Lawrence County and Scioto County's Core Competencies of the Coal Supply Chain Report

Prepared by Center for Economic Development and Community Resilience, the Voinovich

School of Leadership and Public Service

December 2021

Tuyen Pham

Mikayla Rochelle

Table of Contents

Lawrence County's and Scioto County's core competencies of industries and providers in the coal supply chain

NAICS Code	Coal Supply Chain Industry	Annual Revenue
333131	**Mining equipment manufacturers**	**$55,112,832**
211130	Natural gas extraction	NA
454310, 423520	Fuel wholesalers	$1,461,874
423520	**Coal wholesalers**	**$75,000,000**
424690	Chemical wholesalers	$74,023
325194	Gum & Wood chemicals	$150,000
331410	Primary smelting and refining of copper	$111,000
325211	Plastics Material and Resin Manufacturing	NA
221	Utilities	$446,386
484	**Transportation**	**$18,717,851**
4832	**Water Transportation**	**$24,283,163**
423320, 424690	Coal tar wholesalers	$3,211,227
324121	Asphalt Paving mixtures & blocks	$5,000,000
324199	**Coal products manufacturing**	**$75,000,000**

Table 1: Lawrence County's and Scioto County's coal supply chain industries' CEI dependence scores

According to NexisUni database, the five industries in the coal supply chain that bring the biggest revenue to Lawrence and Scioto in 2020 were coal wholesalers, coal product manufacturing, mining equipment manufacturing, transportation, and water transportation (Table 1). Businesses in these five high-revenue industries bring hundreds of millions of dollars to the counties but are at risk of declining due to the decline in coal.

Coal wholesalers

The biggest coal wholesaler in Lawrence and Scioto is Coal Network Inc.; this business brings **$50 million to $75 million** in annual revenue (Table 1). Since Coal Network Inc. supplies coal to the coal thermal market, the coal-fired power plant closures in Adams County in 2018 is expected to have an impact on Coal Network Inc.'s sales and revenue.

Transportation

According to US Cluster Mapping (https://www.clustermapping.us), the transportation industry in Ohio is ranked 8th in the country. The industry employs over 59,000 people in Ohio (Figure 1). Within the transportation industry, ground transportation and support services, specialty air transportation, and trucking created positive net jobs for Ohio while bus and air transportation created negative net jobs in the state (Figure 2).

From 1998 to 2018, there were 28 jobs lost in transportation in Scioto County and 10 jobs lost in Lawrence County (US Cluster Mapping). In 2020, there are 72 businesses registered in trucking transportation in Scioto and Lawrence Counties. These trucking businesses employ 223 workers and brought over **$18 million** in annual revenue to the counties in 2020 (Table 1).

