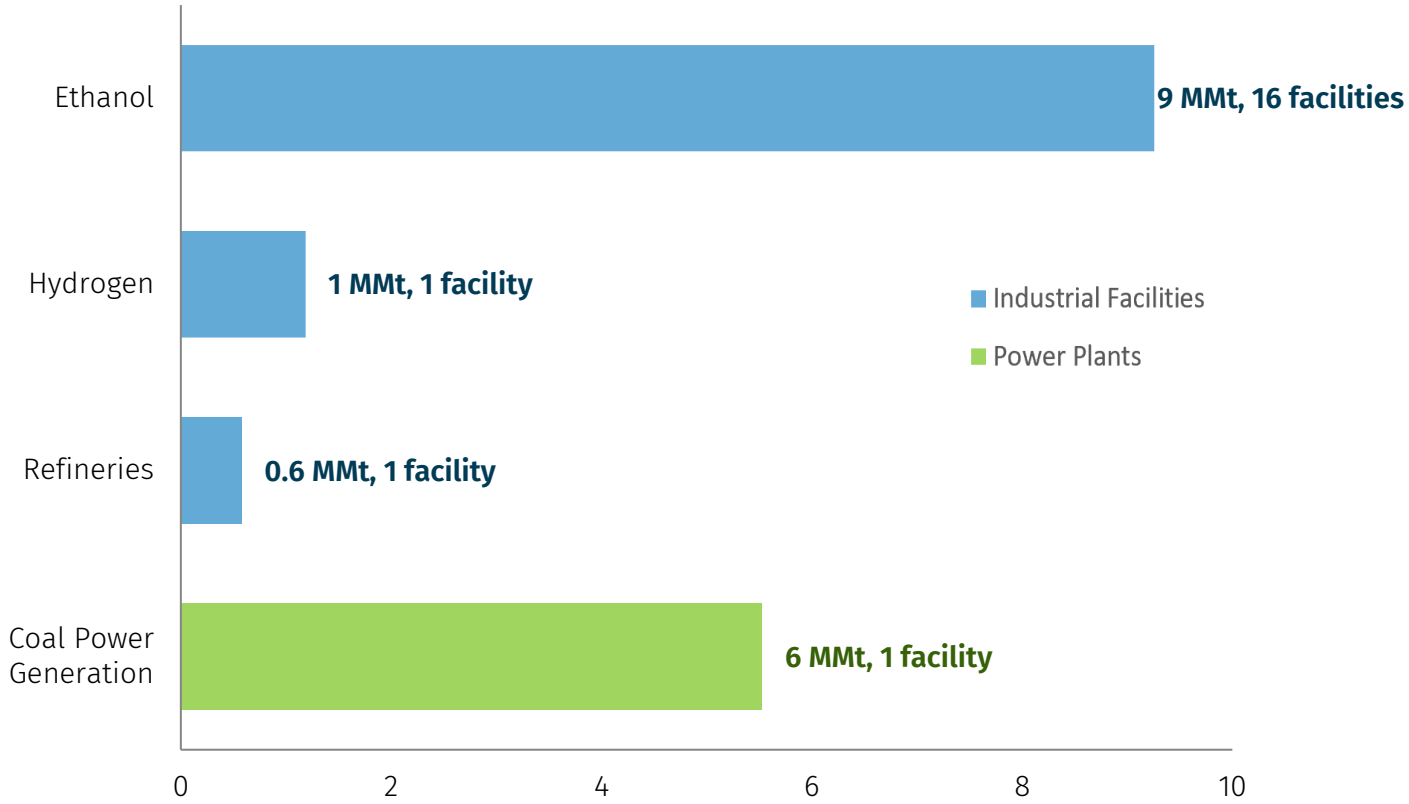
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Minnesota: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

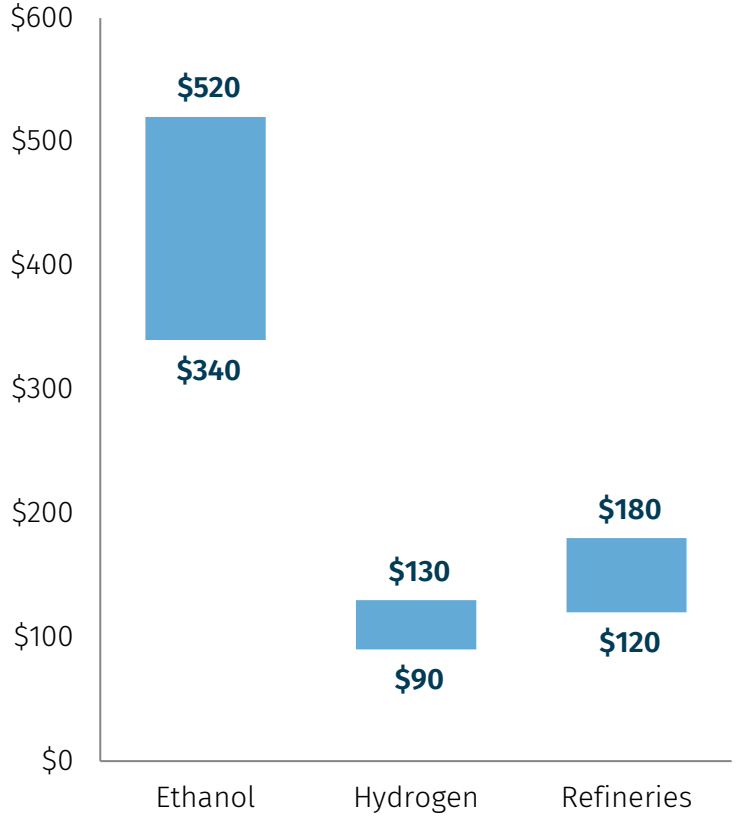
- If all near to intermediate term opportunities in Minnesota are pursued, $1.9 to $2.8 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Minnesota total 530 to 800 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 490 to 680 ongoing jobs.
- In addition, $0.5 billion in transport infrastructure will be required to support these projects. This investment will create 230 jobs on average each year over a 15-year deployment period.

Minnesota: Industrial Facilities

Carbon capture opportunities

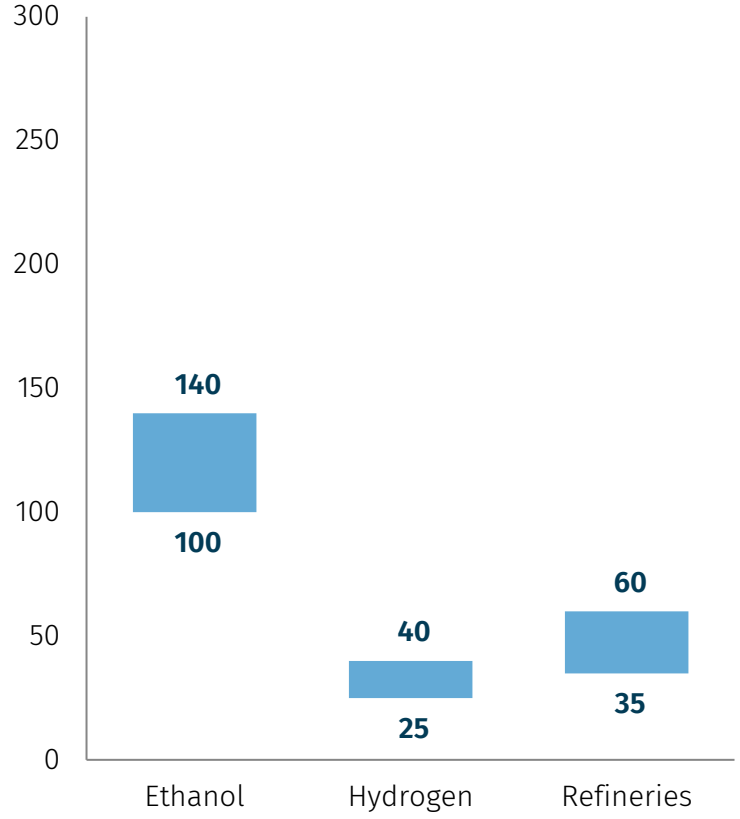
Capital Investment Requirement

Million $ USD



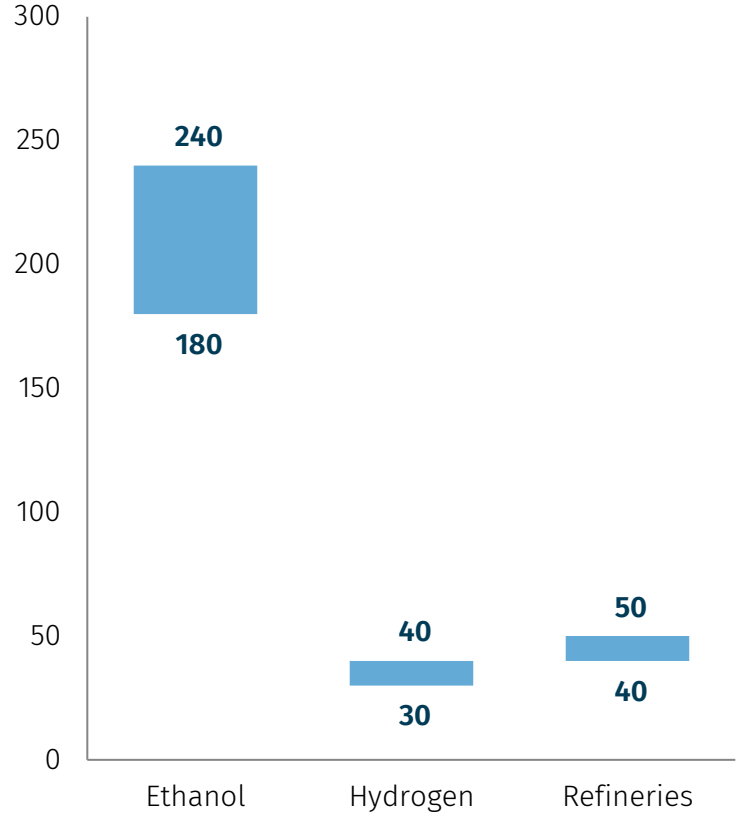
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Minnesota: Electric Power Sector

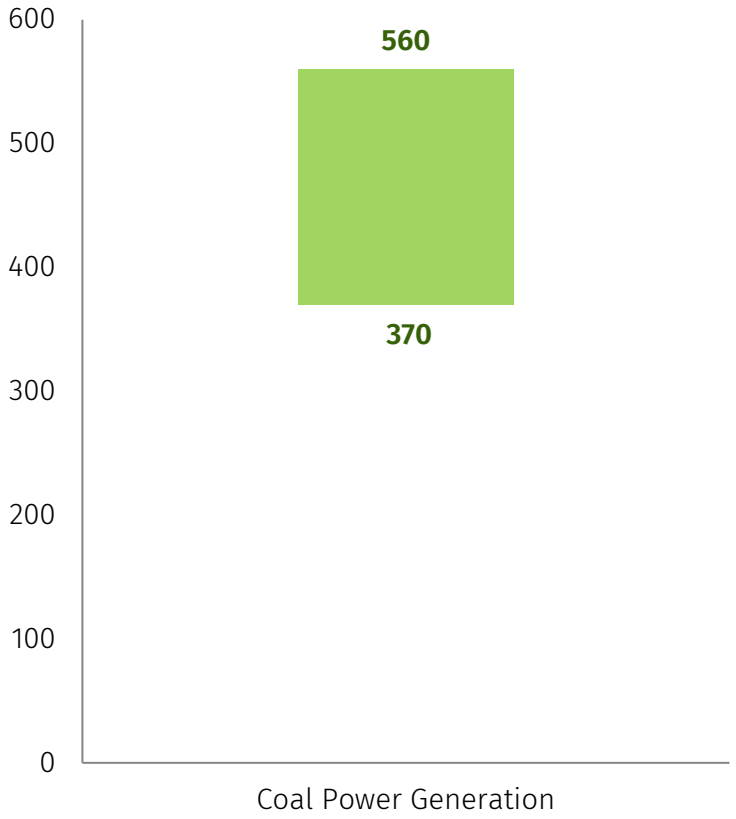
Carbon capture opportunities

Capital Investment Requirement

Billion $ USD

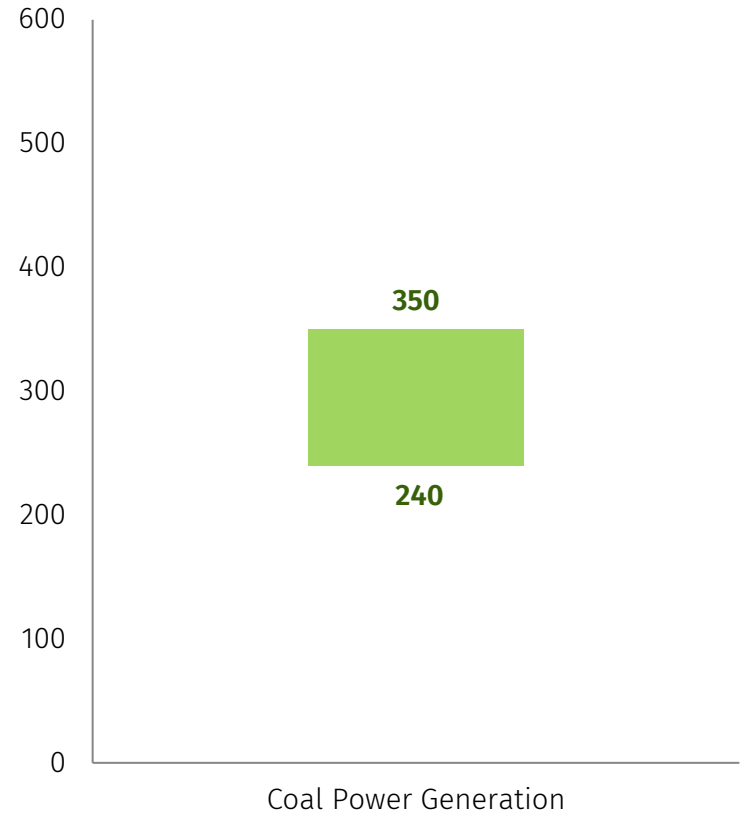
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



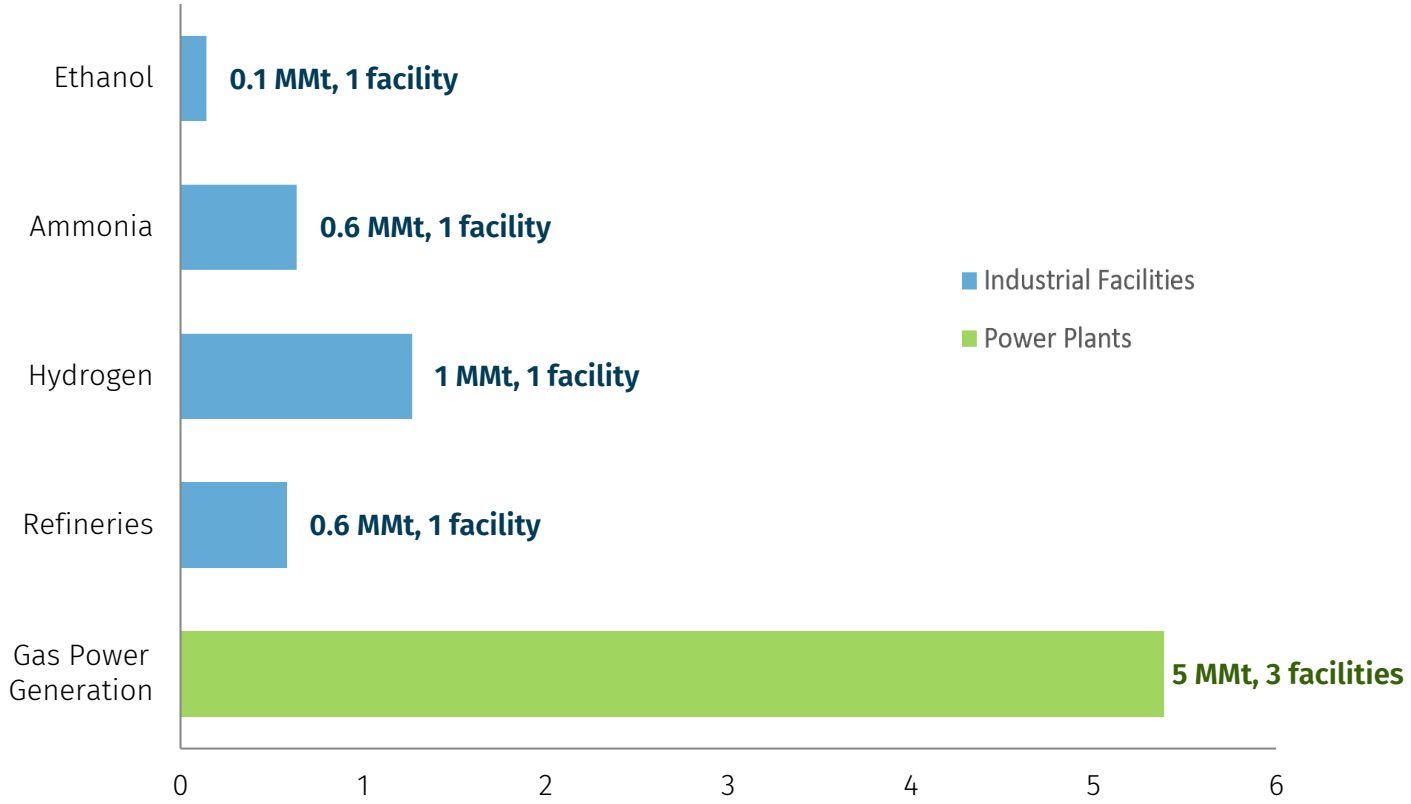
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Mississippi: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

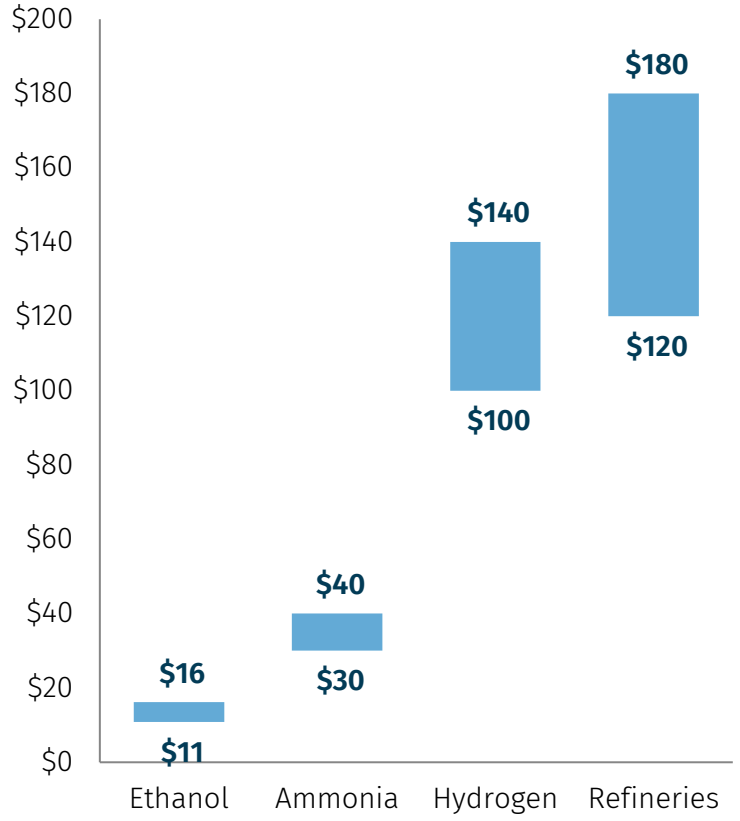
- If all near to intermediate term opportunities in Mississippi are pursued, $2 to $3 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Mississippi total 750 to 1,110 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 450 to 670 ongoing jobs.
- In addition, $1 billion in transport infrastructure will be required to support these projects. This investment will create 600 jobs on average each year over a 15-year deployment period.

Mississippi: Industrial Facilities

Carbon capture opportunities

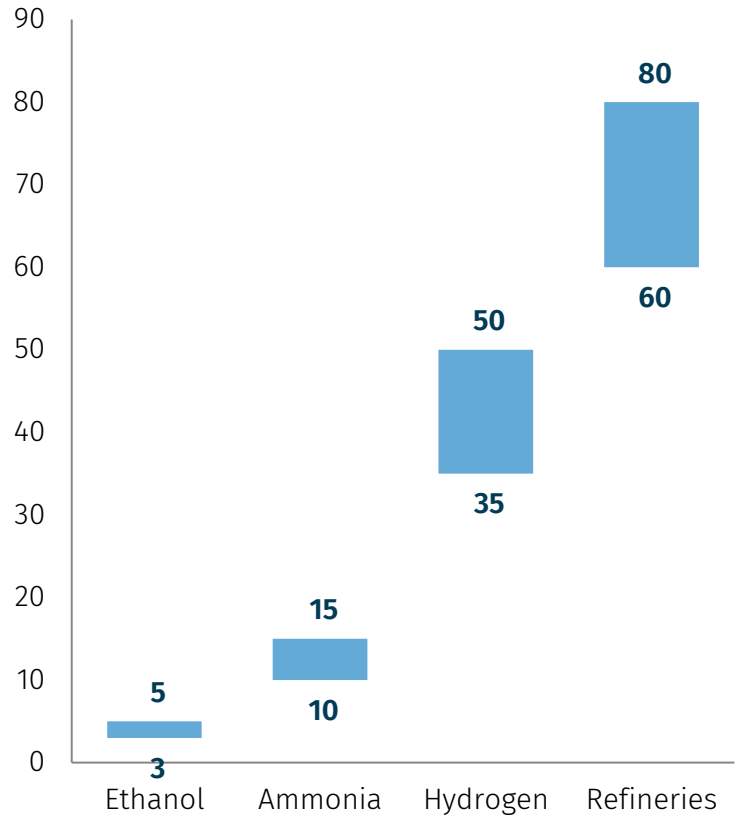
Capital Investment Requirement

Million $ USD



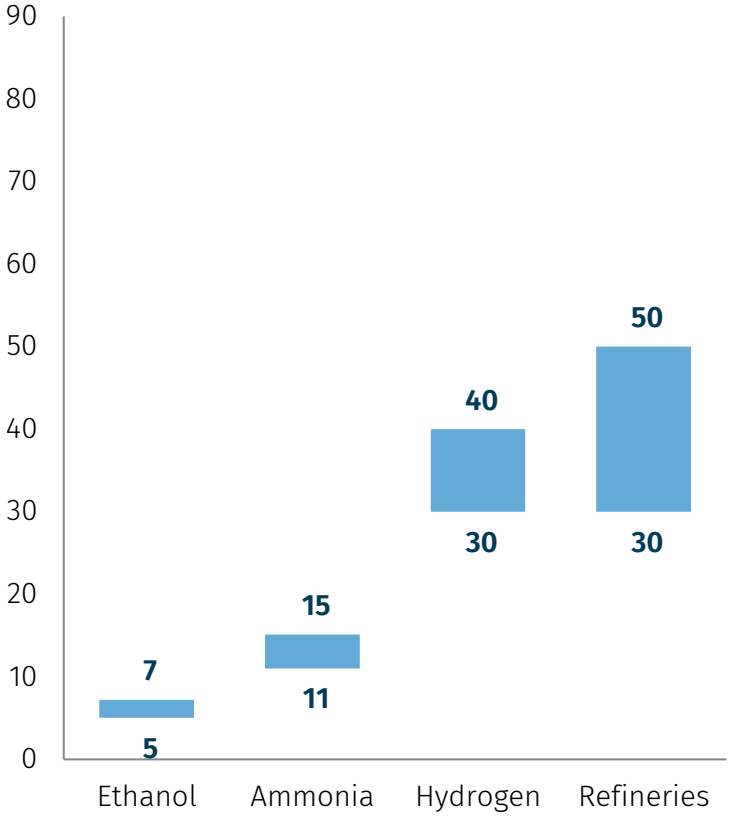
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



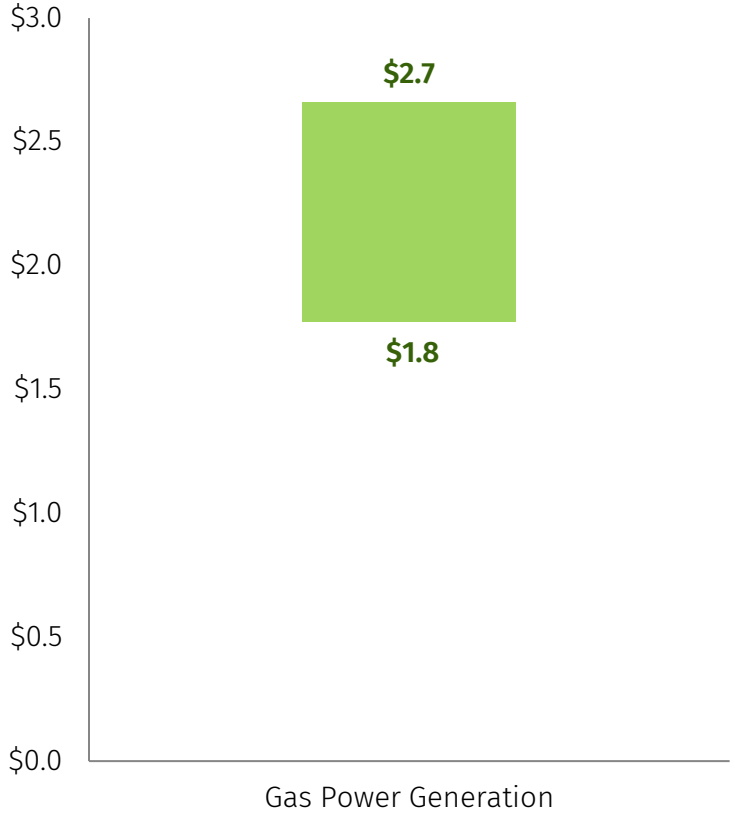
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Mississippi: Electric Power Sector

Carbon capture opportunities

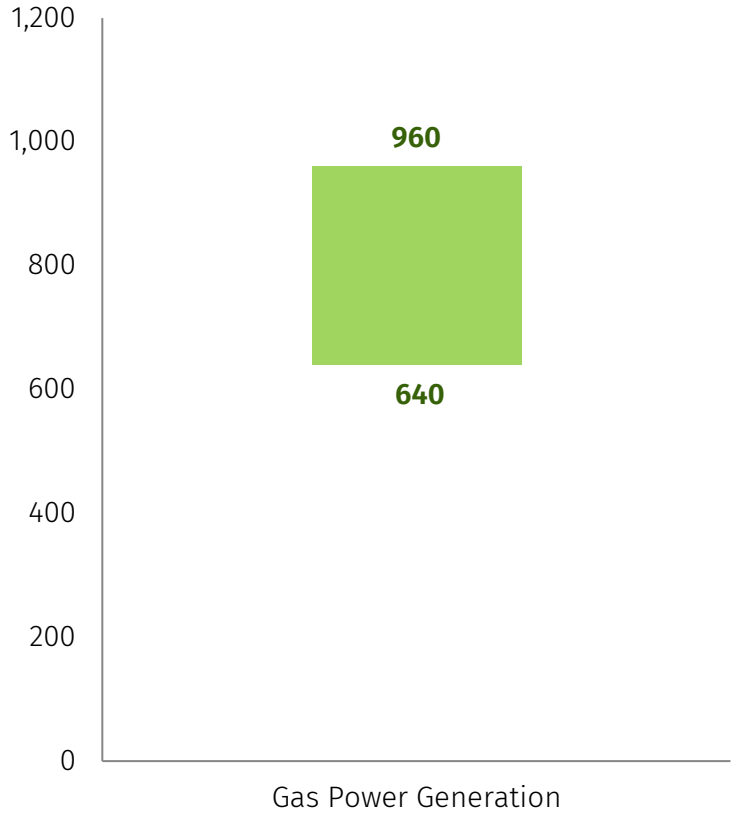
Capital Investment Requirement

Billion $ USD



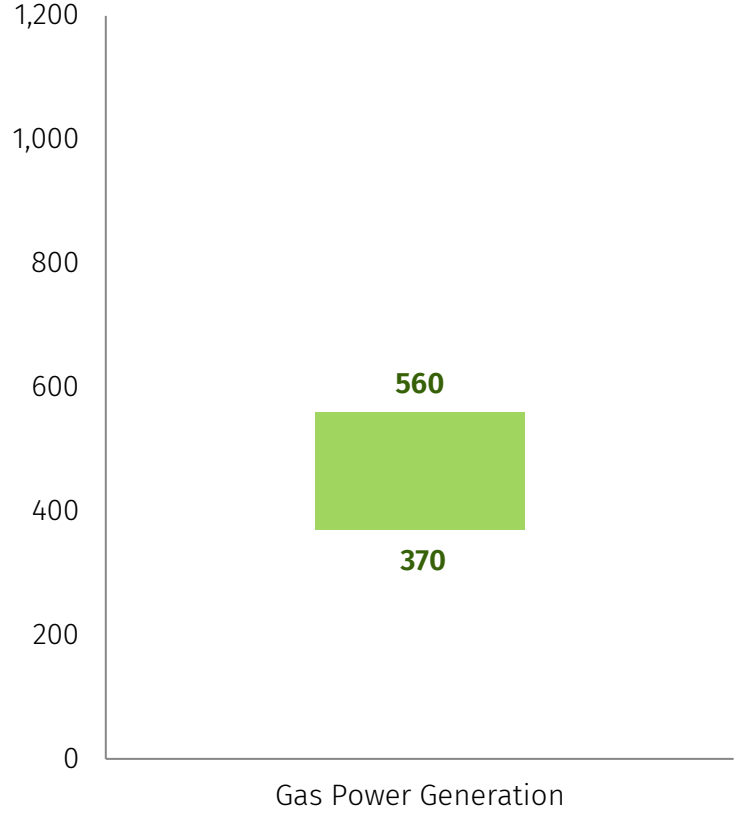
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



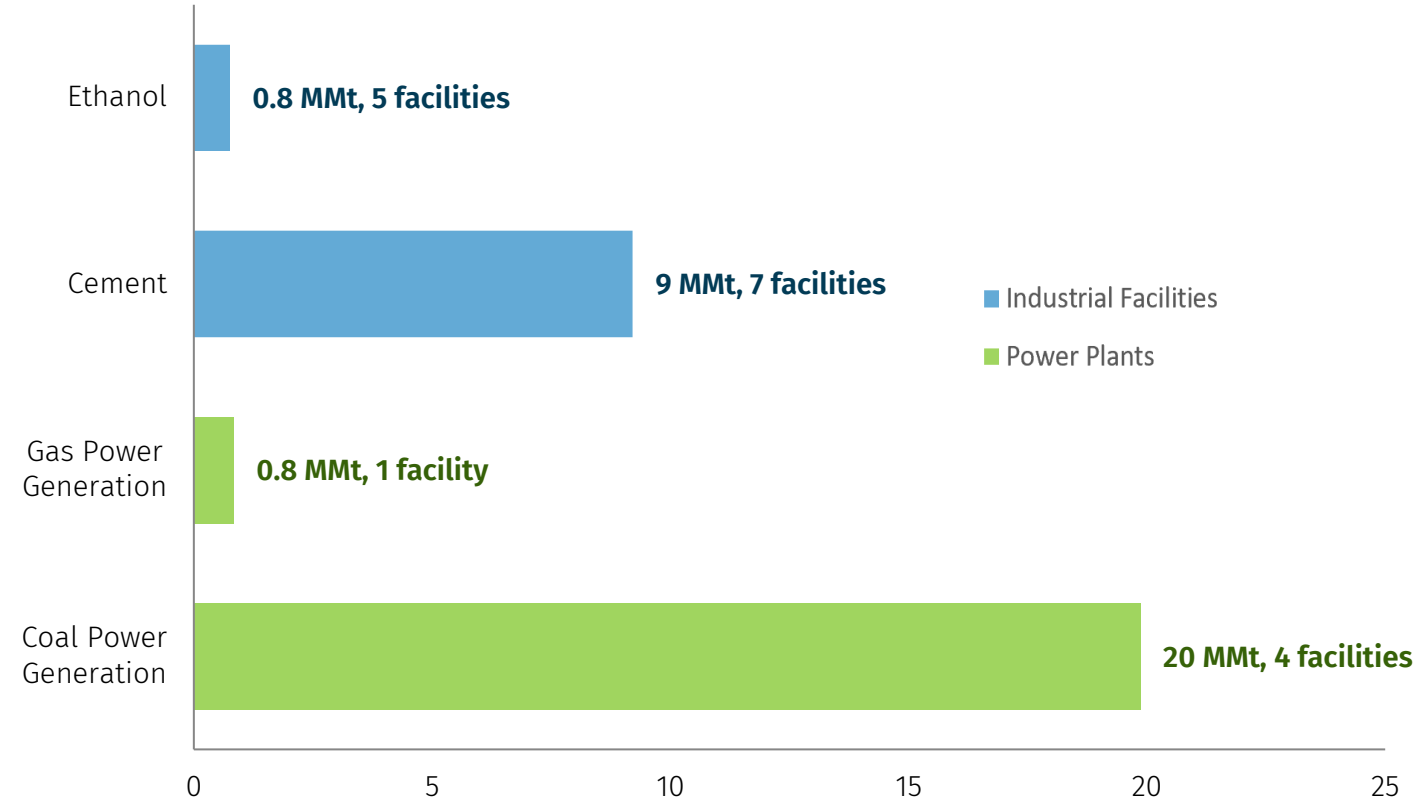
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Missouri: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

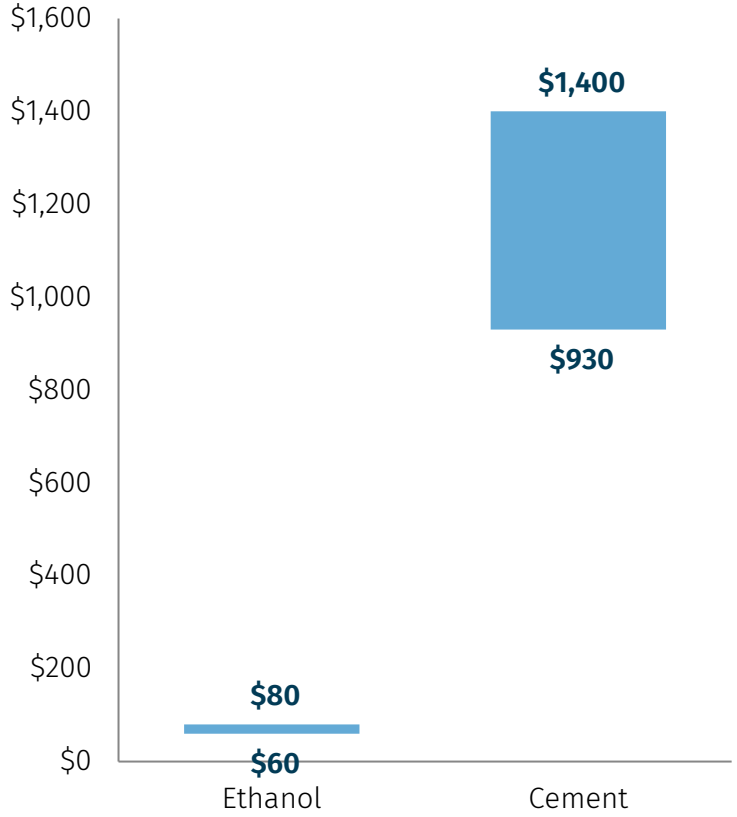
- If all near to intermediate term opportunities in Missouri are pursued, $5.9 to $8.9 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Missouri total 1,870 to 2,810 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 1,250 to 1,840 ongoing jobs.
- In addition, $1.8 billion in transport infrastructure will be required to support these projects. This investment will create 1,030 jobs on average each year over a 15-year deployment period.

Missouri: Industrial Facilities

Carbon Capture Opportunities

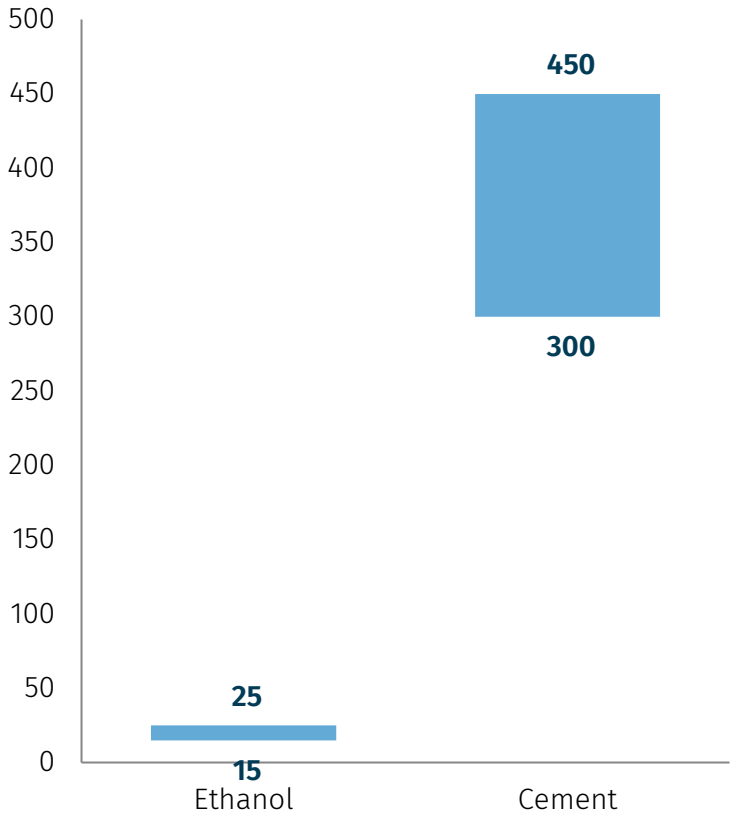
Capital Investment Requirement

Million $ USD



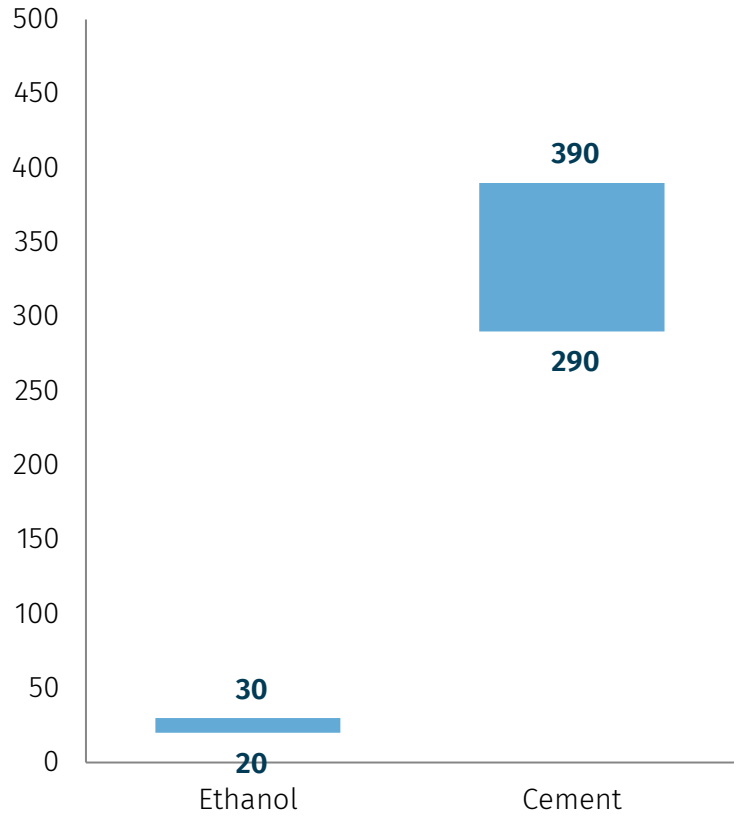
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



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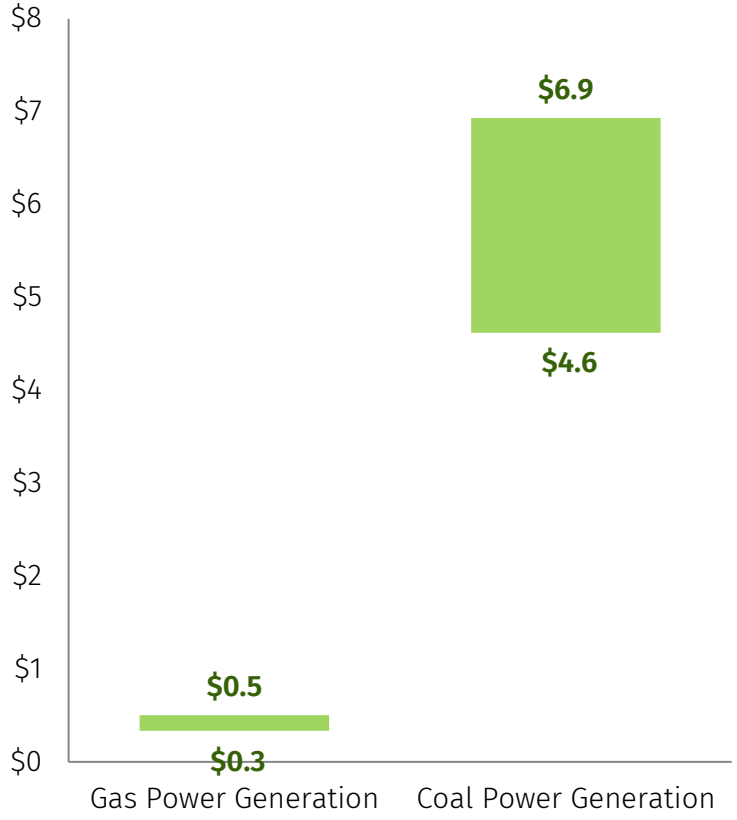
Missouri: Electric Power Sector

Carbon Capture Opportunities

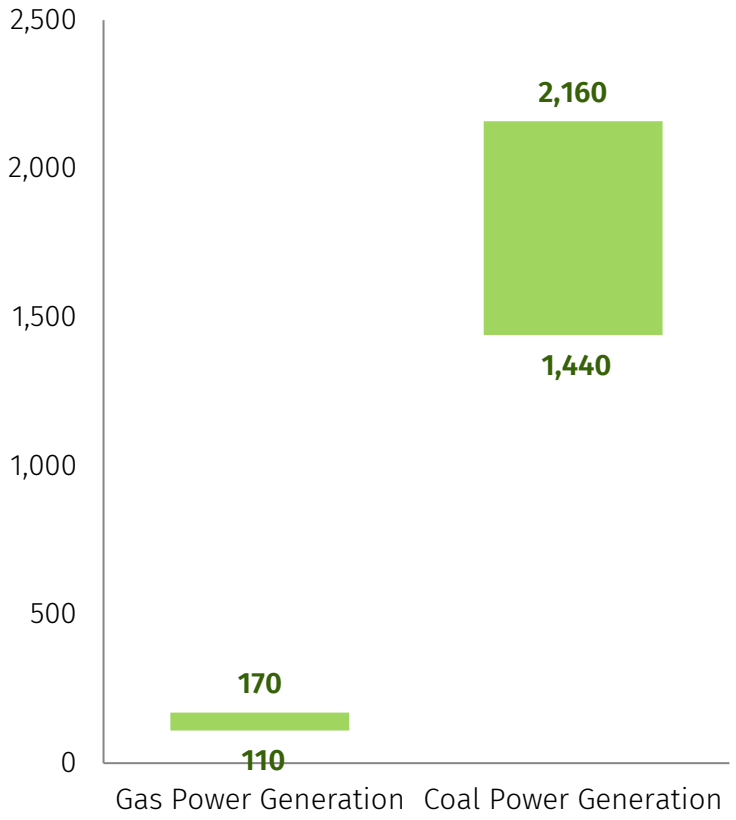
Capital Investment Requirement

Billion $ USD



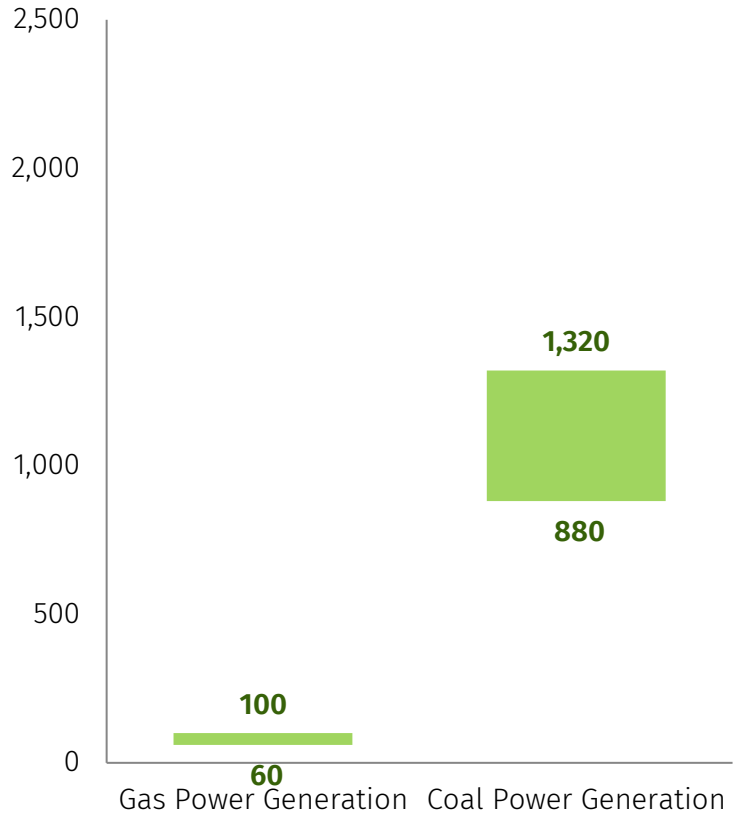
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



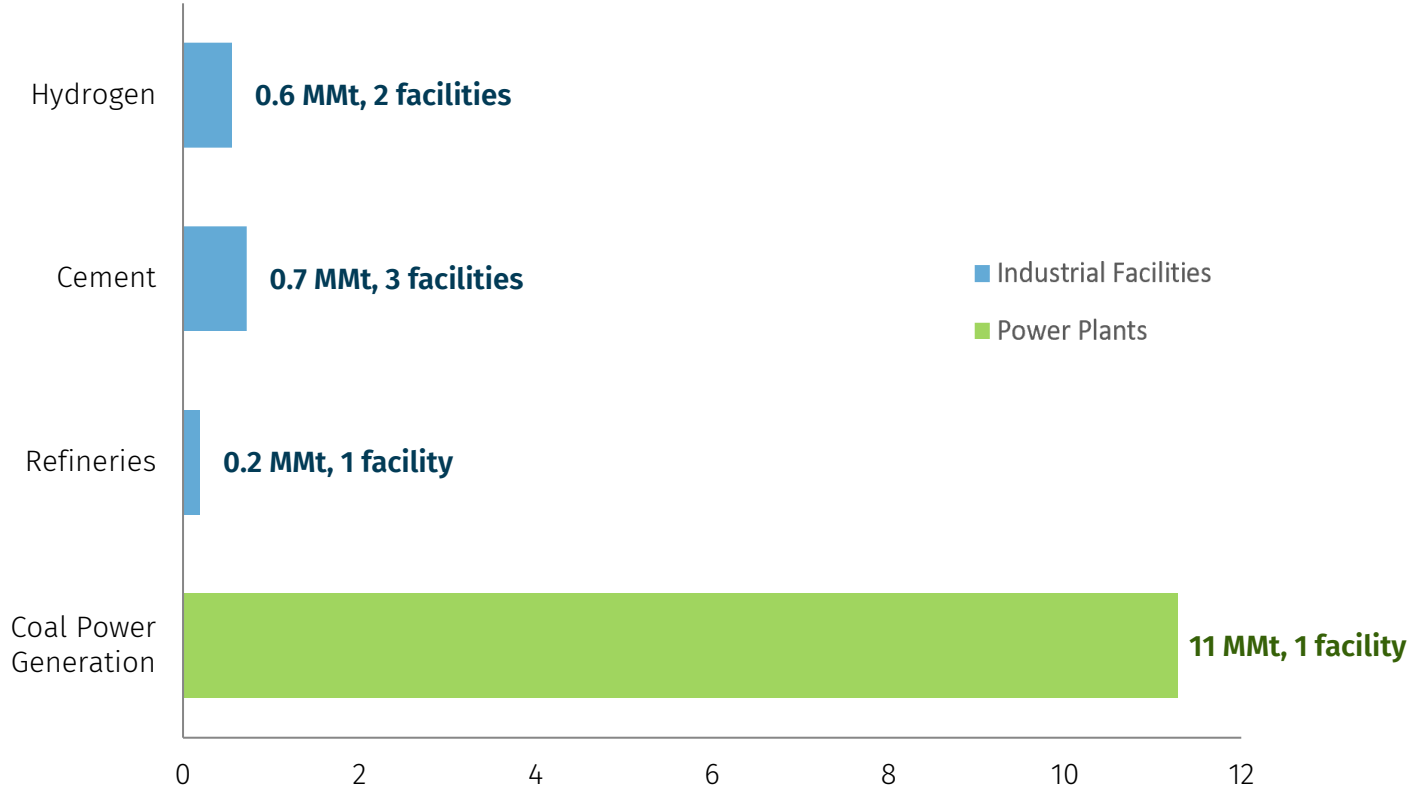
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Montana: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

- If all near to intermediate term opportunities in Montana are pursued, $2.7 to $4 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Montana total 880 to 1,330 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 640 to 940 ongoing jobs.
- In addition, $0.9 billion in transport infrastructure will be required to support these projects. This investment will create 510 jobs on average each year over a 15-year deployment period.

Montana: Industrial Facilities

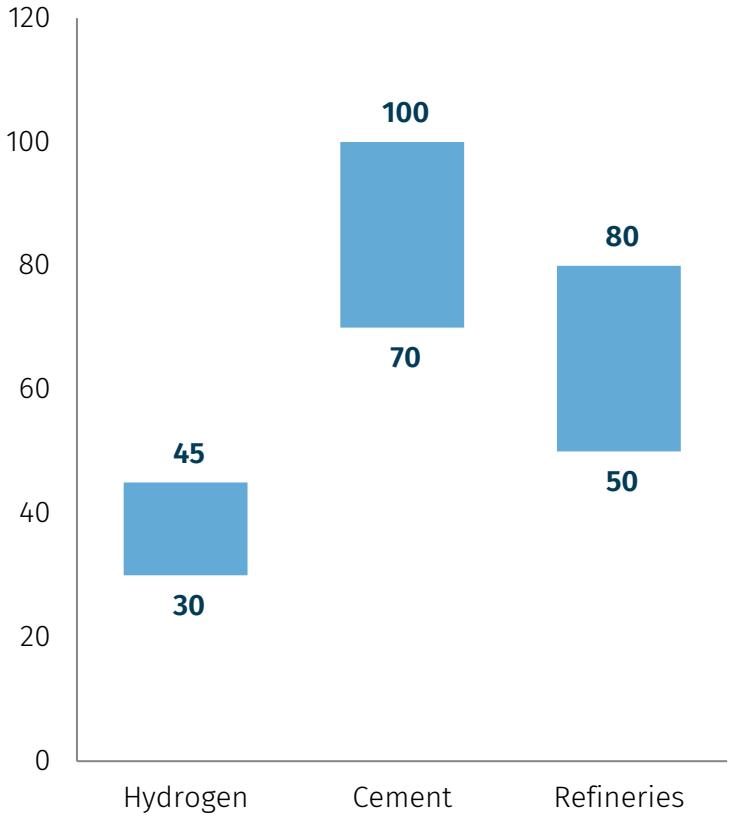
Carbon capture opportunities

Capital Investment Requirement

Million $ USD

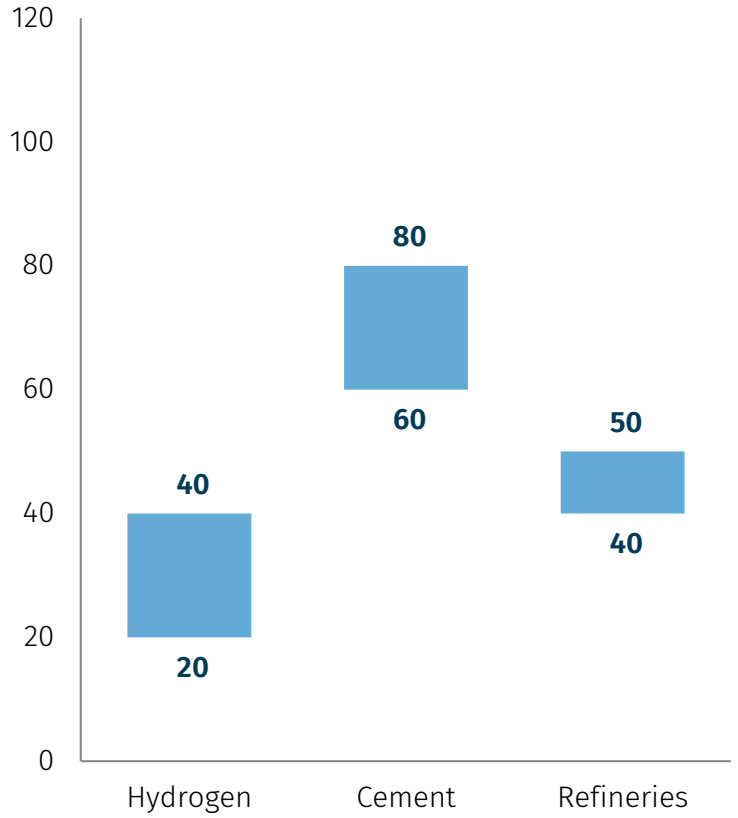
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



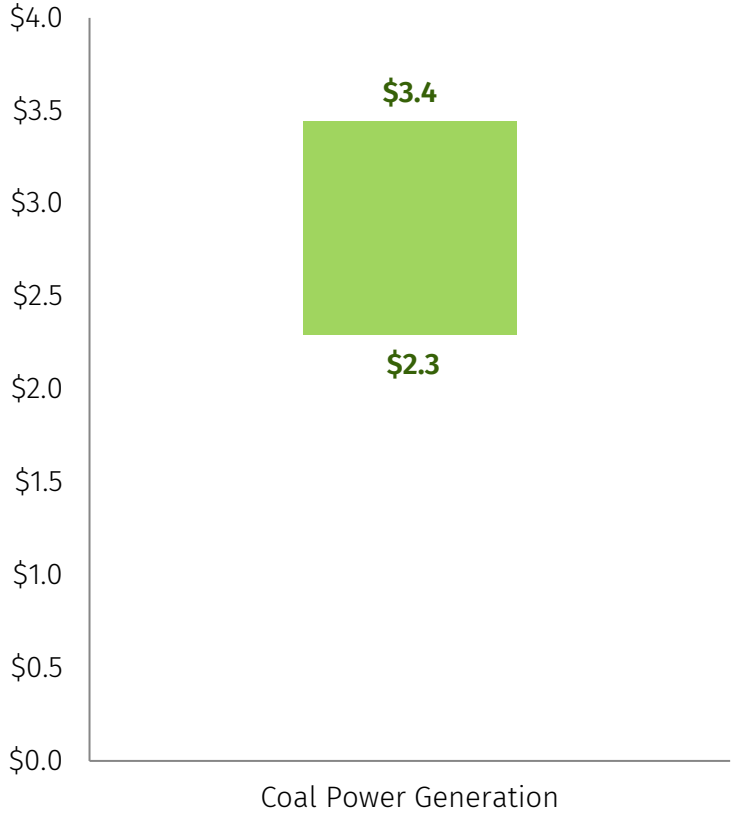
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Montana: Electric Power Sector

Carbon capture opportunities

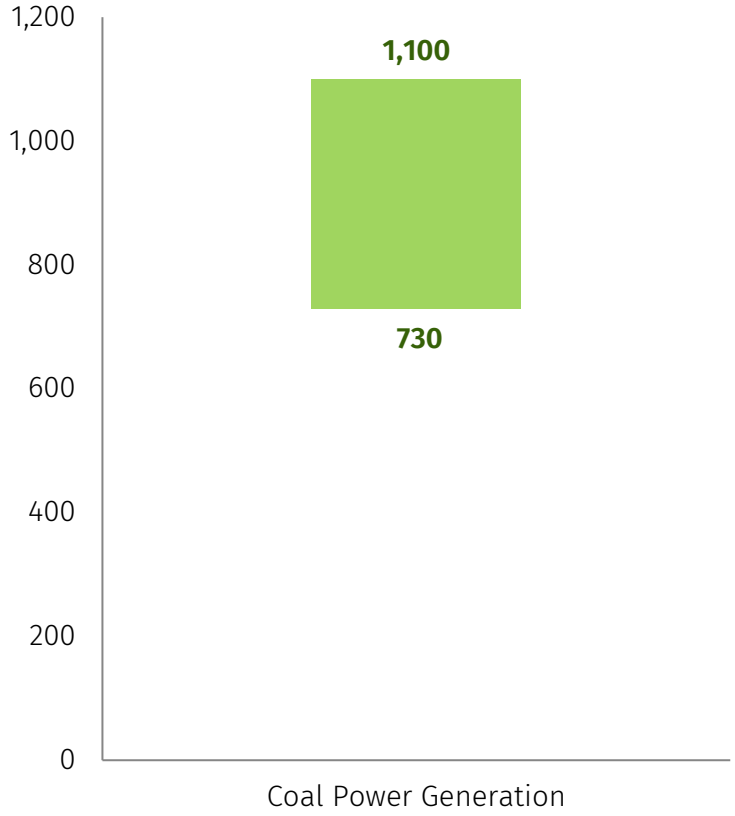
Capital Investment Requirement

Billion $ USD



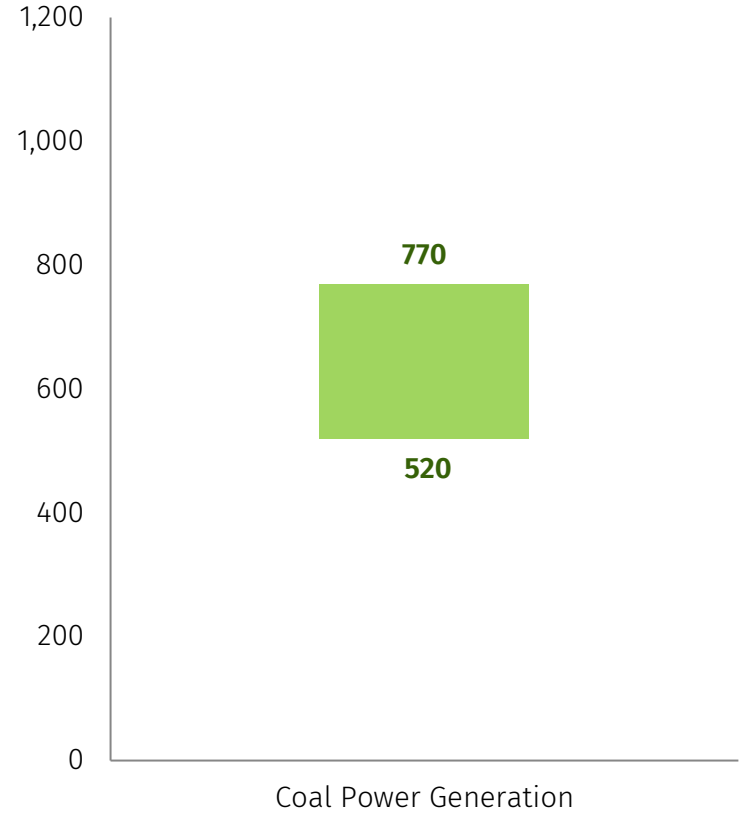
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



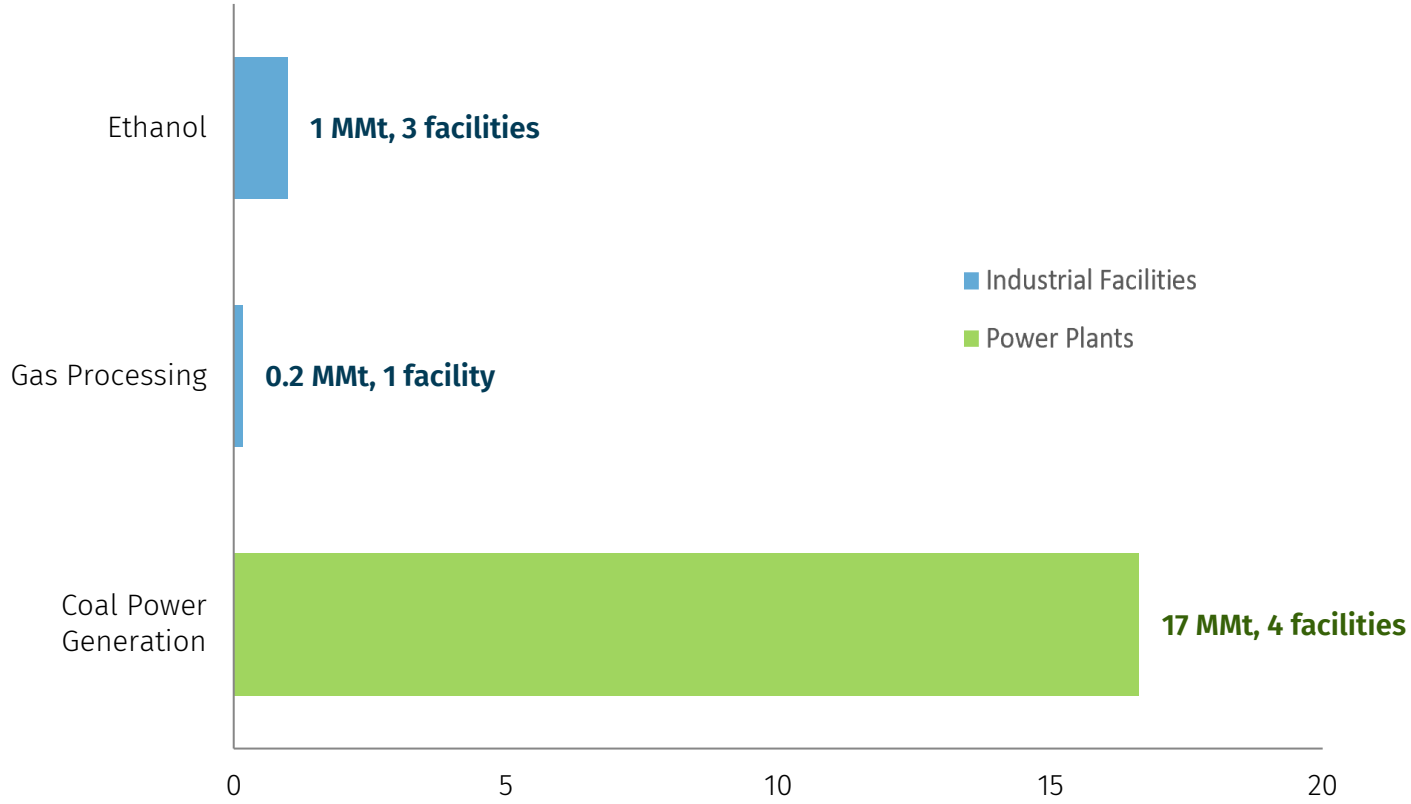
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

North Dakota: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

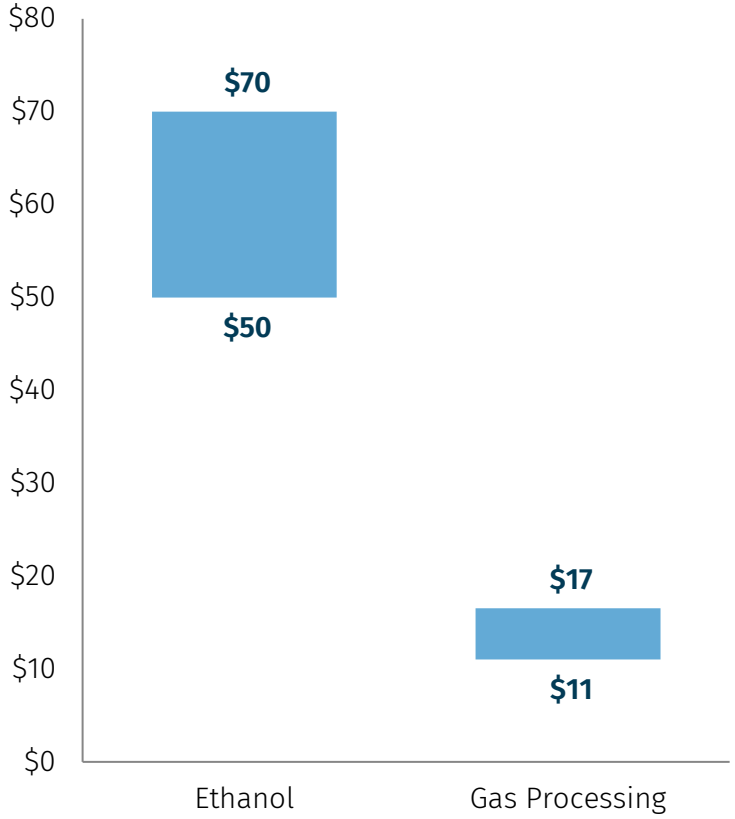
- If all near to intermediate term opportunities in North Dakota are pursued, $3.8 to $5.7 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in North Dakota total 660 to 980 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 450 to 670 ongoing jobs.
- In addition, $0.6 billion in transport infrastructure will be required to support these projects. This investment will create 310 jobs on average each year over a 15-year deployment period.

North Dakota: Industrial Facilities

Carbon capture opportunities

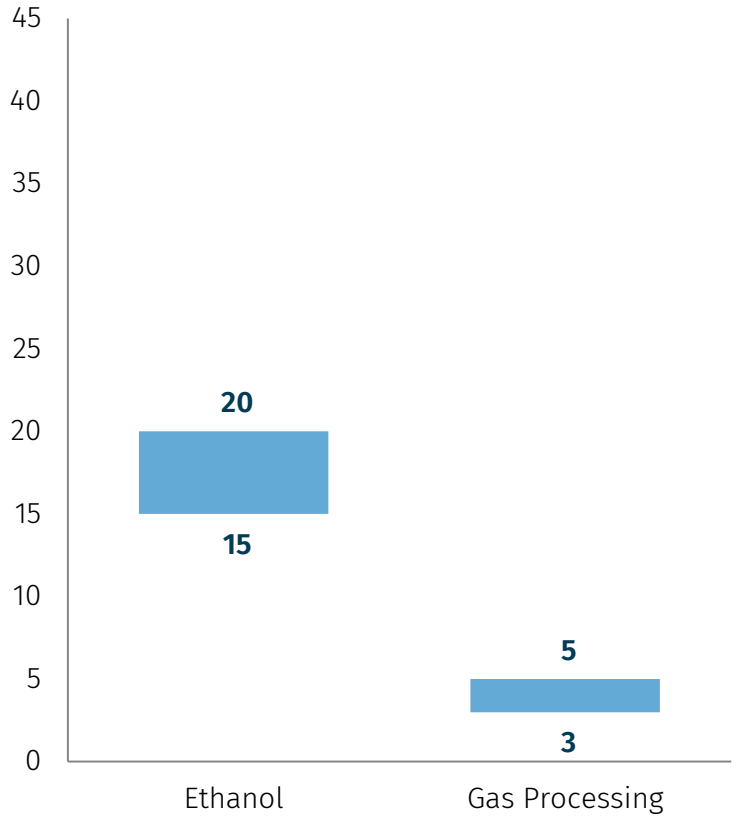
Capital Investment Requirement

Million $ USD



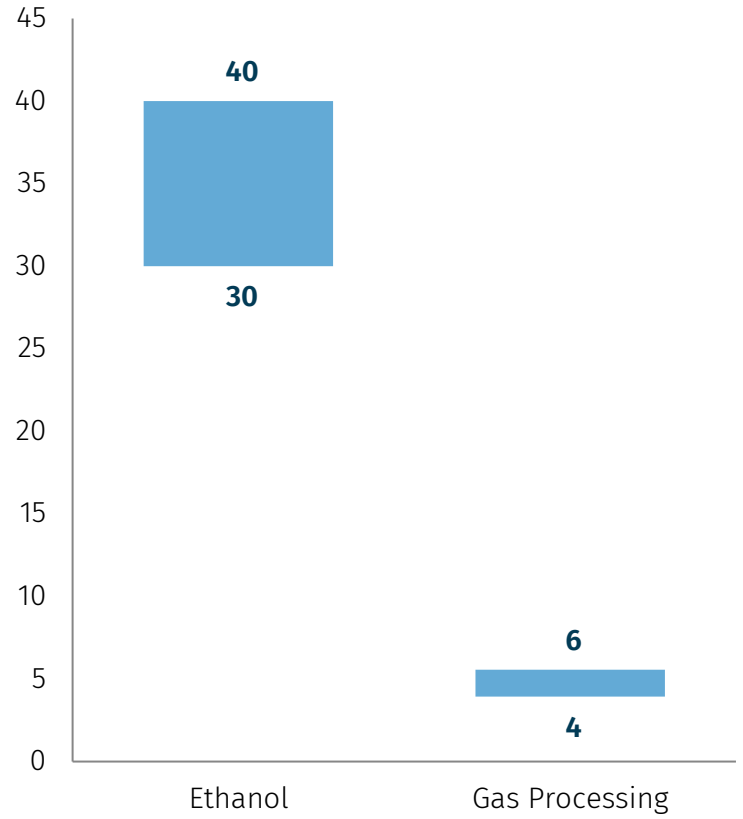
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



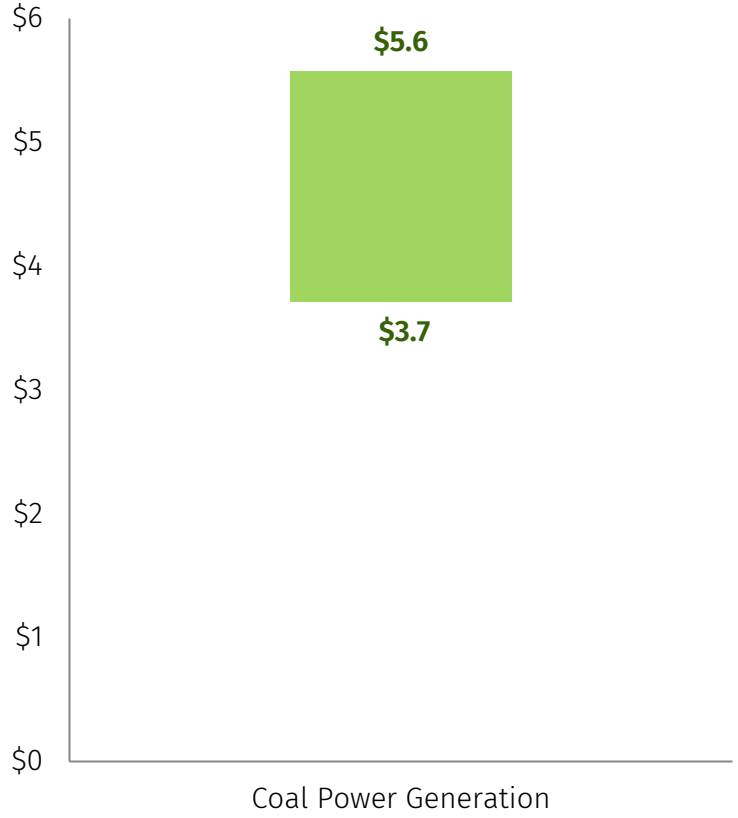
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

North Dakota: Electric Power Sector

Carbon capture opportunities

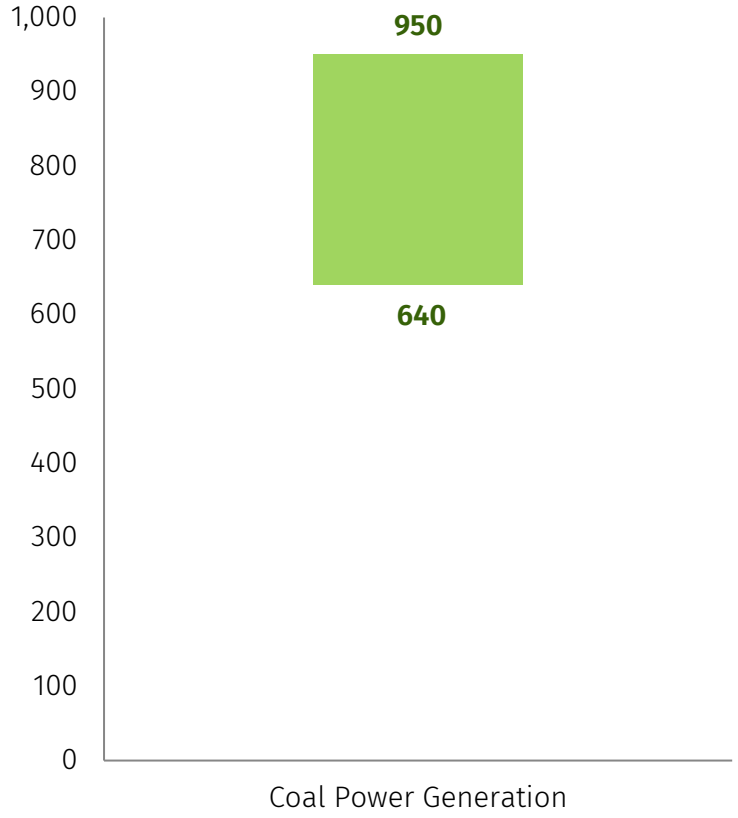
Capital Investment Requirement

Billion $ USD



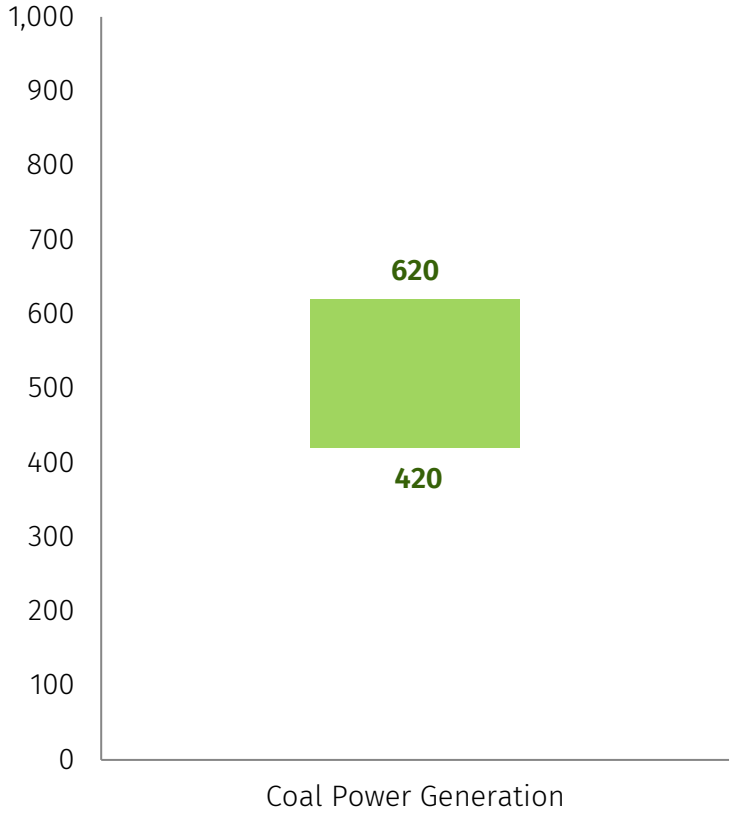
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



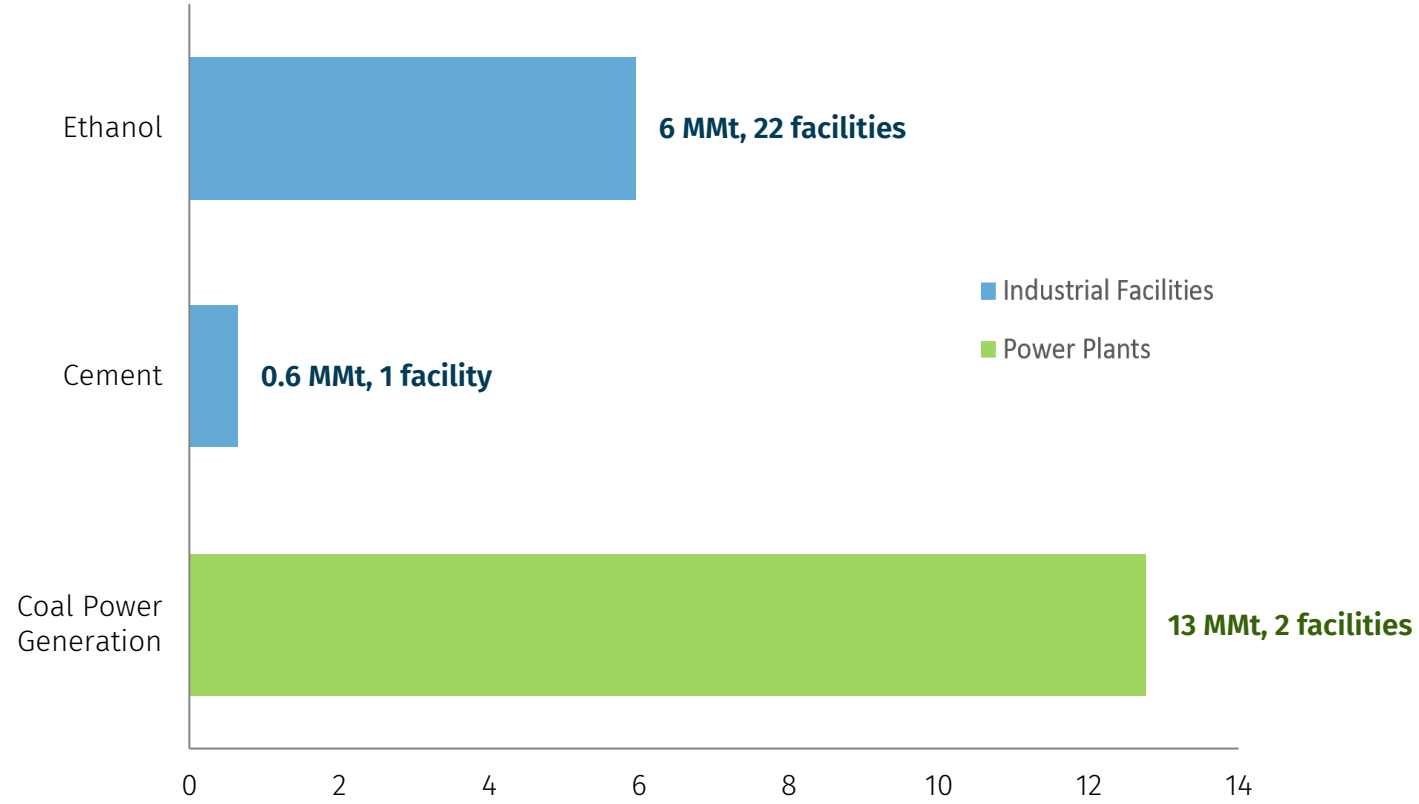
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Nebraska: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

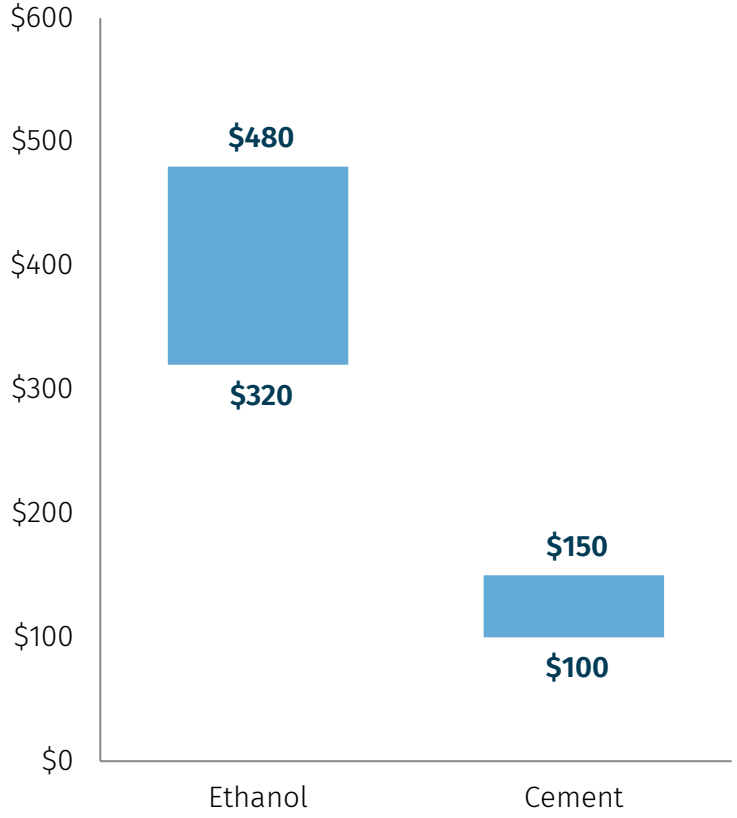
- If all near to intermediate term opportunities in Nebraska are pursued, $3.3 to $4.9 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Nebraska total 1,090 to 1,610 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 710 to 1,050 ongoing jobs.
- In addition, $1.5 billion in transport infrastructure will be required to support these projects. This investment will create 950 jobs on average each year over a 15-year deployment period.

Nebraska: Industrial Facilities

Carbon capture opportunities

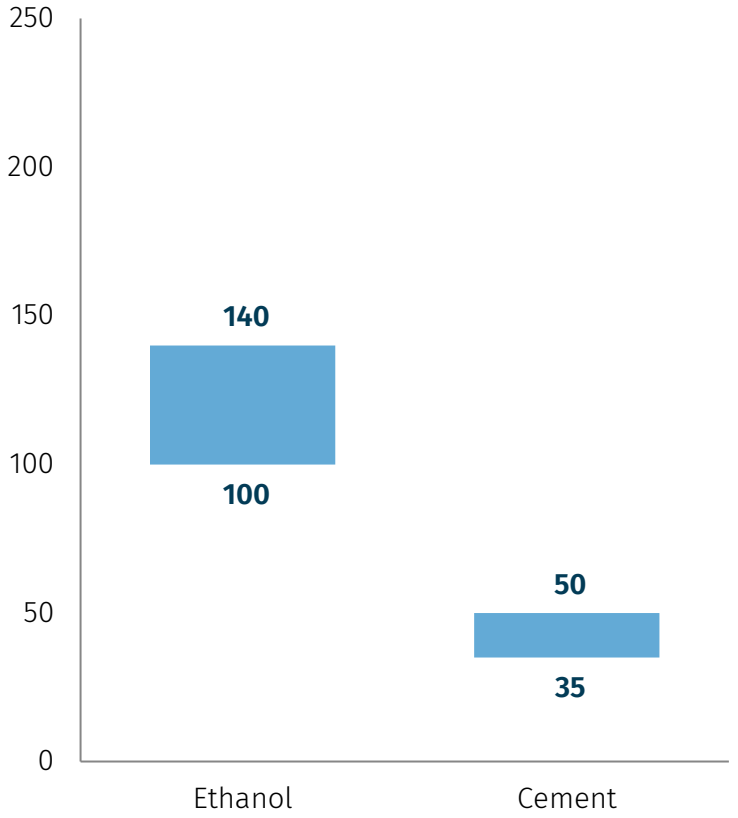
Capital Investment Requirement

Million $ USD



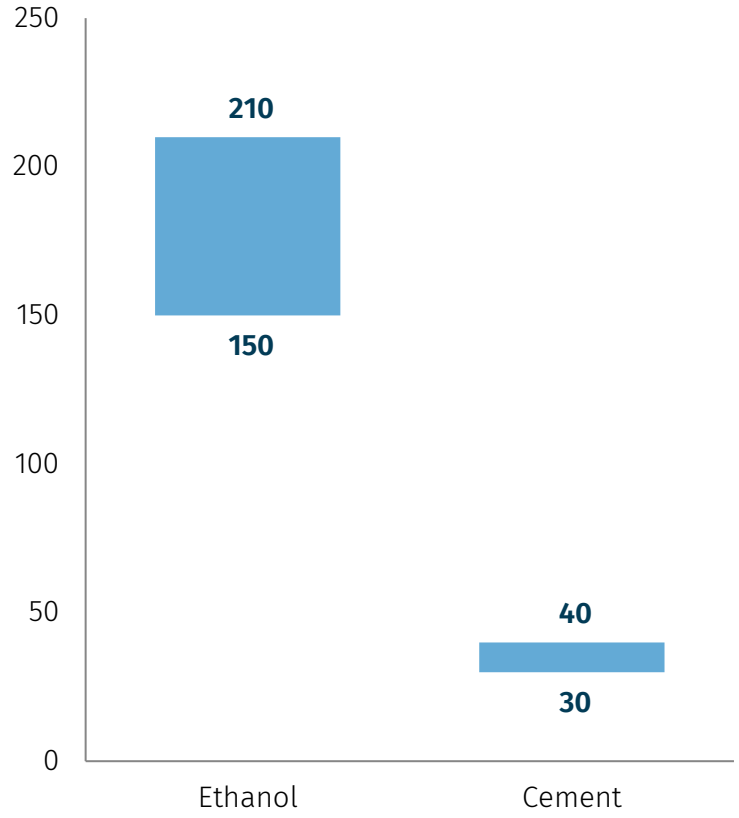
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



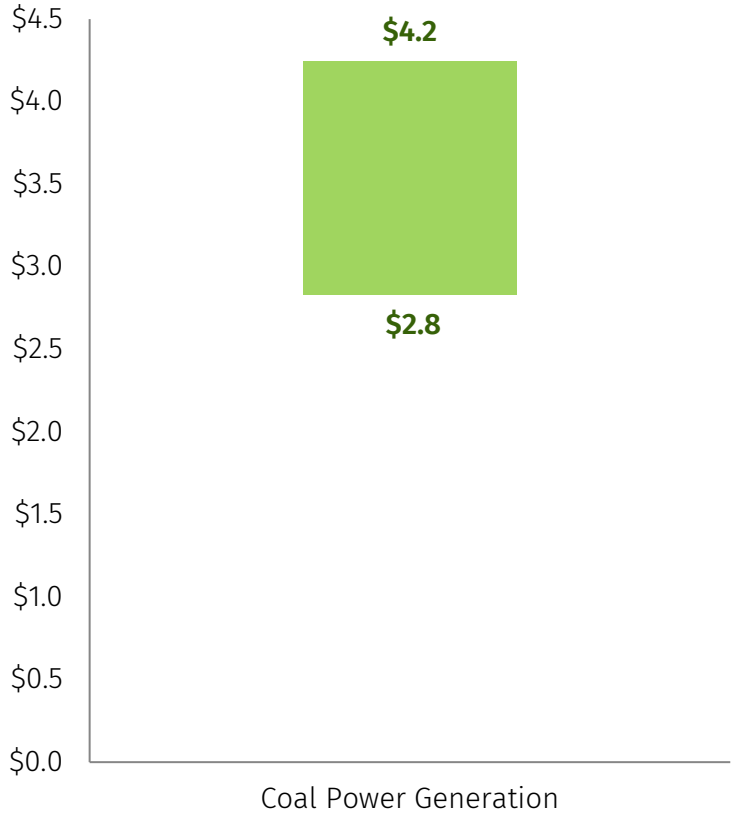
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Nebraska: Electric Power Sector

Carbon capture opportunities

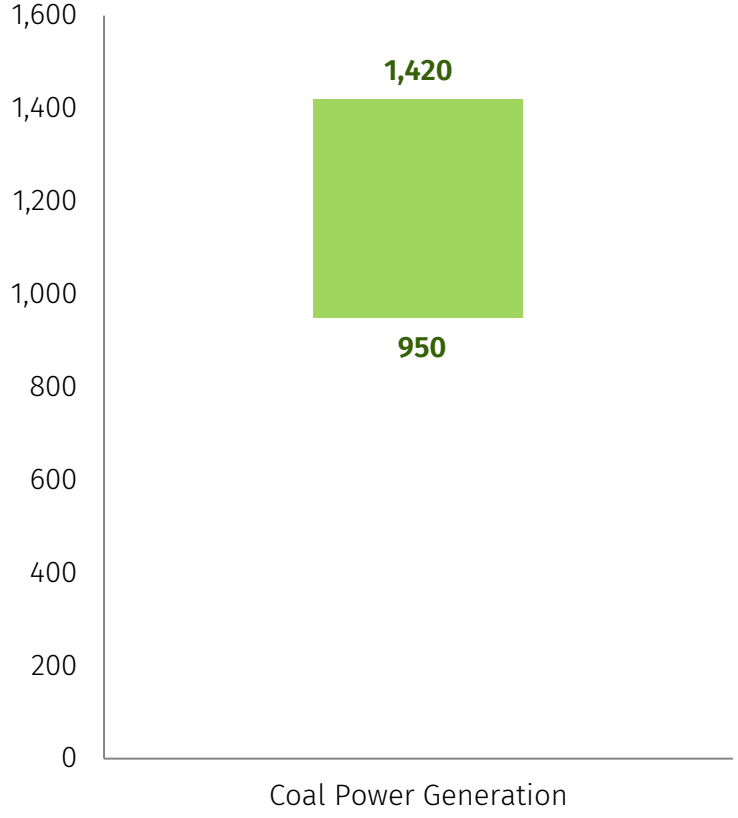
Capital Investment Requirement

Billion $ USD



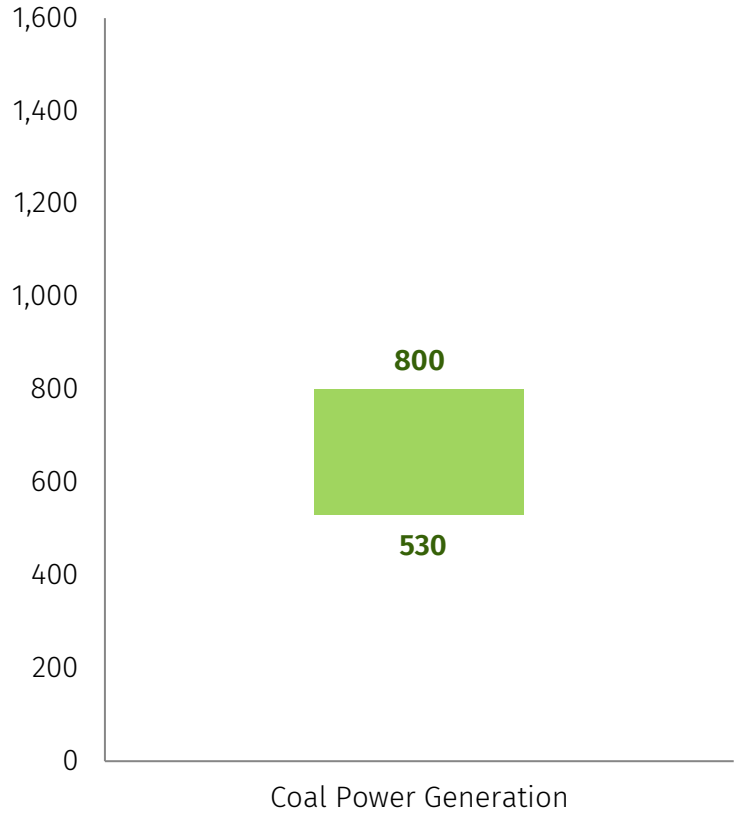
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



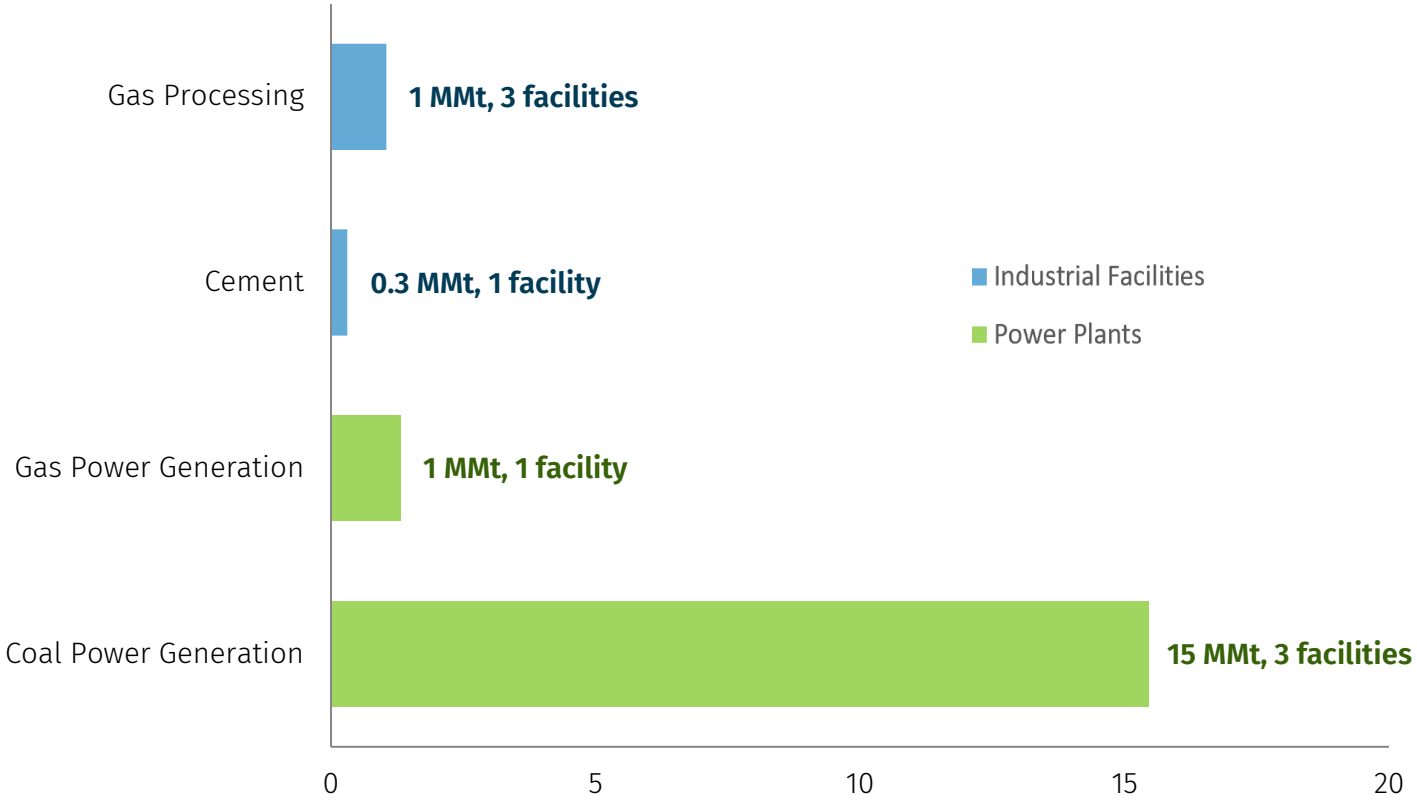
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

New Mexico: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

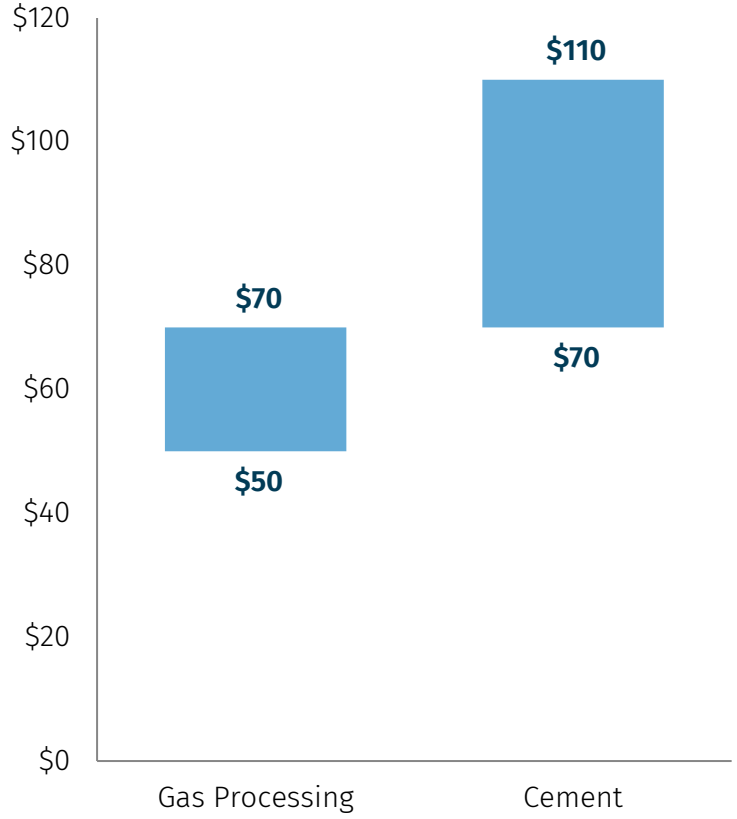
- If all near to intermediate term opportunities in New Mexico are pursued, $4 to $6 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in New Mexico total 1,330 to 2,000 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 880 to 1,310 ongoing jobs.
- In addition, $0.9 billion in transport infrastructure will be required to support these projects. This investment will create 570 jobs on average each year over a 15-year deployment period.

New Mexico: Industrial Facilities

Carbon capture opportunities

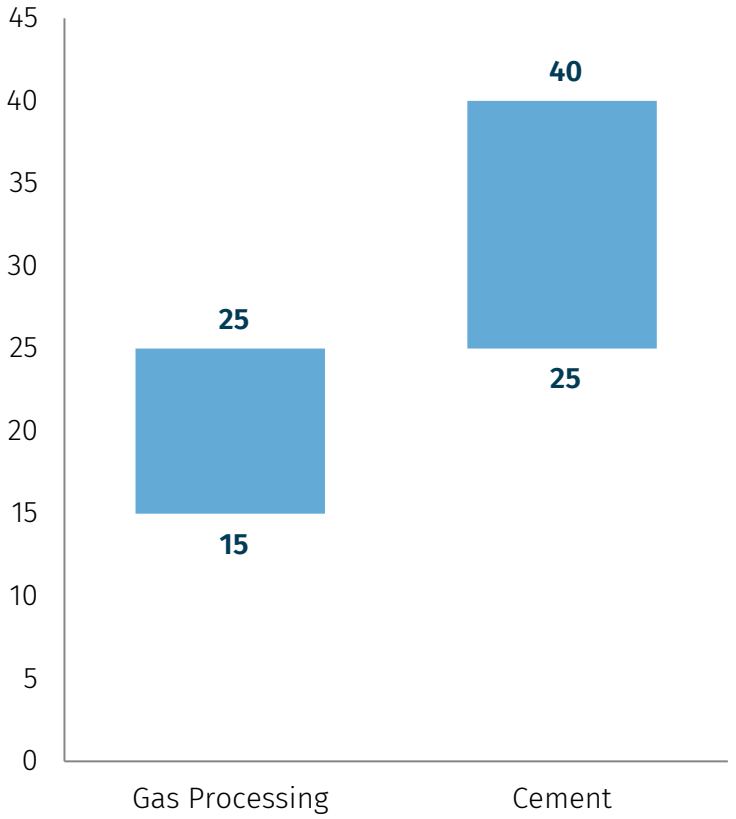
Capital Investment Requirement

Million $ USD



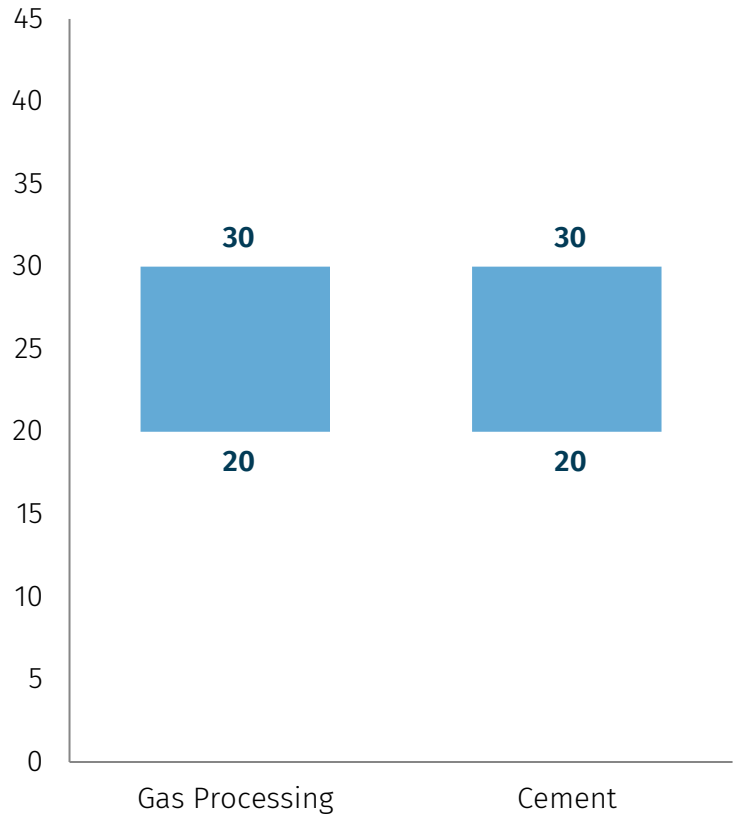
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



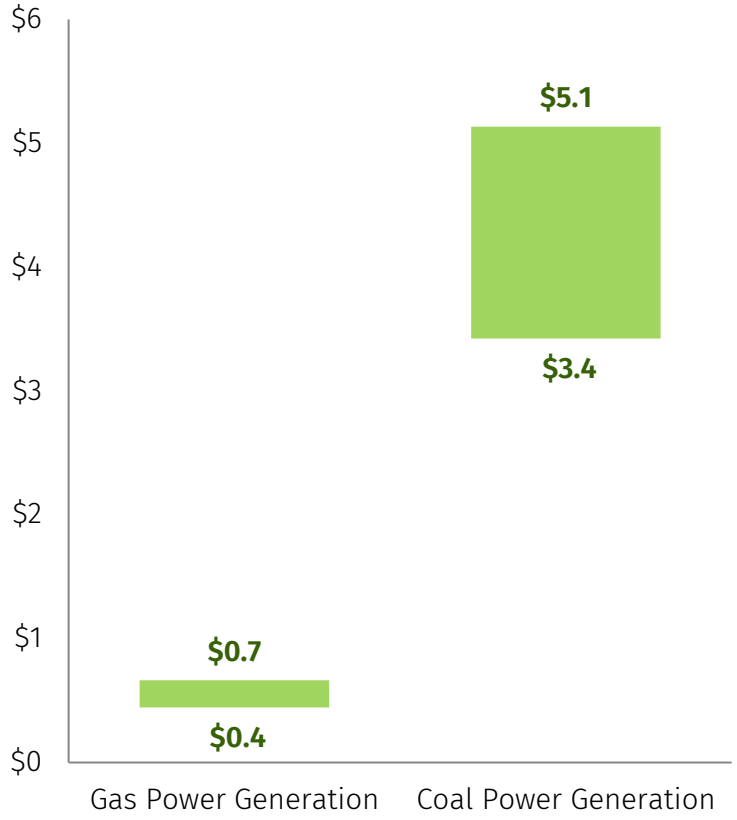
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

New Mexico: Electric Power Sector

Carbon capture opportunities

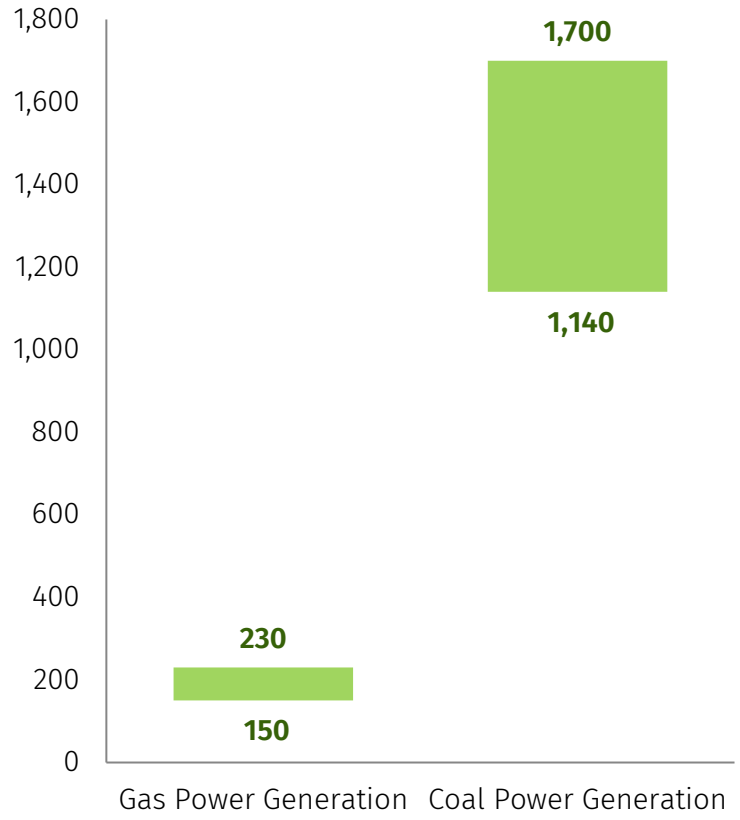
Capital Investment Requirement

Billion $ USD



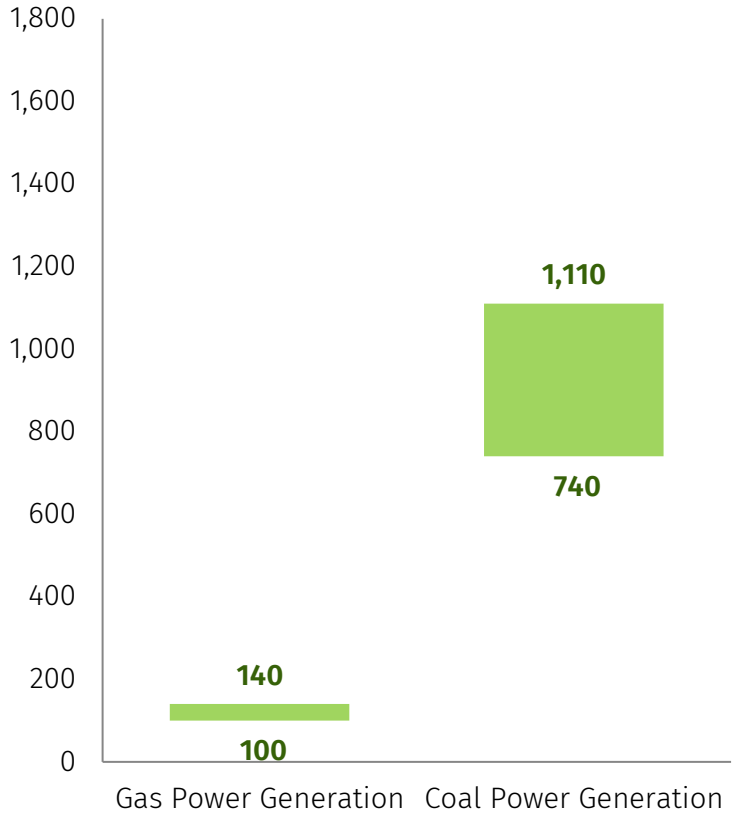
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



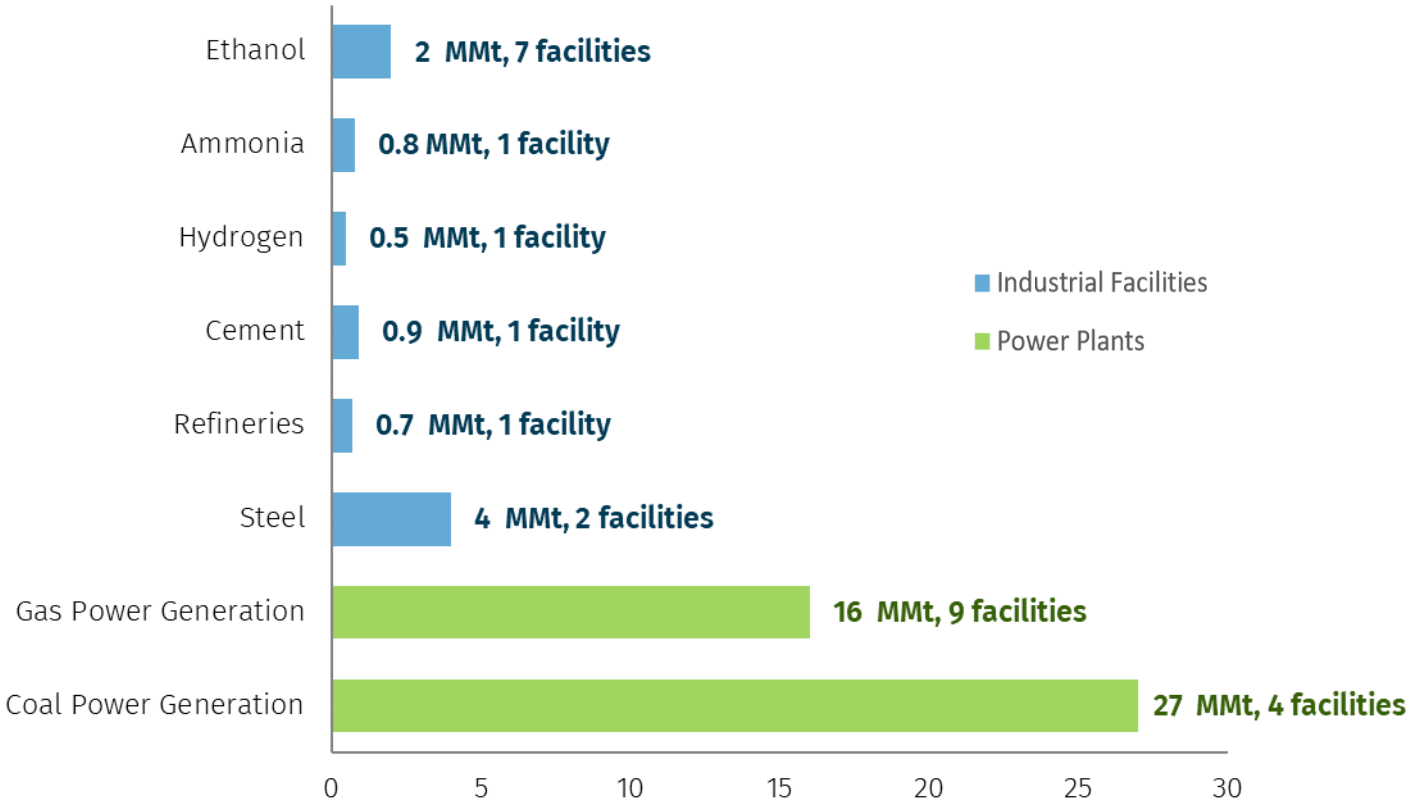
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Ohio: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

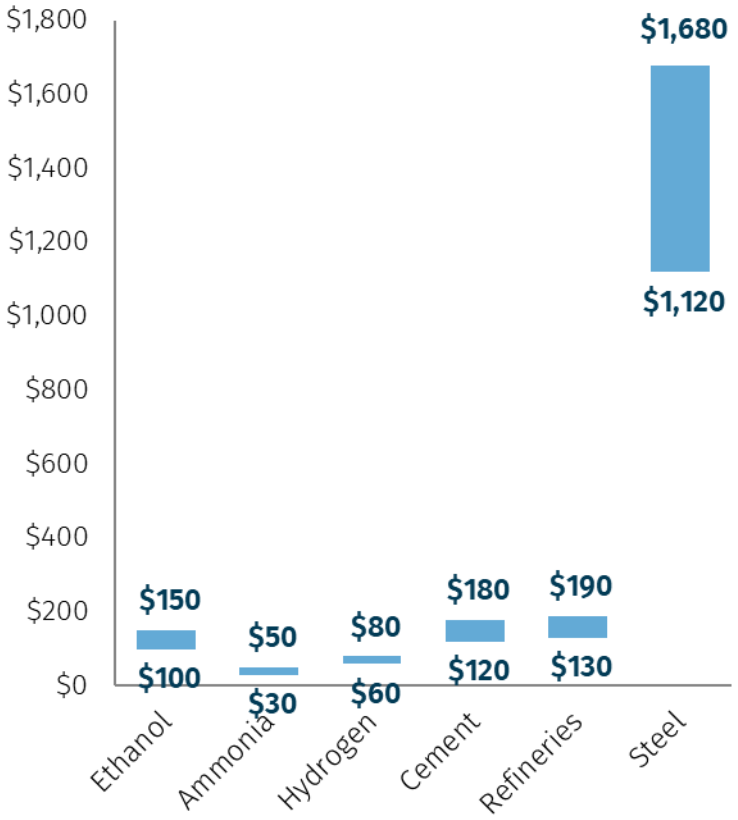
- If all near to intermediate term opportunities in Ohio are pursued, $12 to $18 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Ohio total 3,780 to 5,680 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 2,640 to 3,910 ongoing jobs.
- In addition, $1.8 billion in transport infrastructure will be required to support these projects. This investment will create 780 jobs on average each year over a 15-year deployment period.

Ohio: Industrial Facilities

Carbon capture opportunities

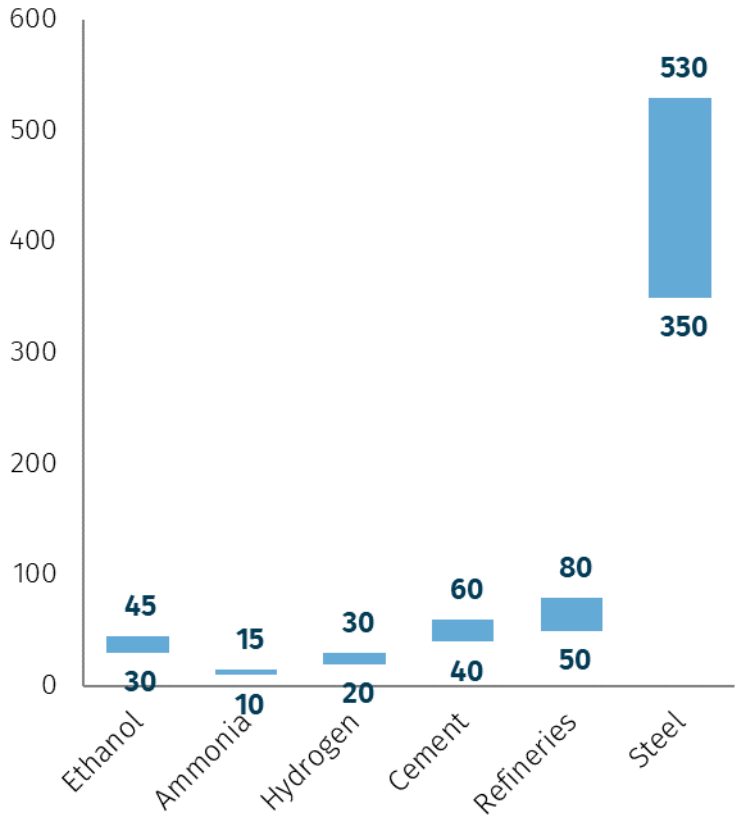
Capital Investment Requirement

Million $ USD



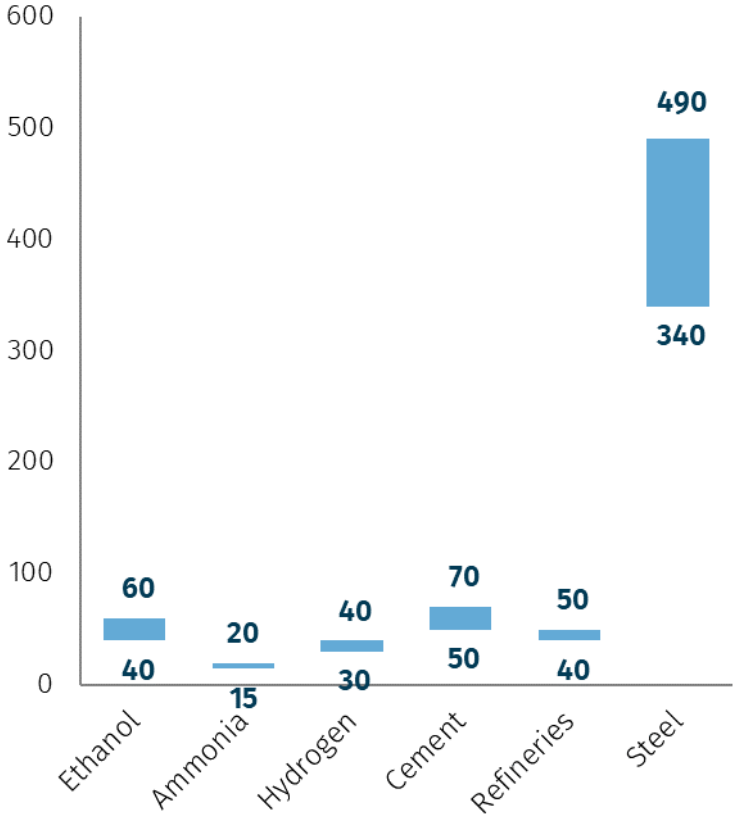
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



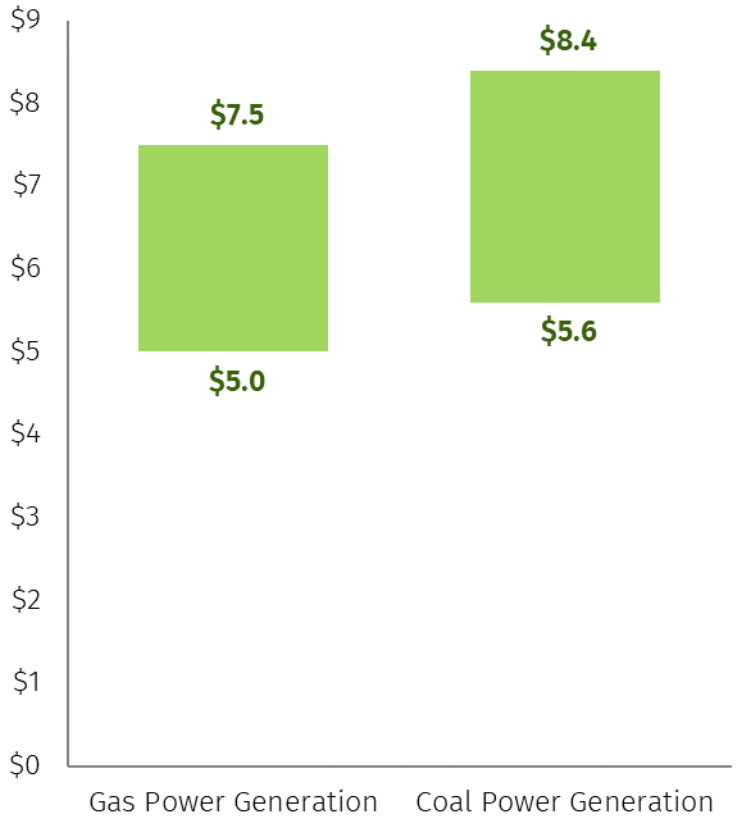
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Ohio: Electric Power Sector

Carbon capture opportunities

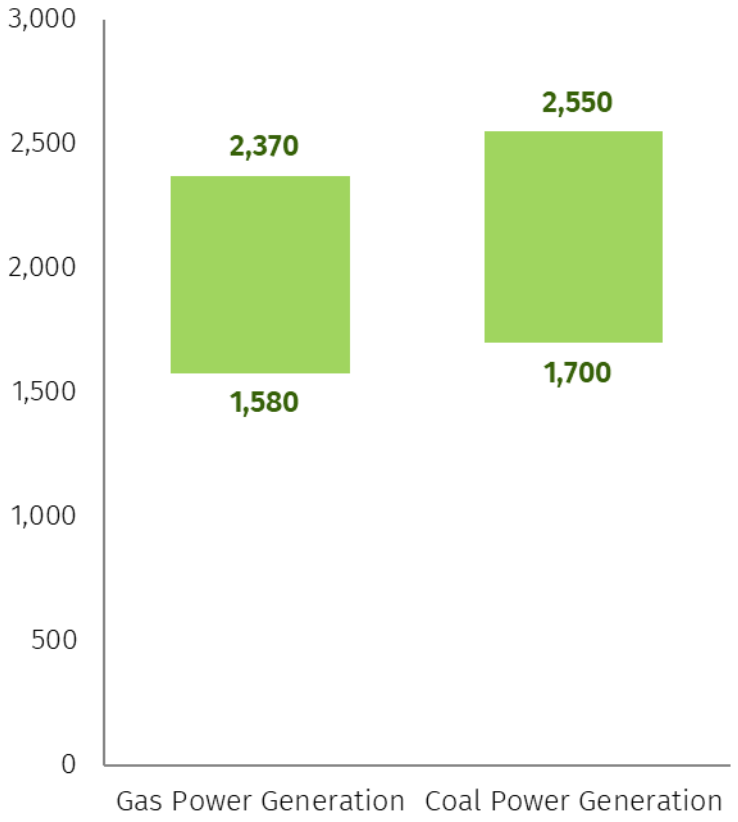
Capital Investment Requirement

Billion $ USD



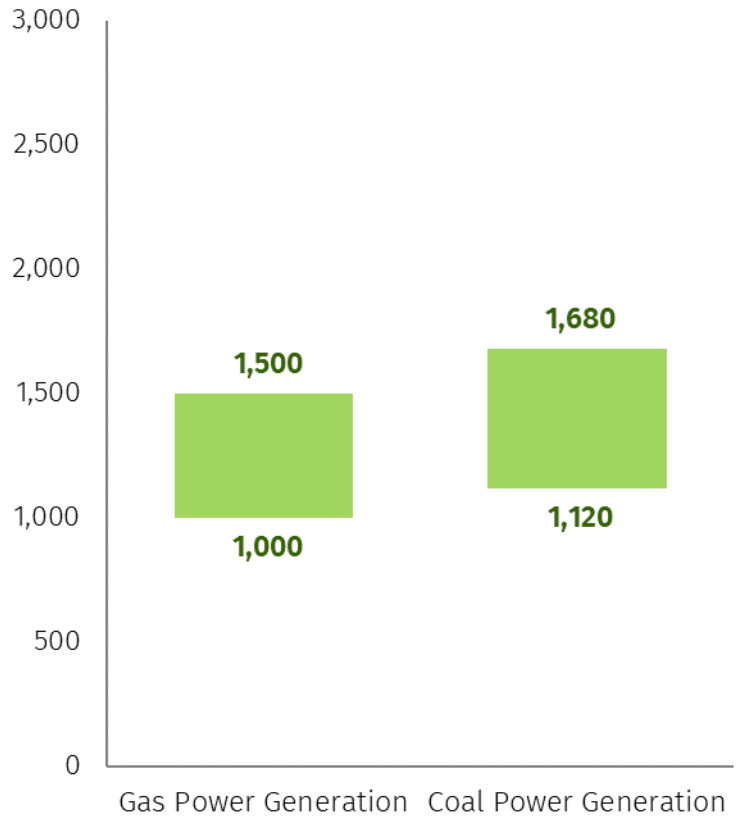
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



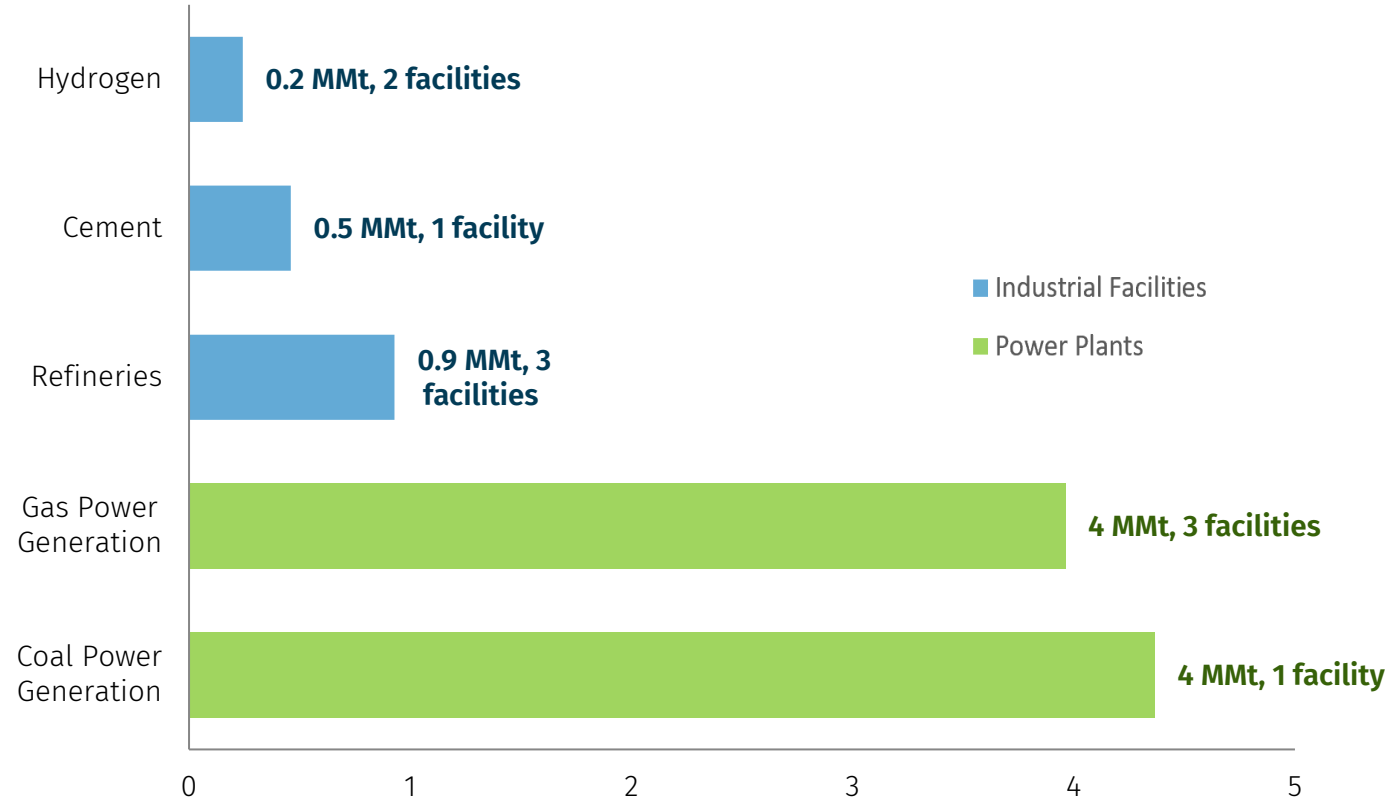
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Oklahoma: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

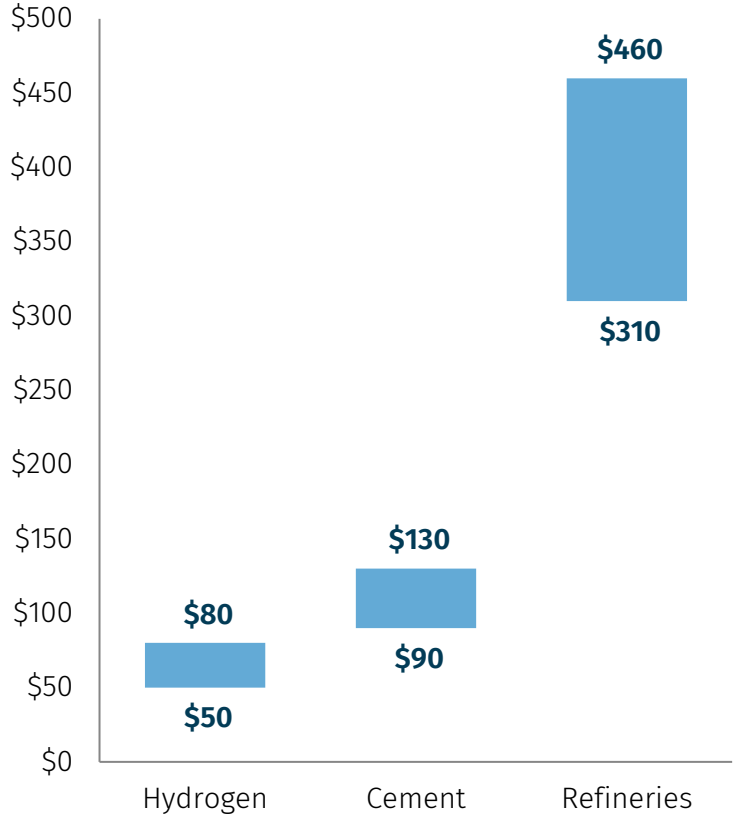
- If all near to intermediate term opportunities in Oklahoma are pursued, $2.7 to $4 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Oklahoma total 900 to 1,340 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 540 to 800 ongoing jobs.
- In addition, $2.7 billion in transport infrastructure will be required to support these projects. This investment will create 1,290 jobs on average each year over a 15-year deployment period.

Oklahoma: Industrial Facilities

Carbon capture opportunities

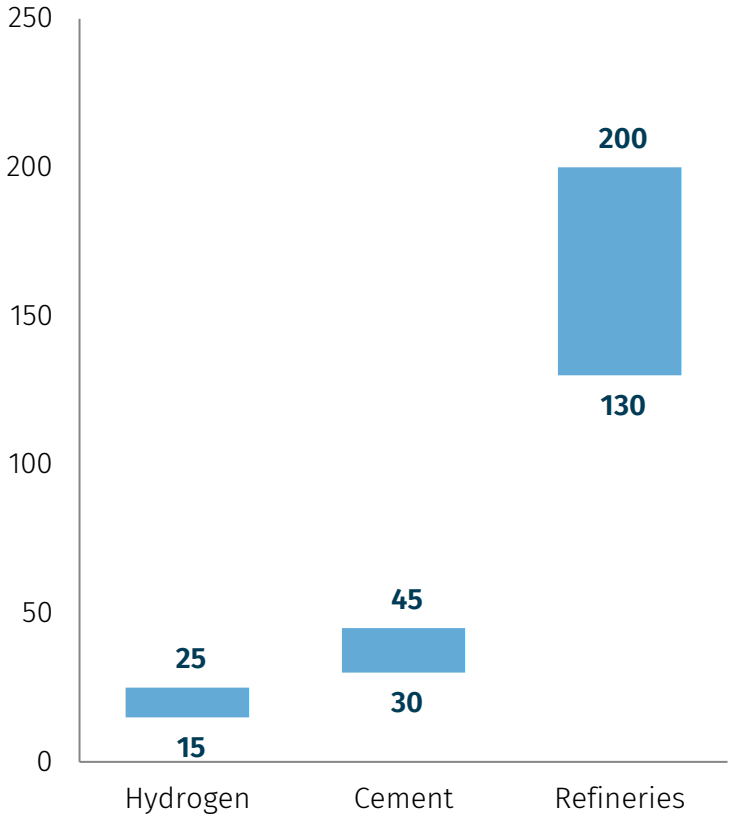
Capital Investment Requirement

Million $ USD



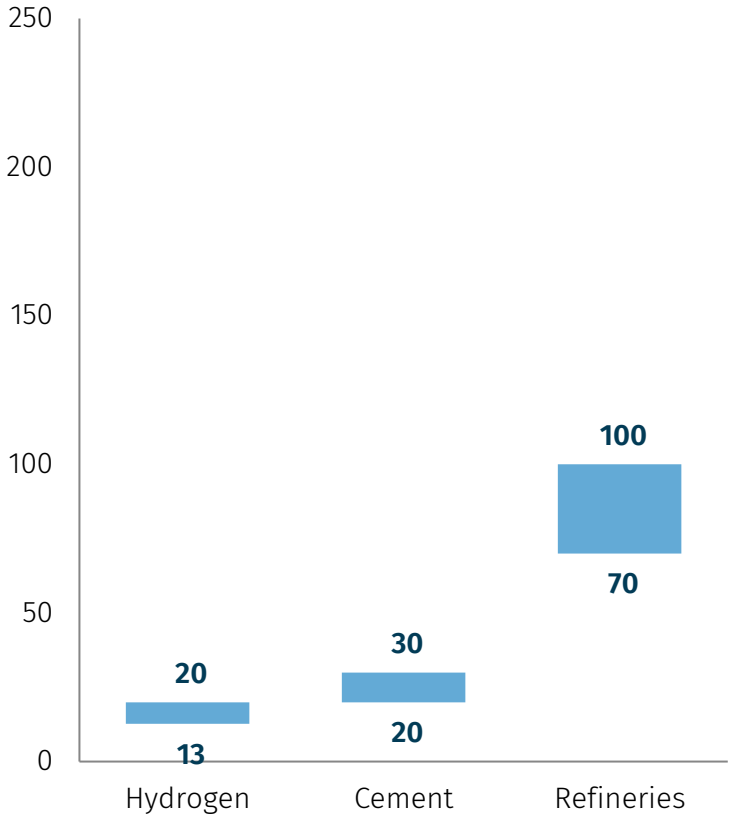
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



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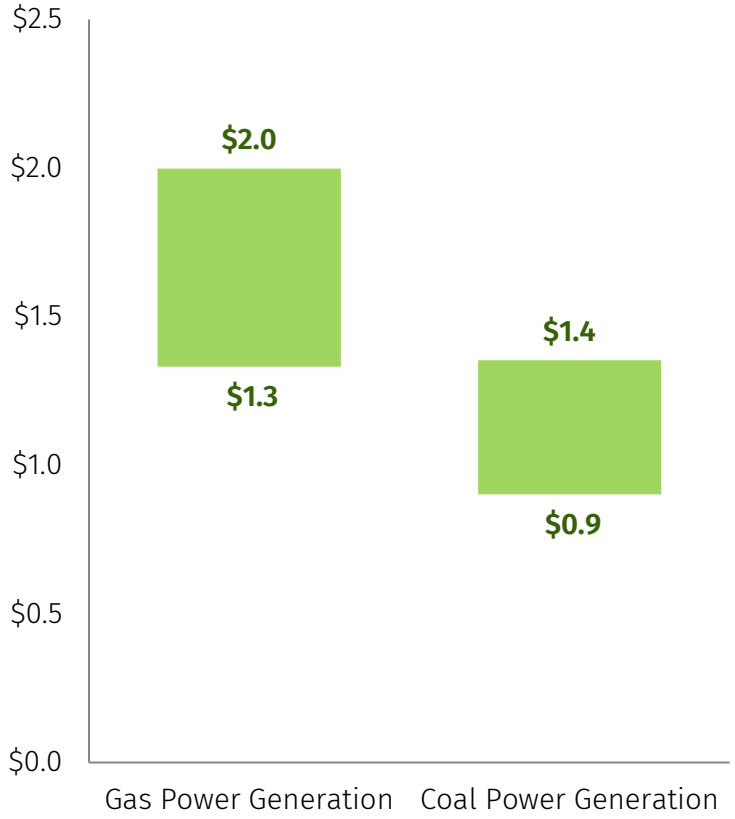
Oklahoma: Electric Power Sector

Carbon capture opportunities

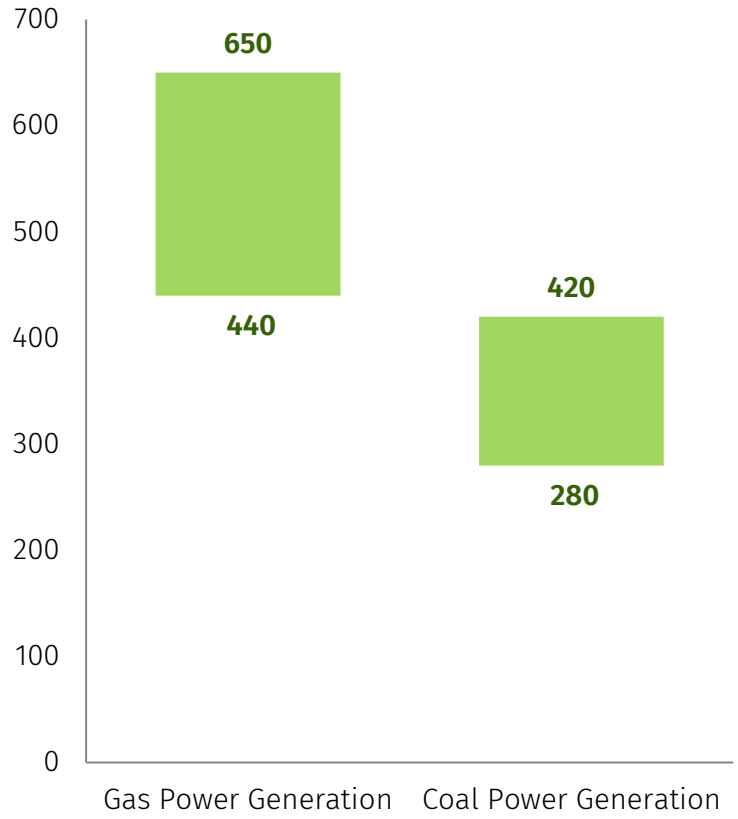
Capital Investment Requirement

Billion $ USD



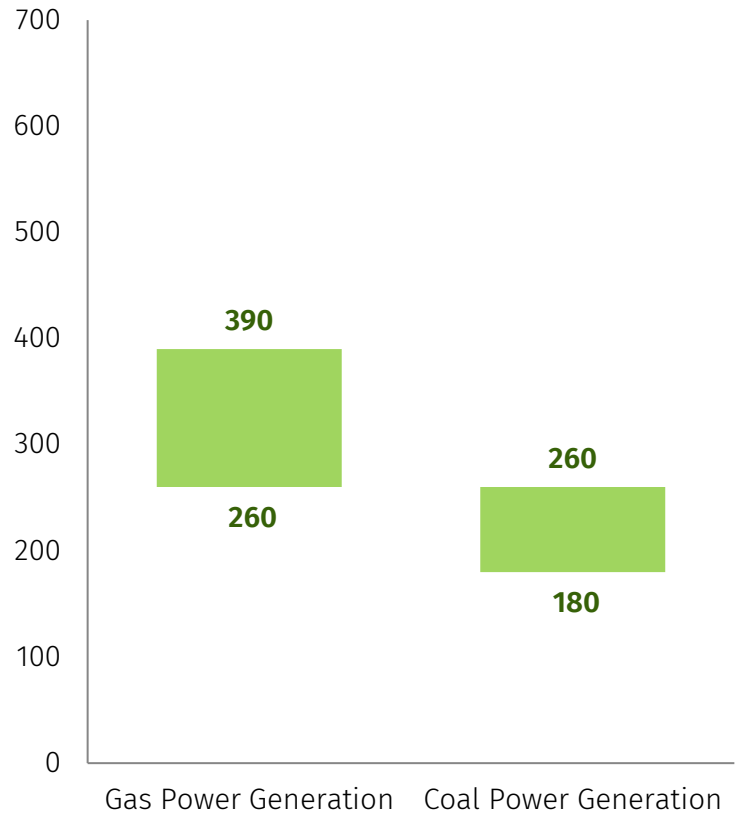
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



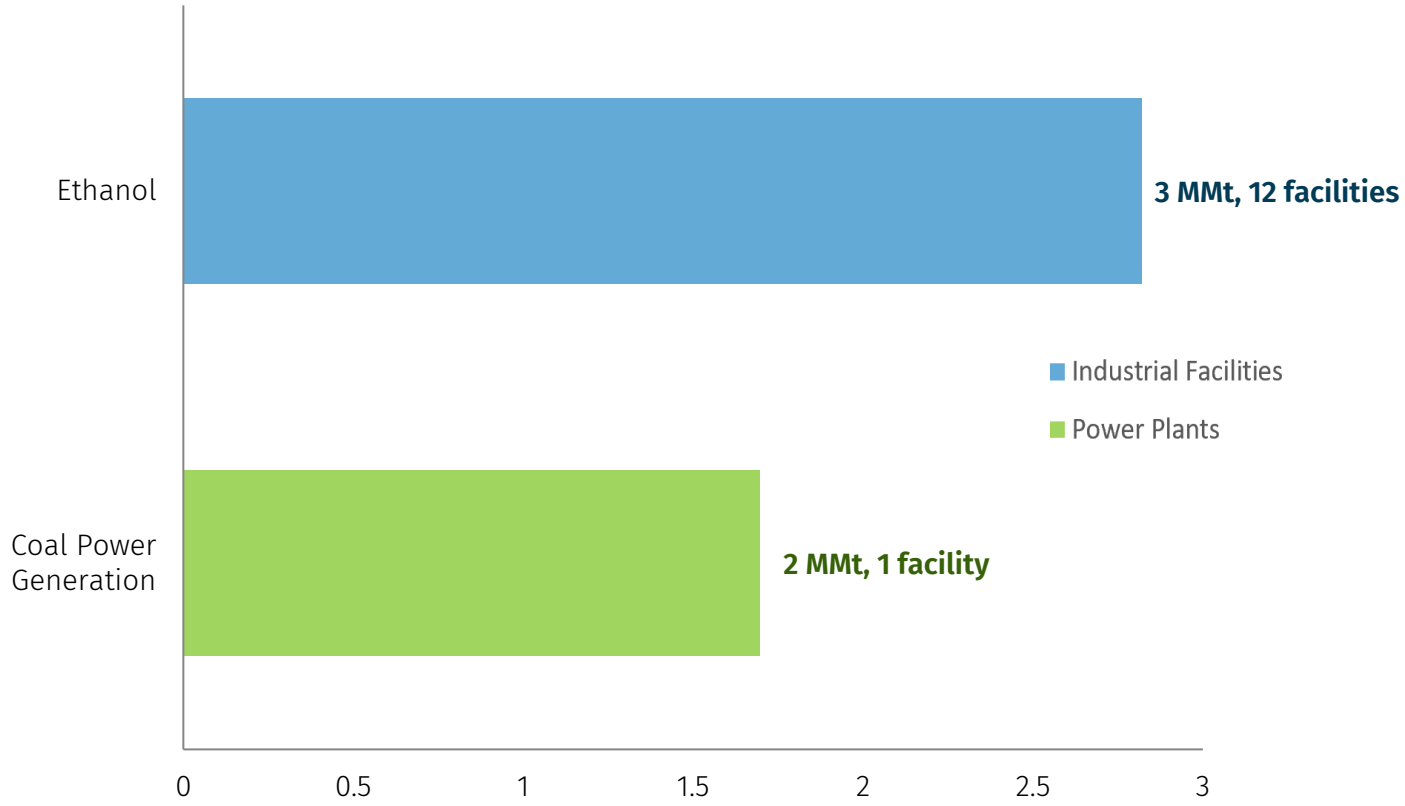
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

South Dakota: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

- If all near to intermediate term opportunities in South Dakota are pursued, $0.7 to $1 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in South Dakota total 220 to 330 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 180 to 260 ongoing jobs.
- In addition, $0.5 billion in transport infrastructure will be required to support these projects. This investment will create 320 jobs on average each year over a 15-year deployment period.

South Dakota: Industrial Facilities

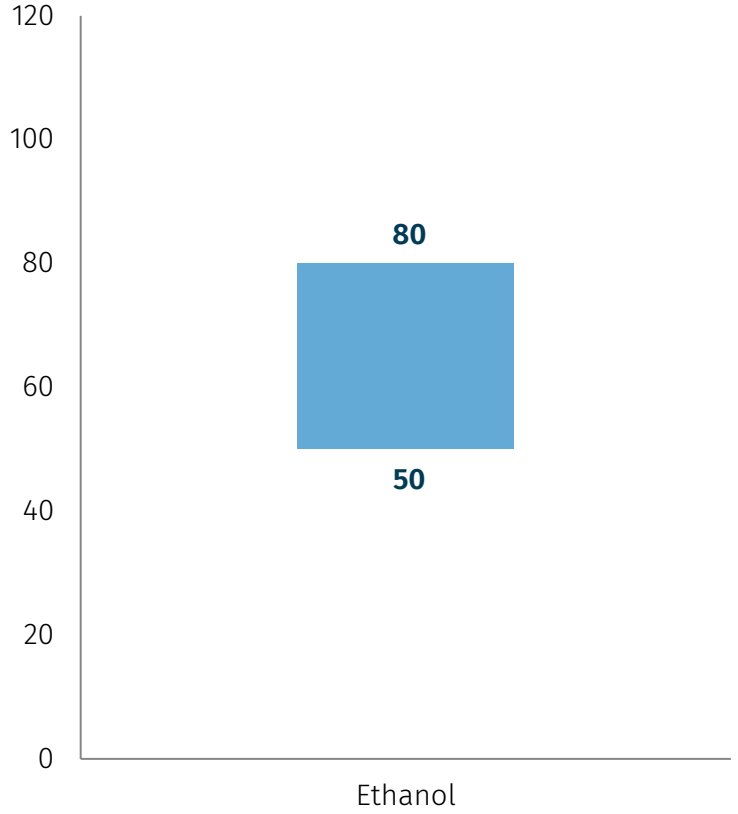
Carbon capture opportunities

Capital Investment Requirement

Million $ USD

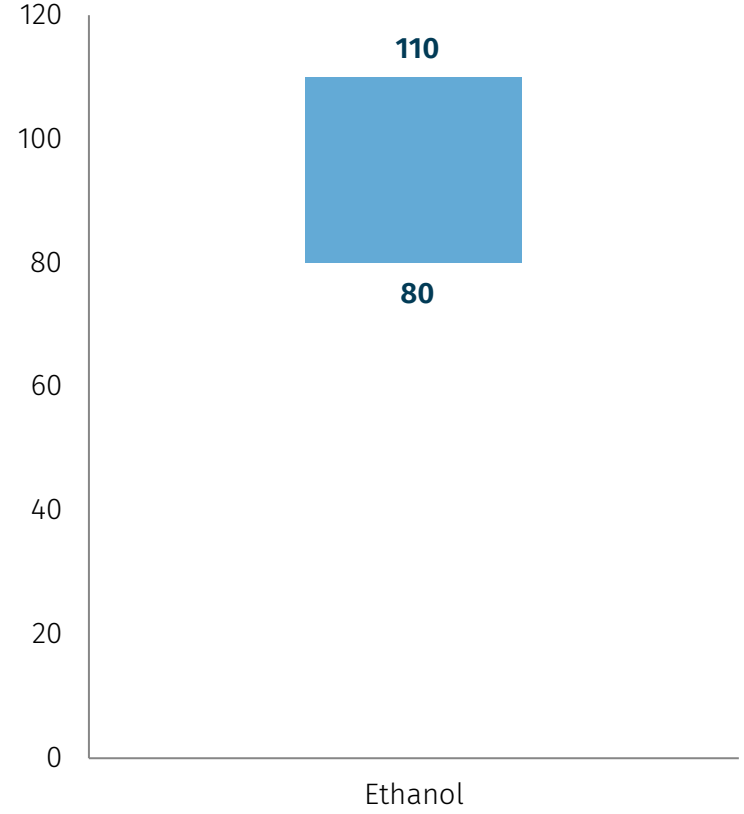
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



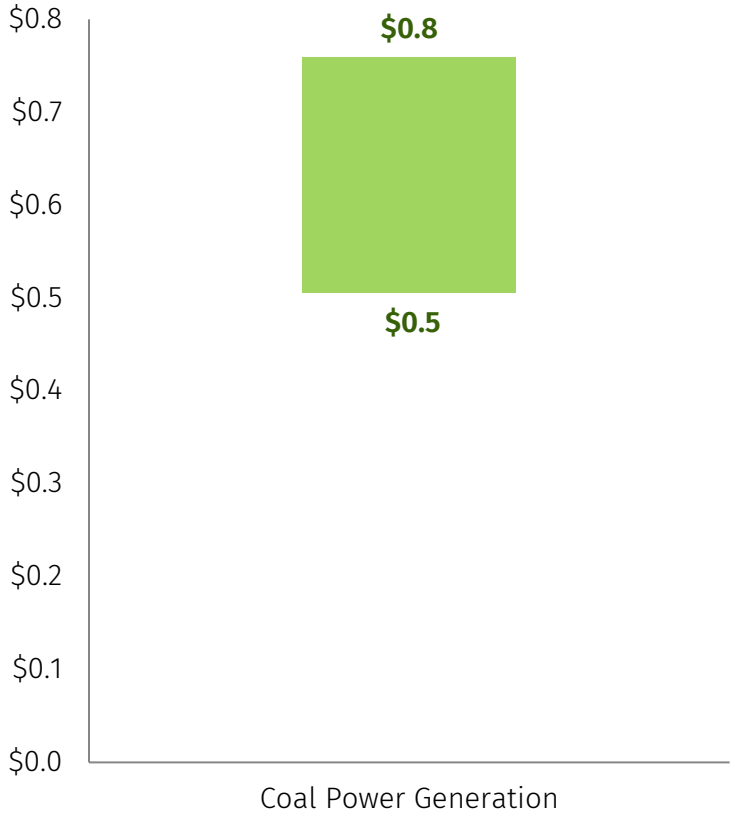
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

South Dakota: Electric Power Sector

Carbon capture opportunities

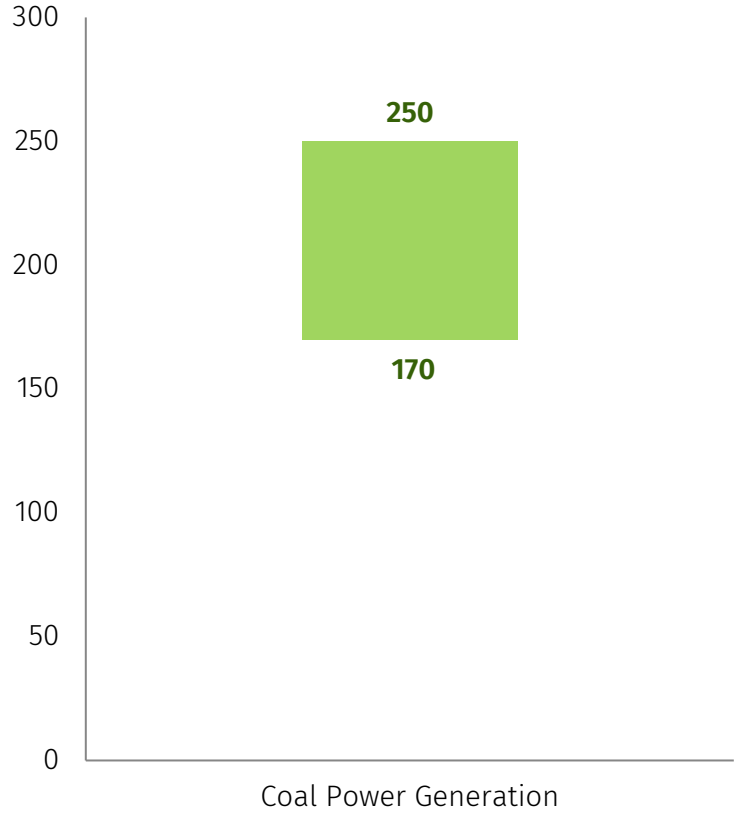
Capital Investment Requirement

Billion $ USD



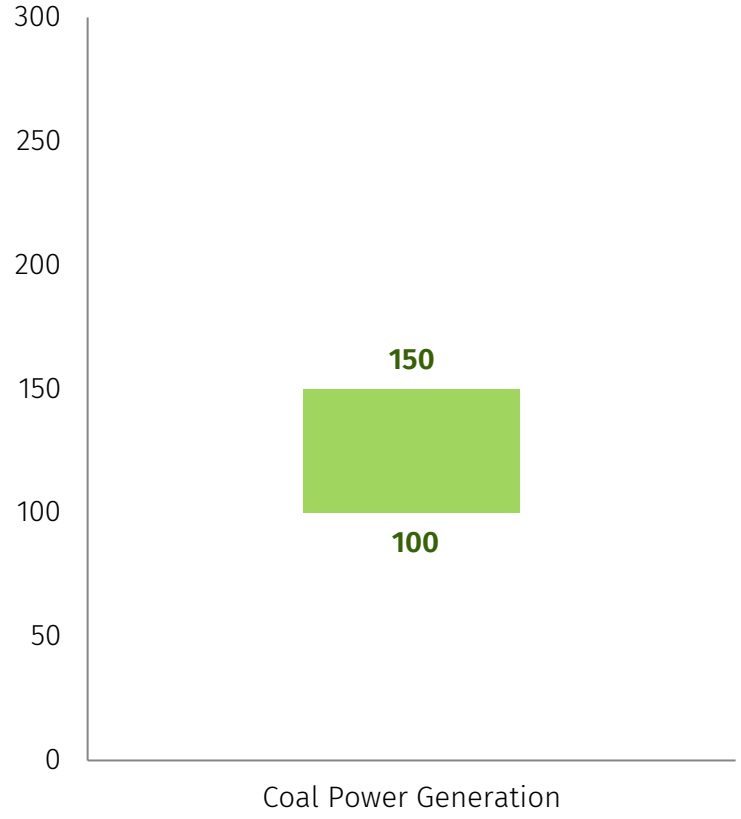
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



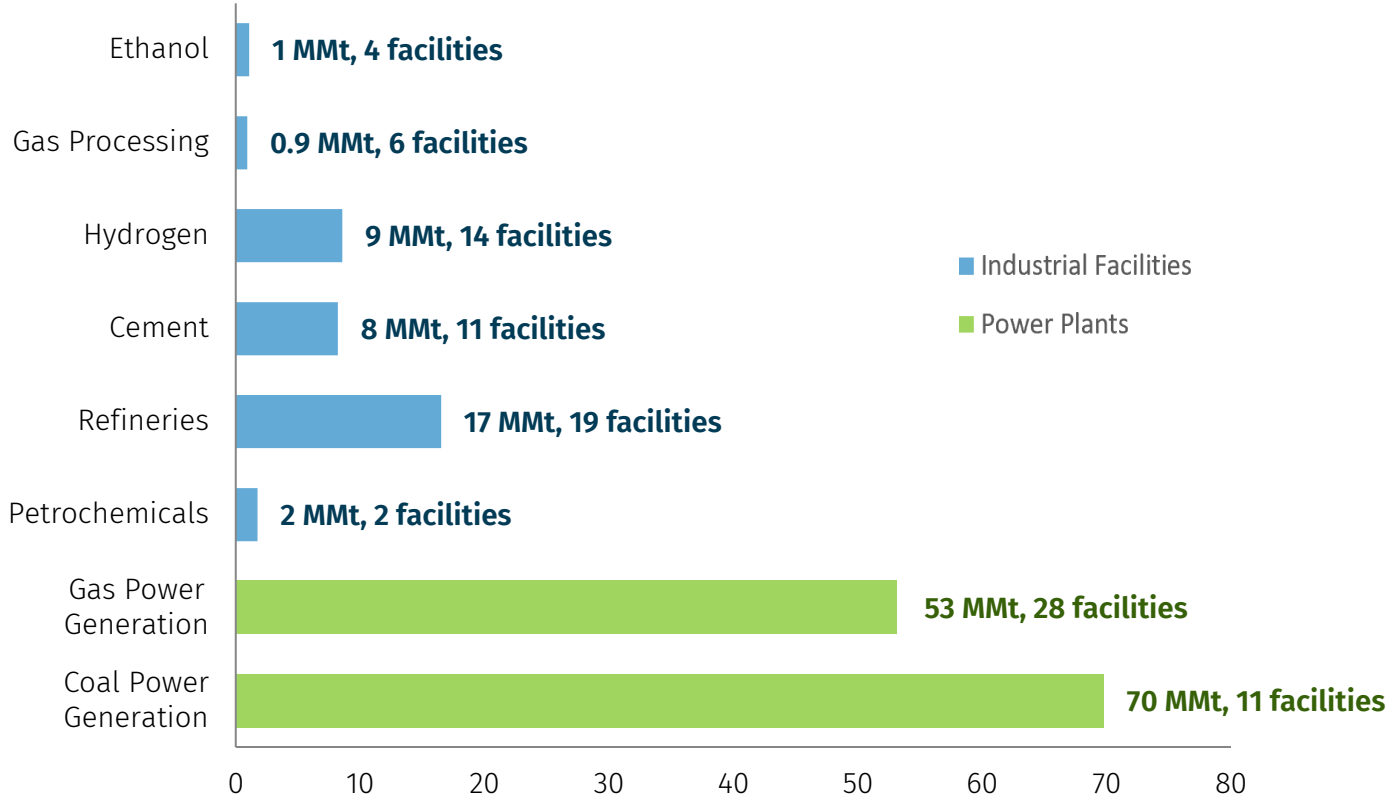
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Texas: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

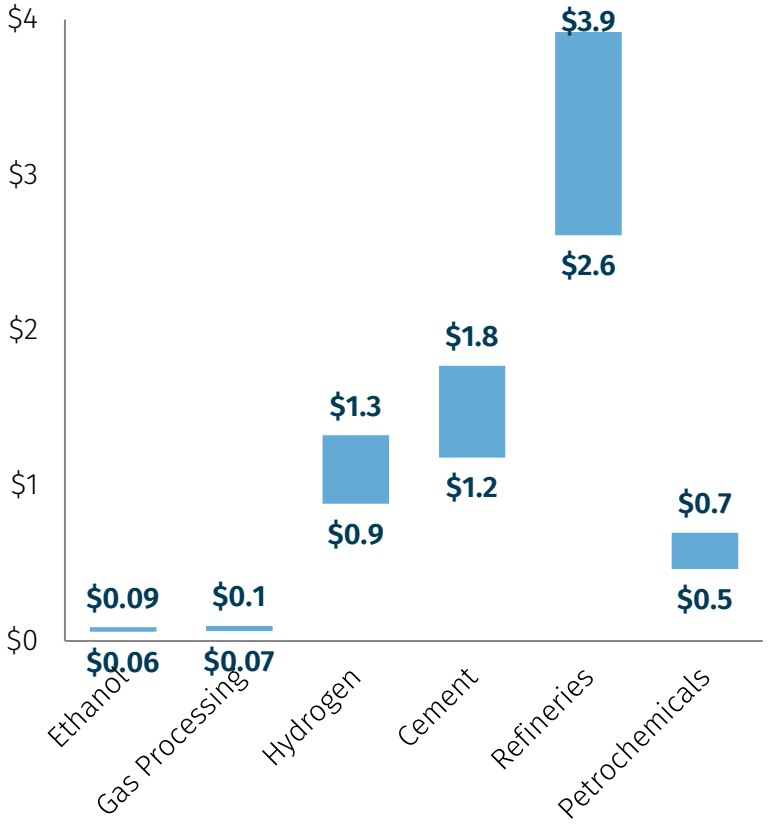
- If all near to intermediate term opportunities in Texas are pursued, $35 to $53 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Texas total 10,030 to 15,010 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 6,250 to 9,230 ongoing jobs.
- In addition, $7 billion in transport infrastructure will be required to support these projects. This investment will create 3,340 jobs on average each year over a 15-year deployment period.

Texas: Industrial Facilities

Carbon capture opportunities

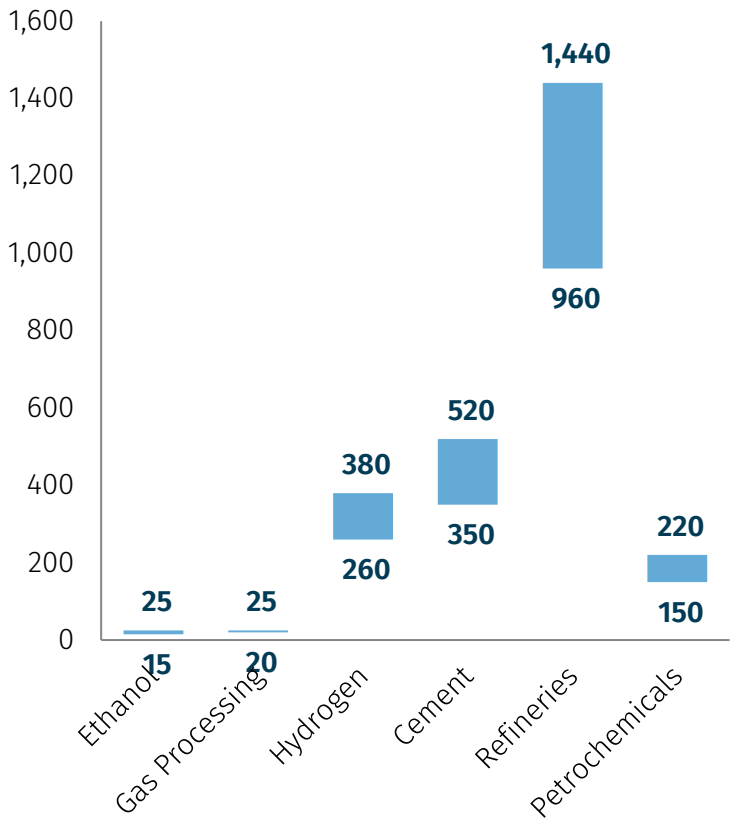
Capital Investment Requirement

Billion $ USD



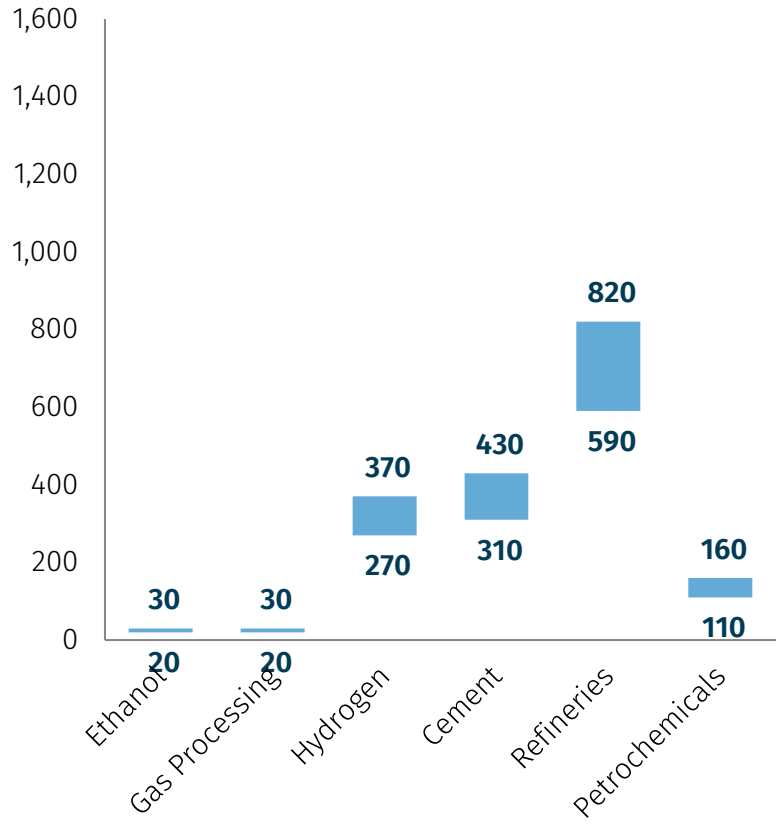
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



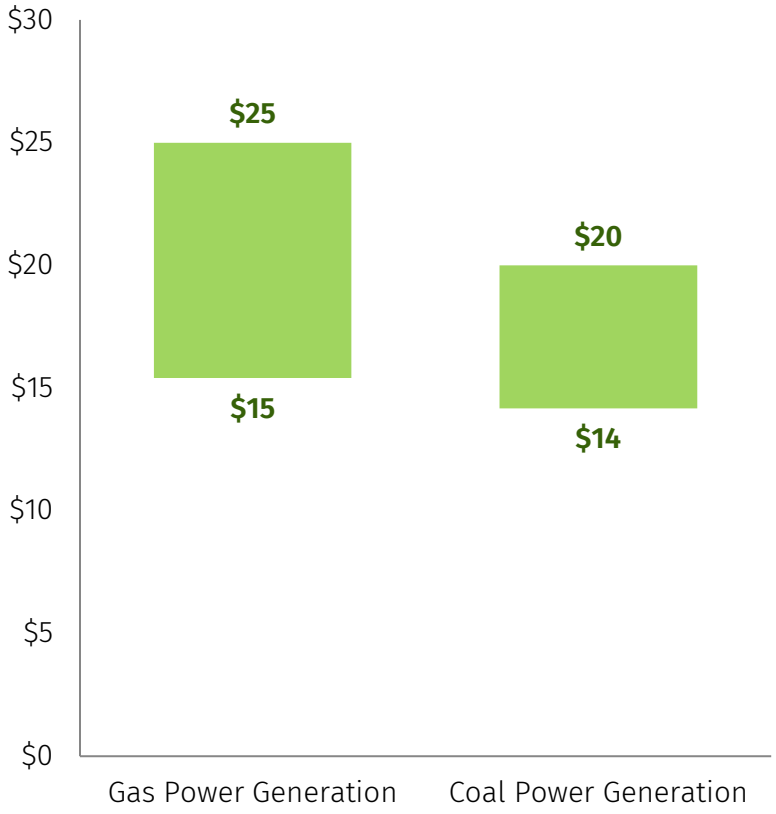
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Texas: Electric Power Sector

Carbon capture opportunities

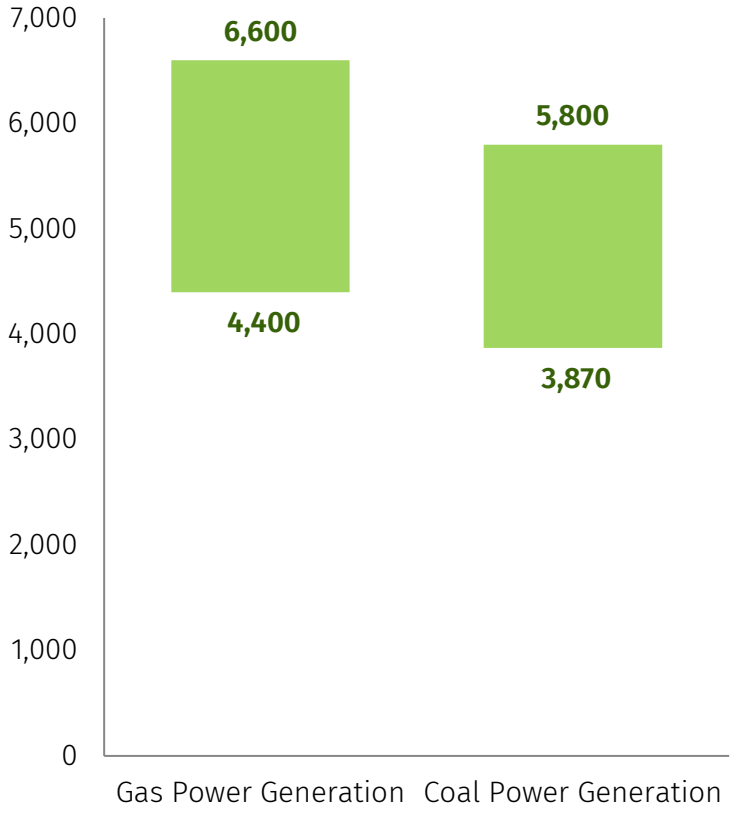
Capital Investment Requirement

Billion $ USD



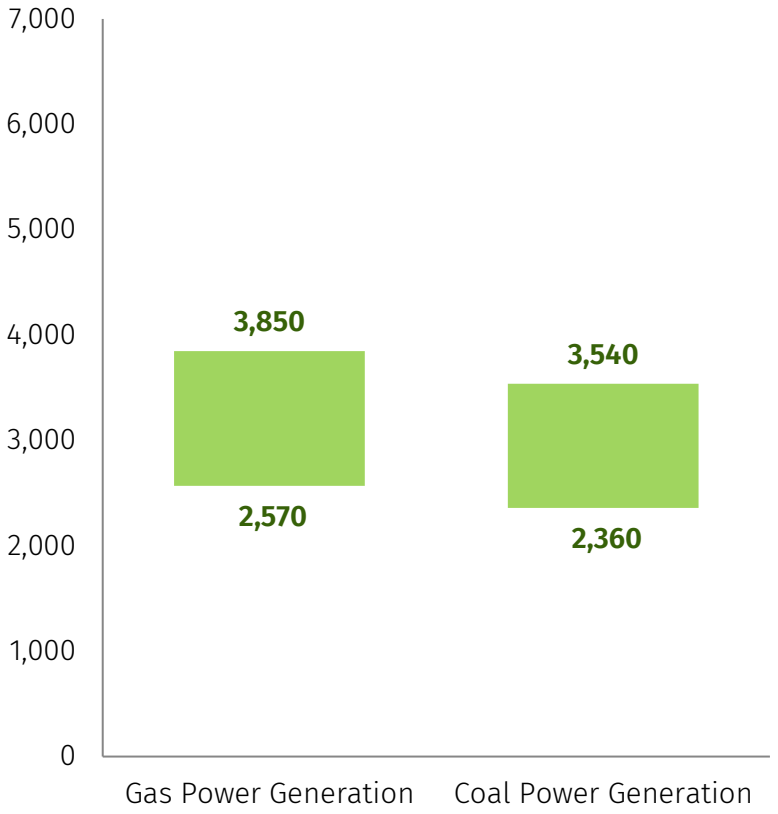
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



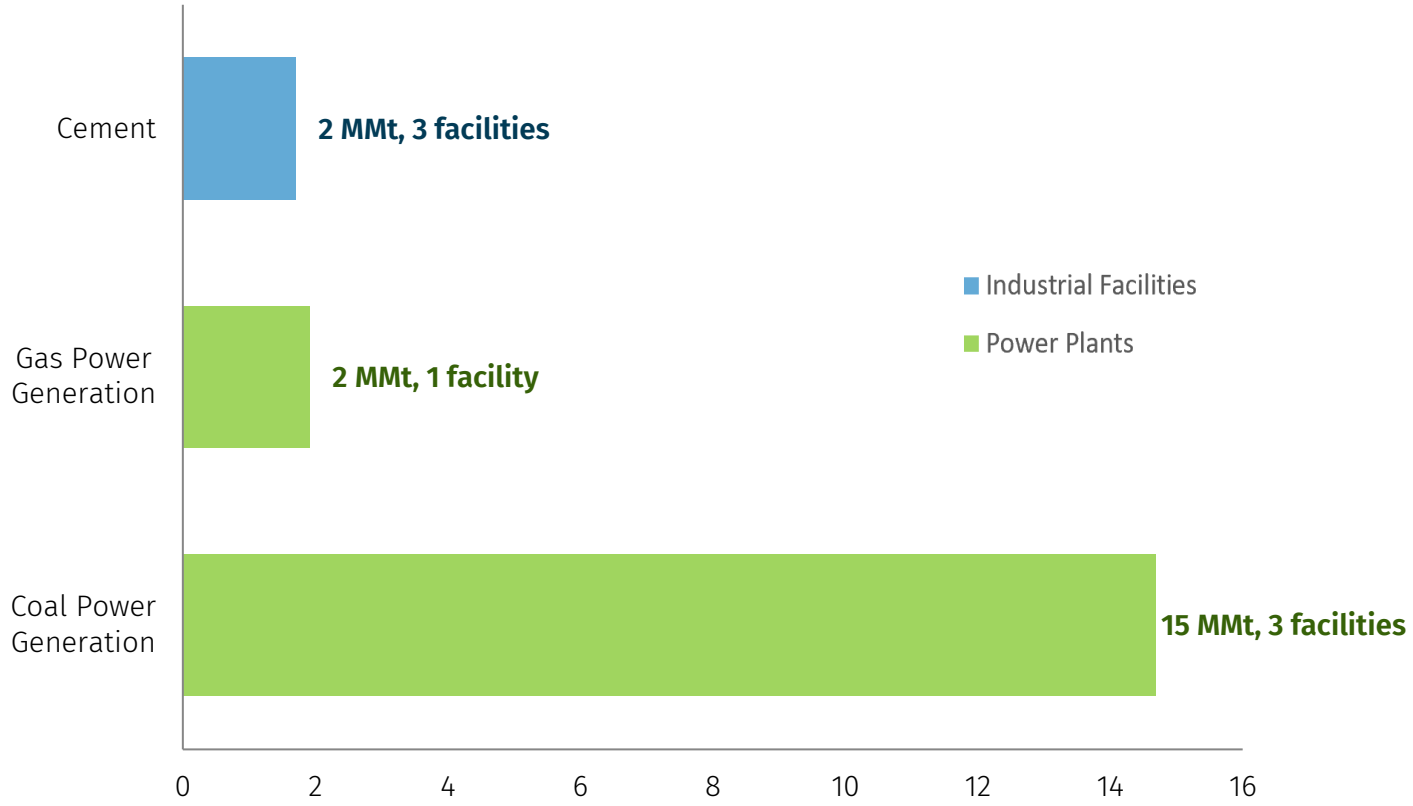
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Utah: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

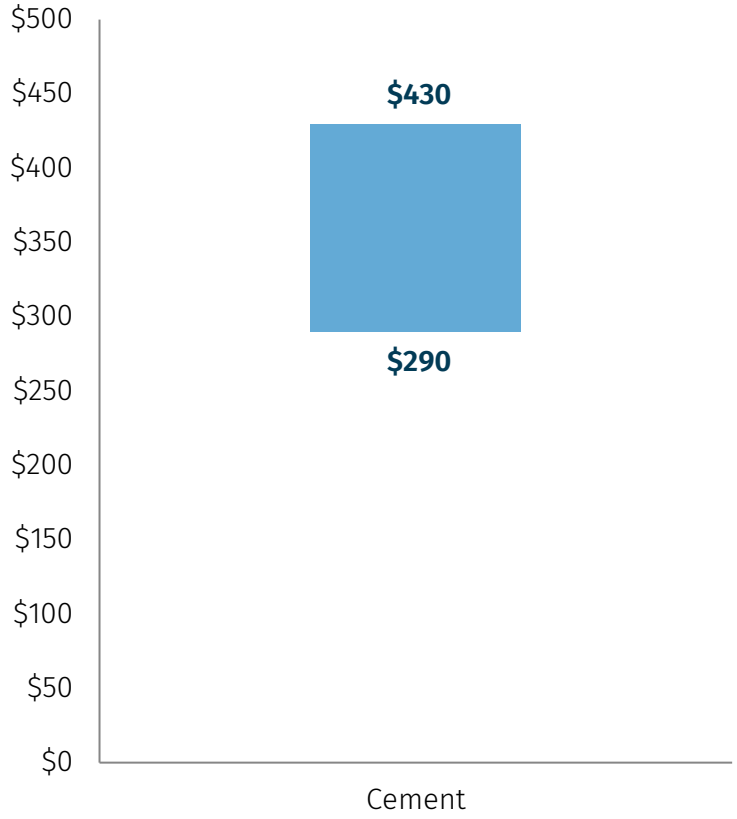
- If all near to intermediate term opportunities in Utah are pursued, $4 to $6 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Utah total 1,180 to 1,790 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 760 to 1,140 ongoing jobs.
- In addition, $0.6 billion in transport infrastructure will be required to support these projects. This investment will create 270 jobs on average each year over a 15-year deployment period.

Utah: Industrial Facilities

Carbon capture opportunities

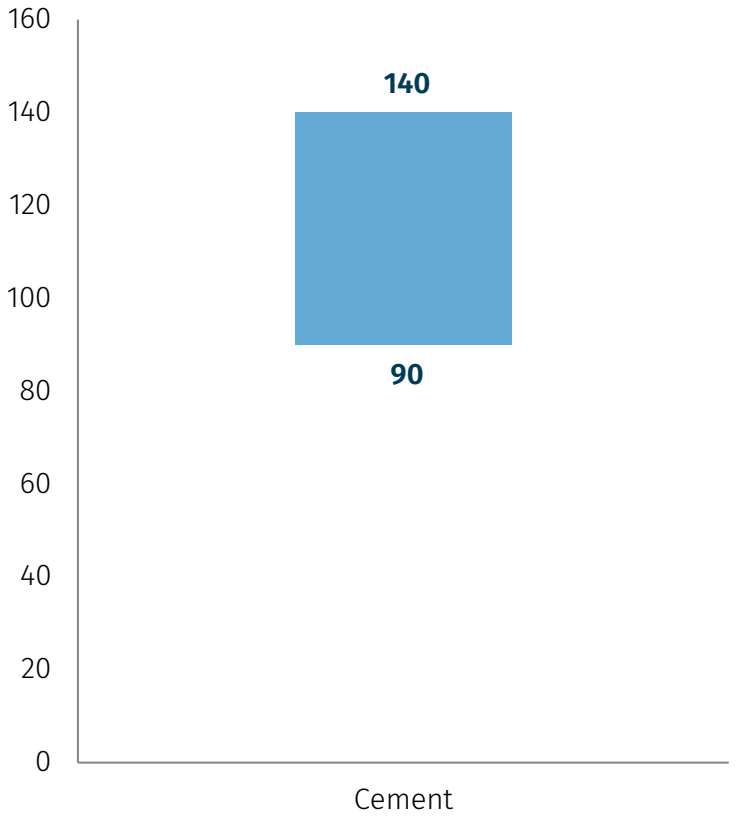
Capital Investment Requirement

Million $ USD



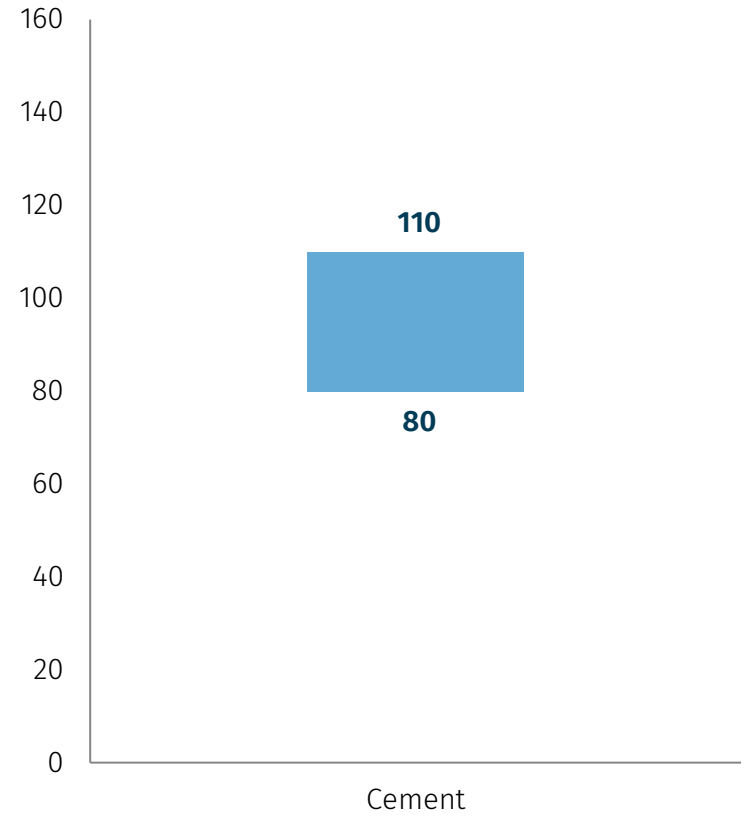
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



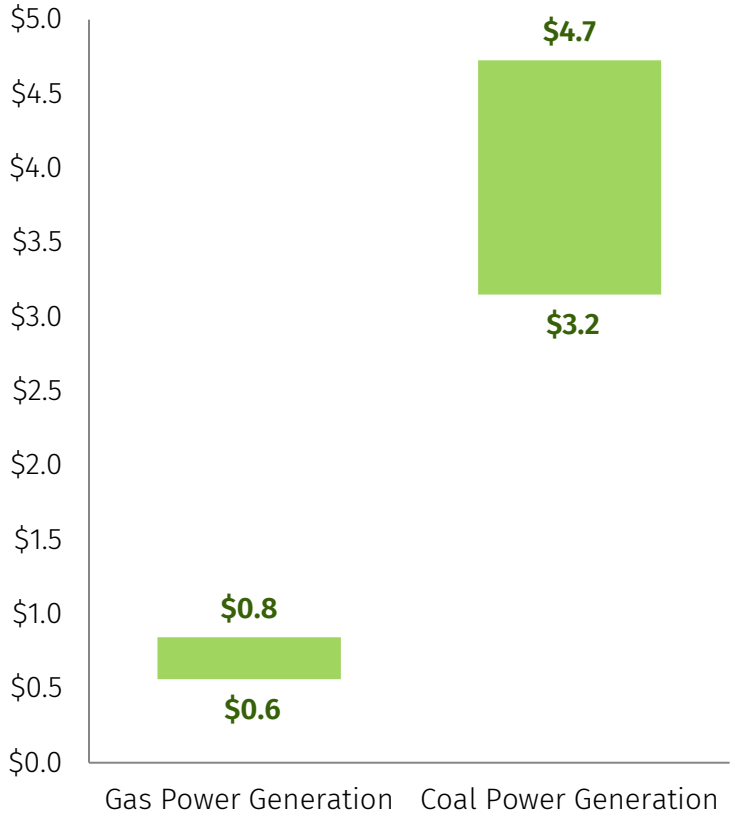
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Utah: Electric Power Sector

Carbon capture opportunities

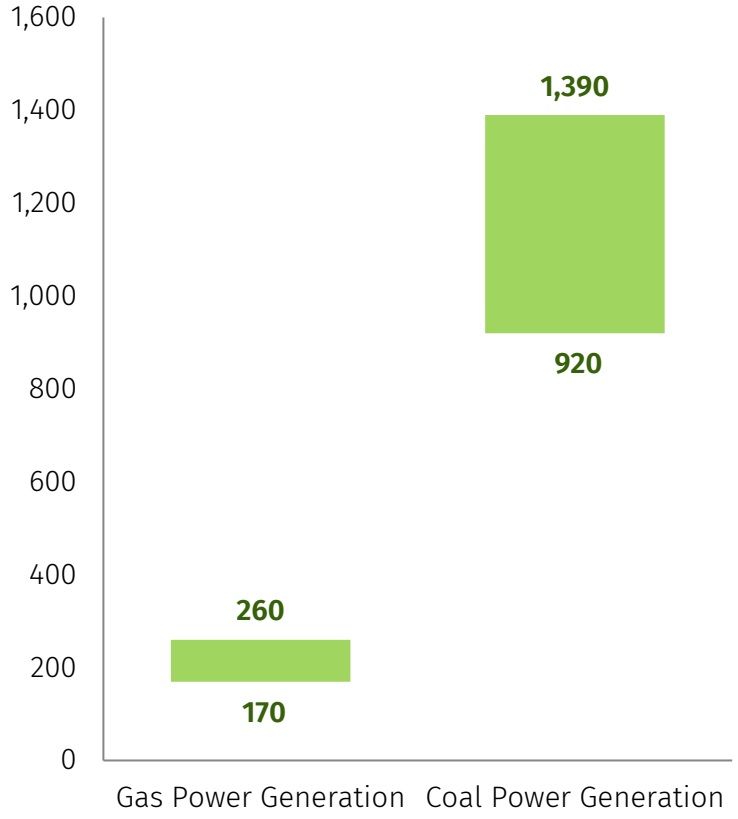
Capital Investment Requirement

Billion $ USD



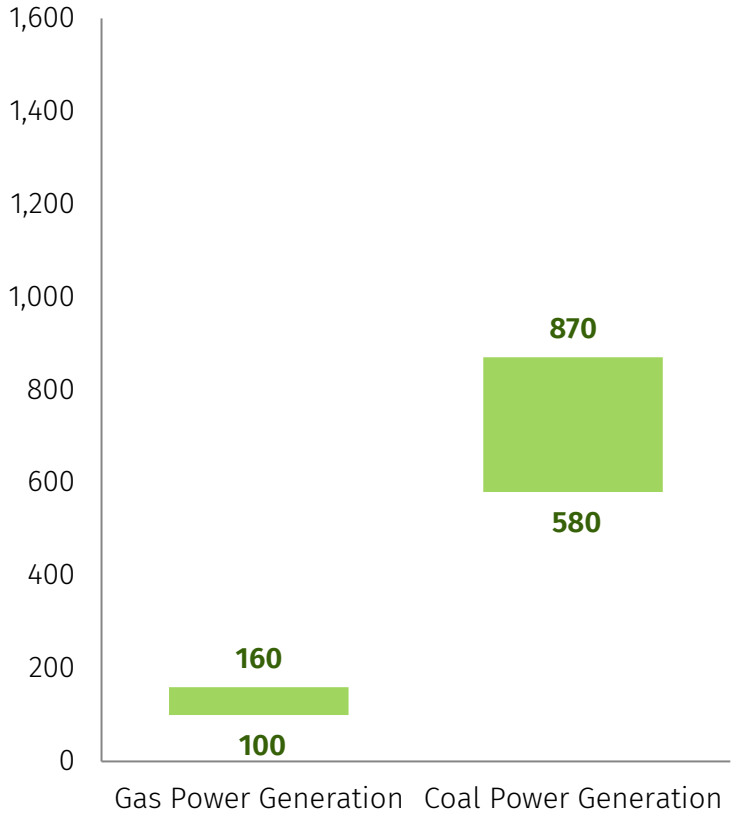
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



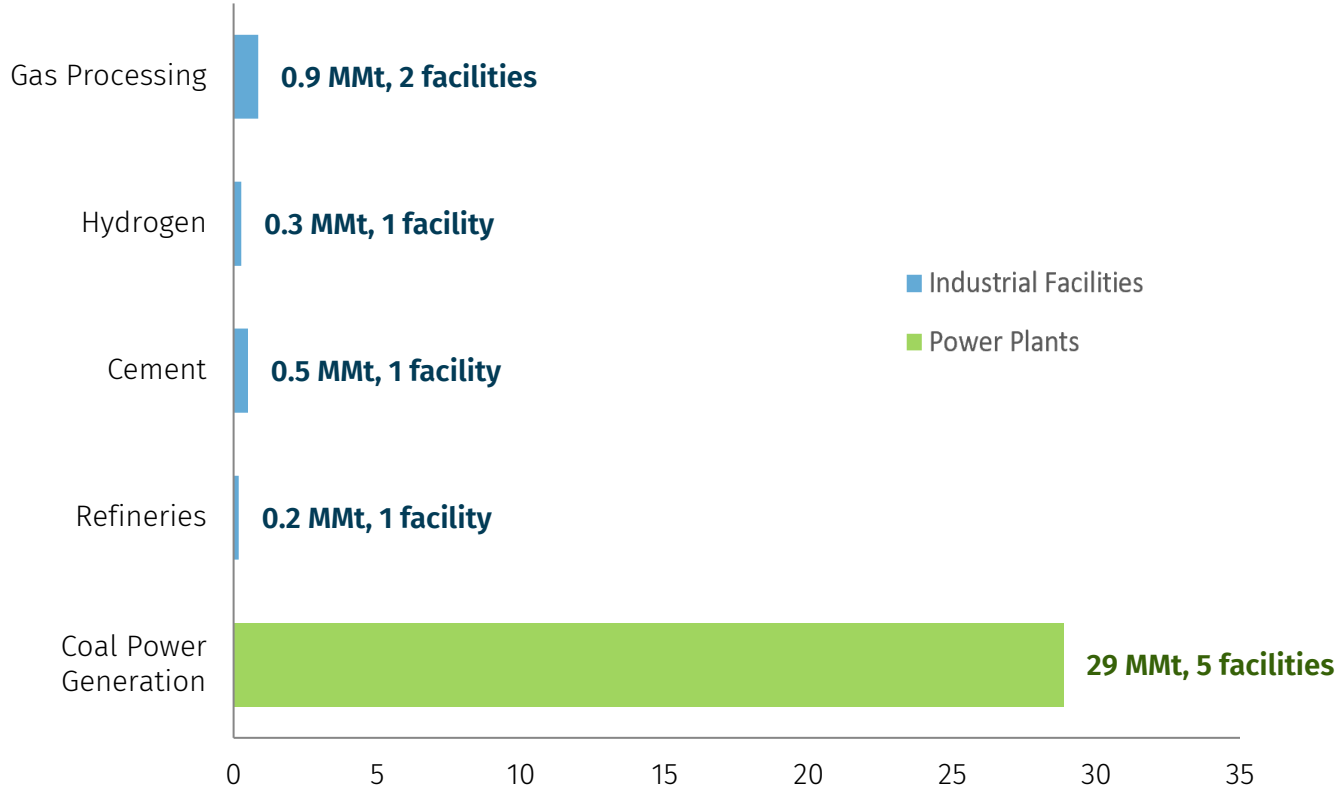
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Wyoming: Carbon Capture Potential

Near and medium-term retrofit opportunities in the industrial and electric power sector

Carbon Capture Opportunity by Industry

Million metric tons of annual CO_2 capture



Source: Rhodium Group analysis, The Great Plains Institute

State Summary

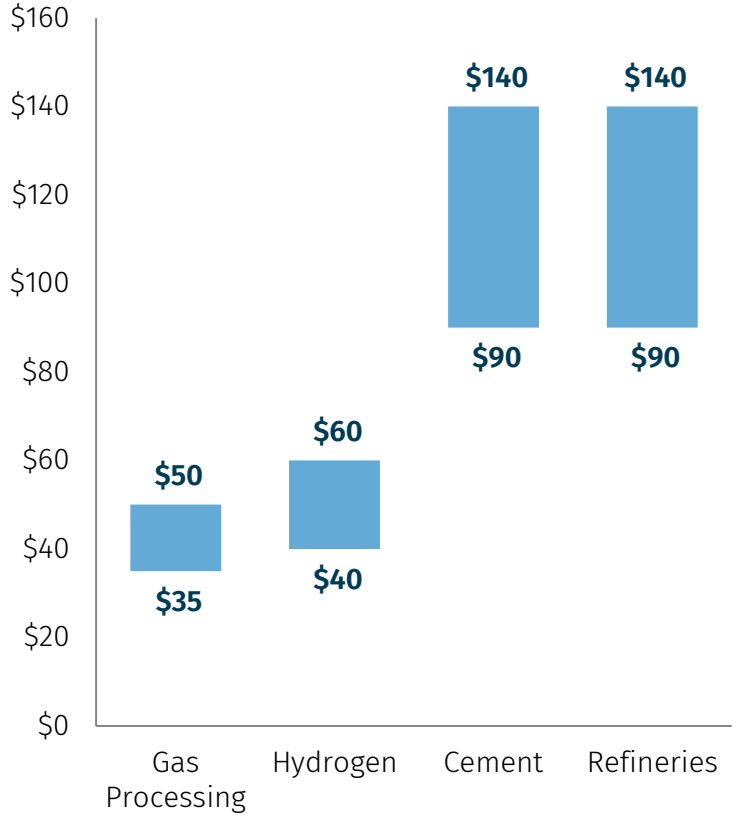
- If all near to intermediate term opportunities in Wyoming are pursued, $6 to $10 billion in investment will be required to support these projects.
- Jobs associated with carbon capture capital investment in Wyoming total 1,760 to 2,650 on average per year over the next 15 years.
- Annual jobs to operate carbon capture retrofits total 1,320 to 1,964 ongoing jobs.
- In addition, $1.6 billion in transport infrastructure will be required to support these projects. This investment will create 690 jobs on average each year over a 15-year deployment period.

Wyoming: Industrial Facilities

Carbon capture opportunities

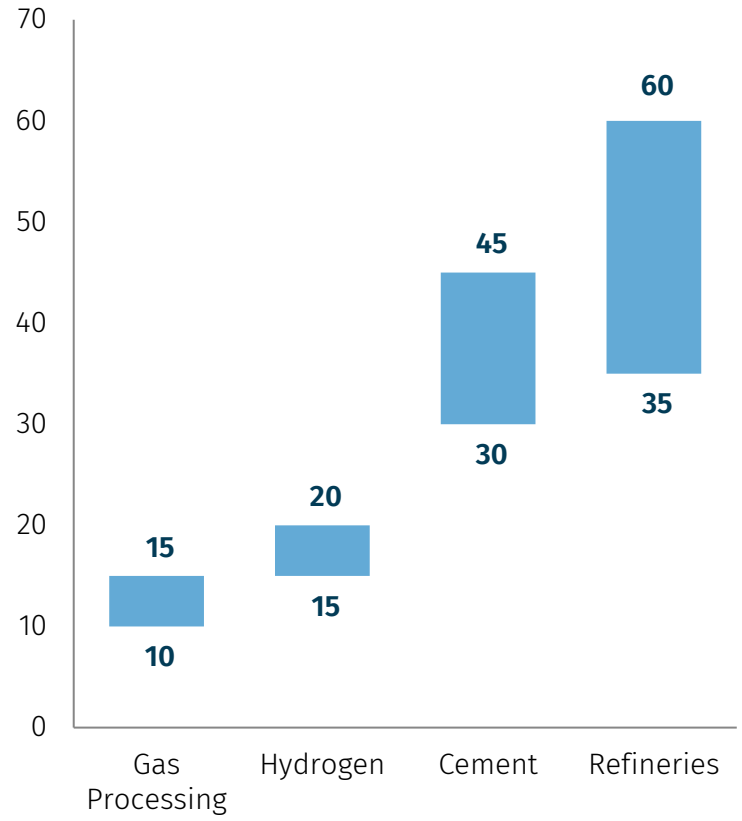
Capital Investment Requirement

Million $ USD



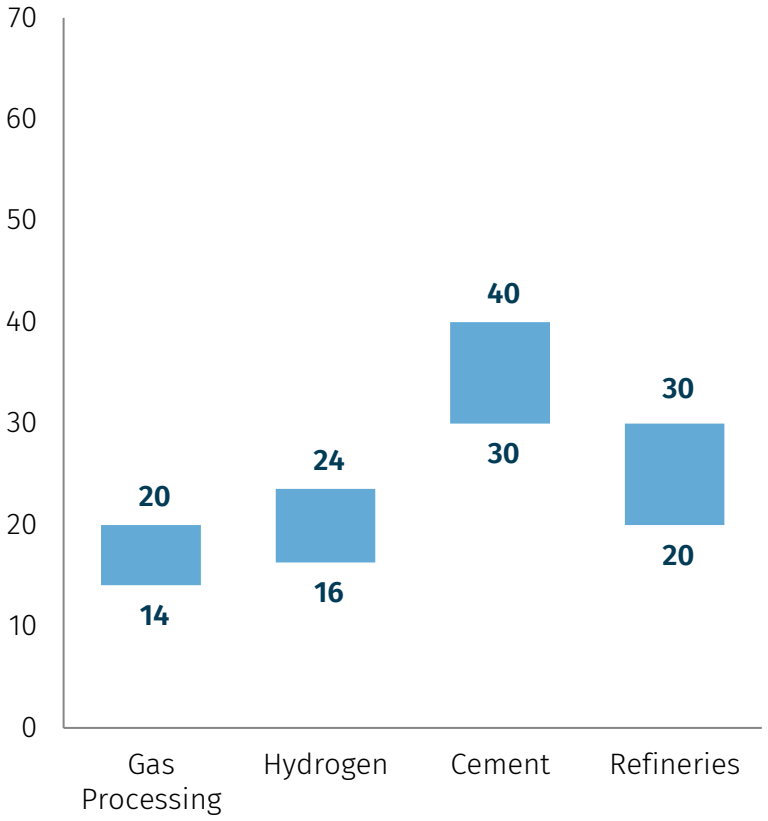
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



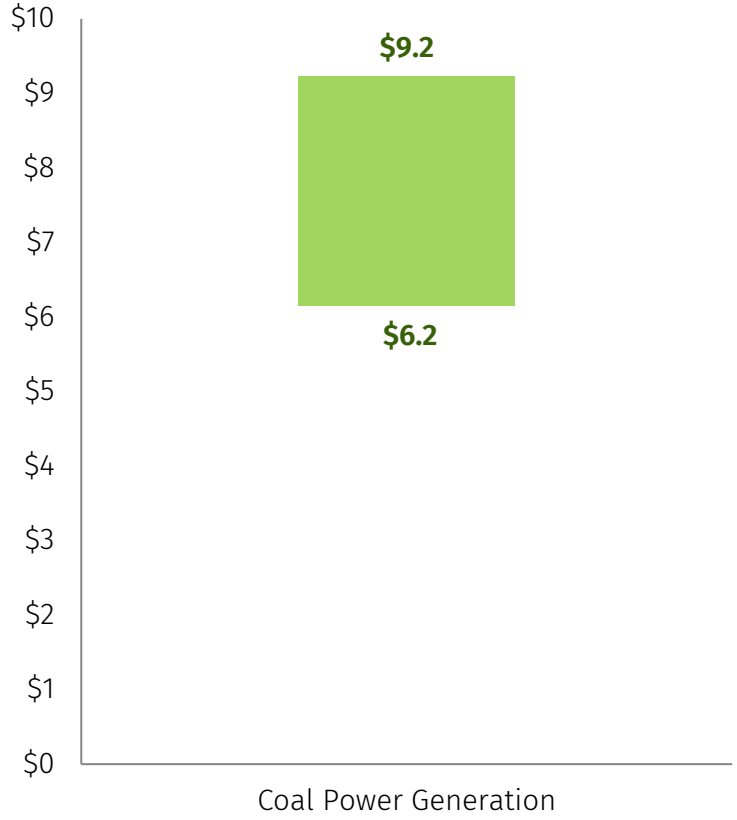
Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

Wyoming: Electric Power Sector

Carbon capture opportunities

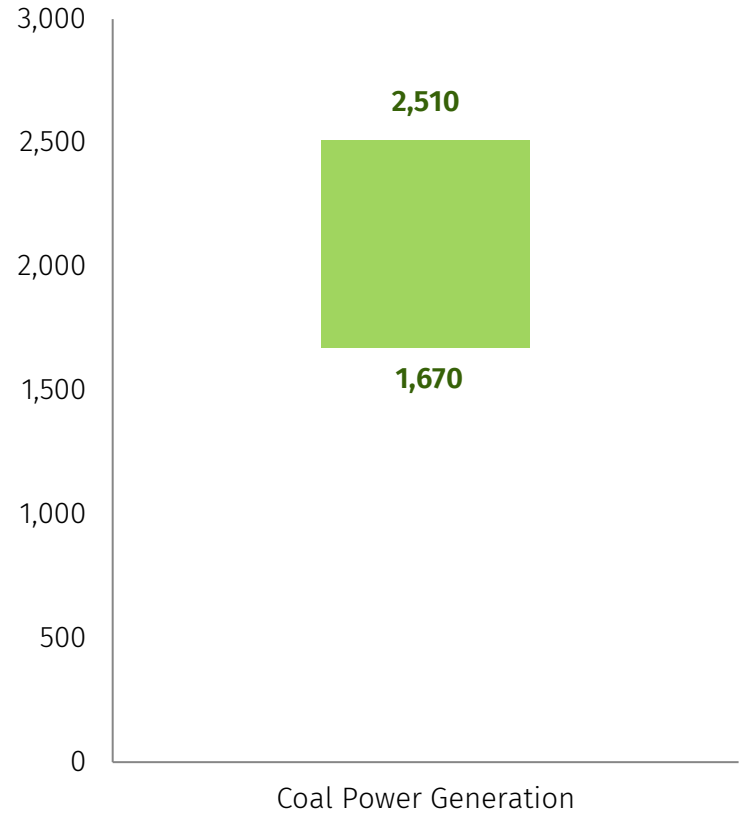
Capital Investment Requirement

Billion $ USD



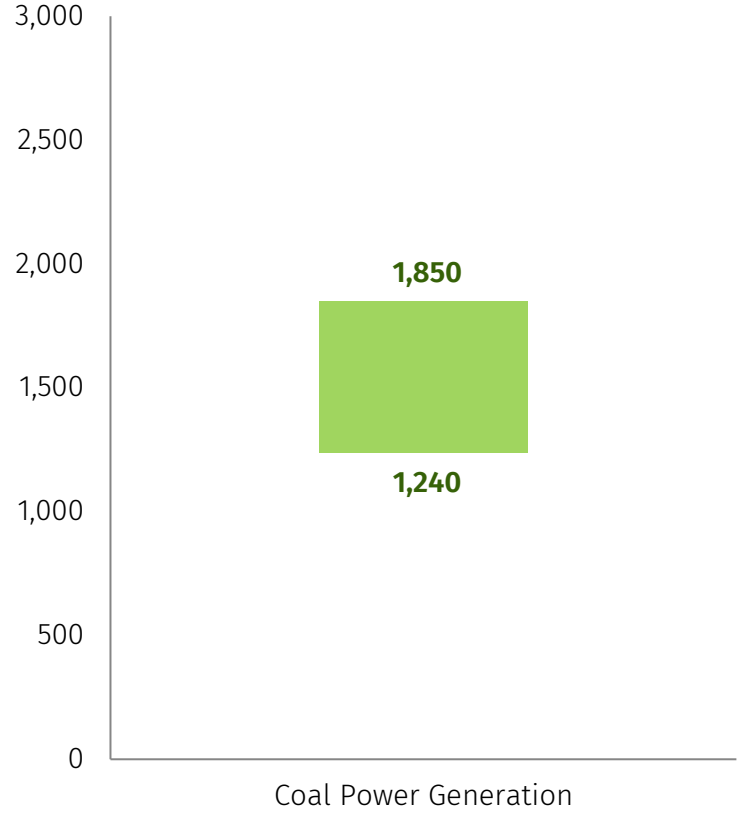
Jobs Associated with Capital Investment

Average Jobs Each Year, 2021-2035



Ongoing Jobs

Annual Operation Jobs



Source: Rhodium Group analysis. Note: The values above are not cumulative. The actual jobs associated with capital investment in any given year will depend on the pace of project development. Capital investment job values above reflect the average over the 15-year study period. Ongoing jobs include on-site and off-site jobs.

The Economic Benefits of Carbon Capture

Investment and Employment Estimates for Regional Carbon Capture Deployment Initiative States

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