Figure 1: Ohio transportation industry's ranking and employment

Source: https://www.clustermapping.us/region-cluster

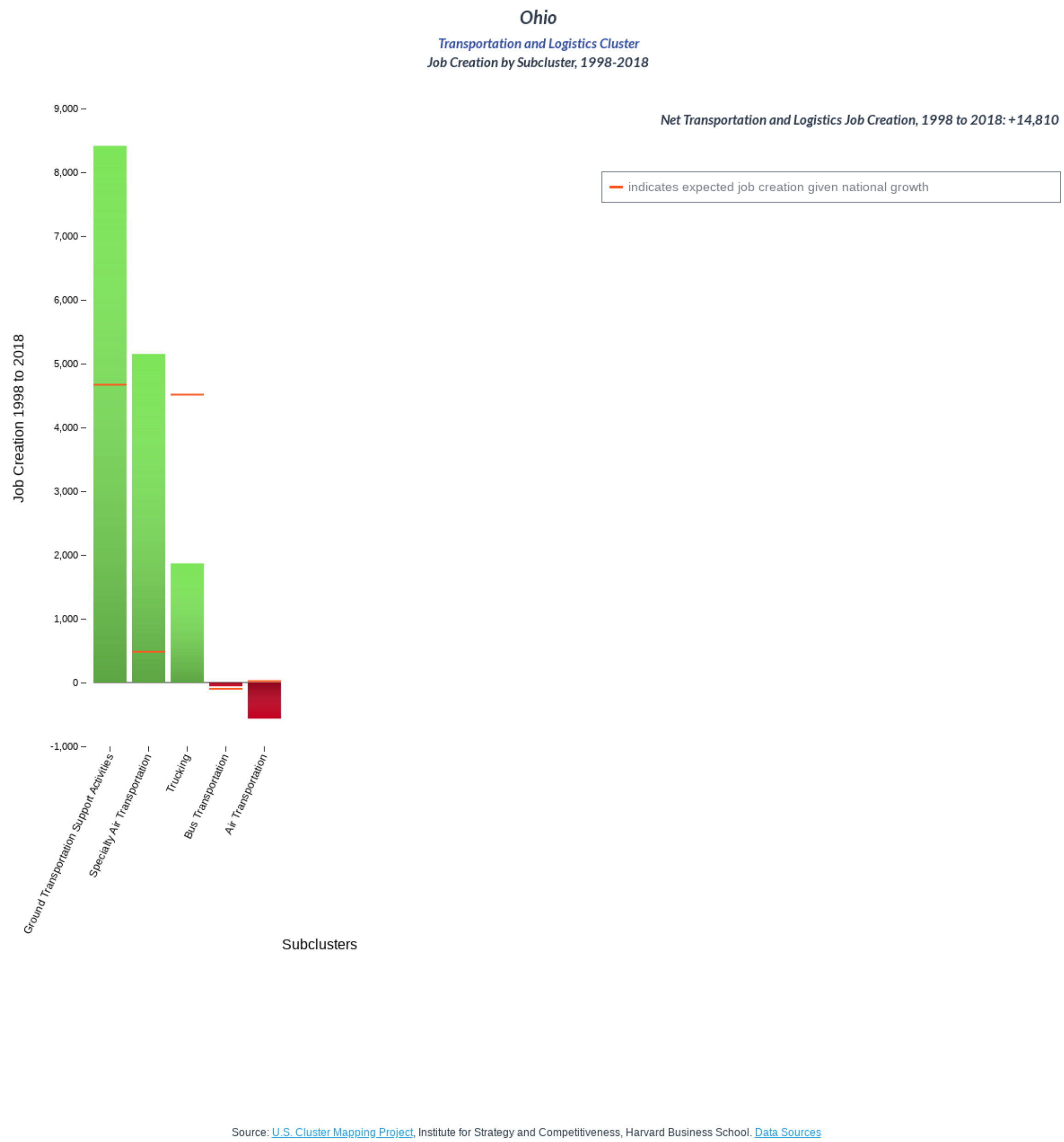

Figure 2: Ohio transportation industry's job creation by subcluster 1998-2018

Source: https://www.clustermapping.us/region-cluster

Water transportation

According to US Cluster Mapping (https://www.clustermapping.us), the transportation industry in Ohio is ranked 30th in the country. The industry employs 1,487 workers in Ohio (Figure 3). On average, employment in water transportation in Ohio has been declining since 1998 with the highest number of job losses in marine transportation services (Figure 4).

From 2015 to 2018, there were 42 jobs lost in water transportation in Lawrence County (US Cluster Mapping). In 2020, there are four businesses specializing in water transportation in Lawrence County, which employ 39 people and brought **over $24 million** revenue to the county (Table 1).

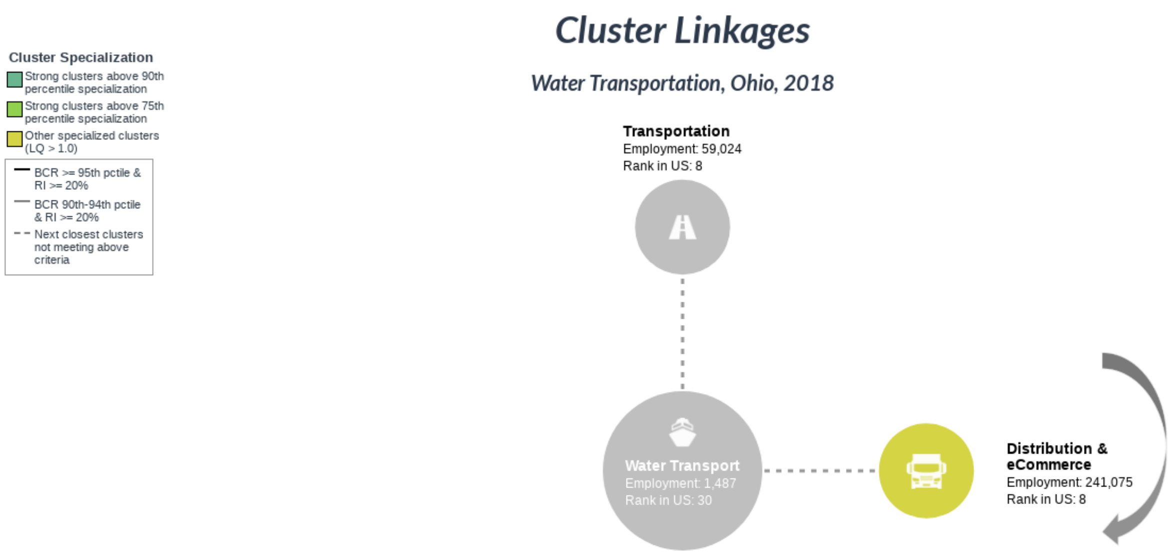

Figure 3: Ohio water transportation industry's ranking and employment

Source: https://www.clustermapping.us/region-cluster

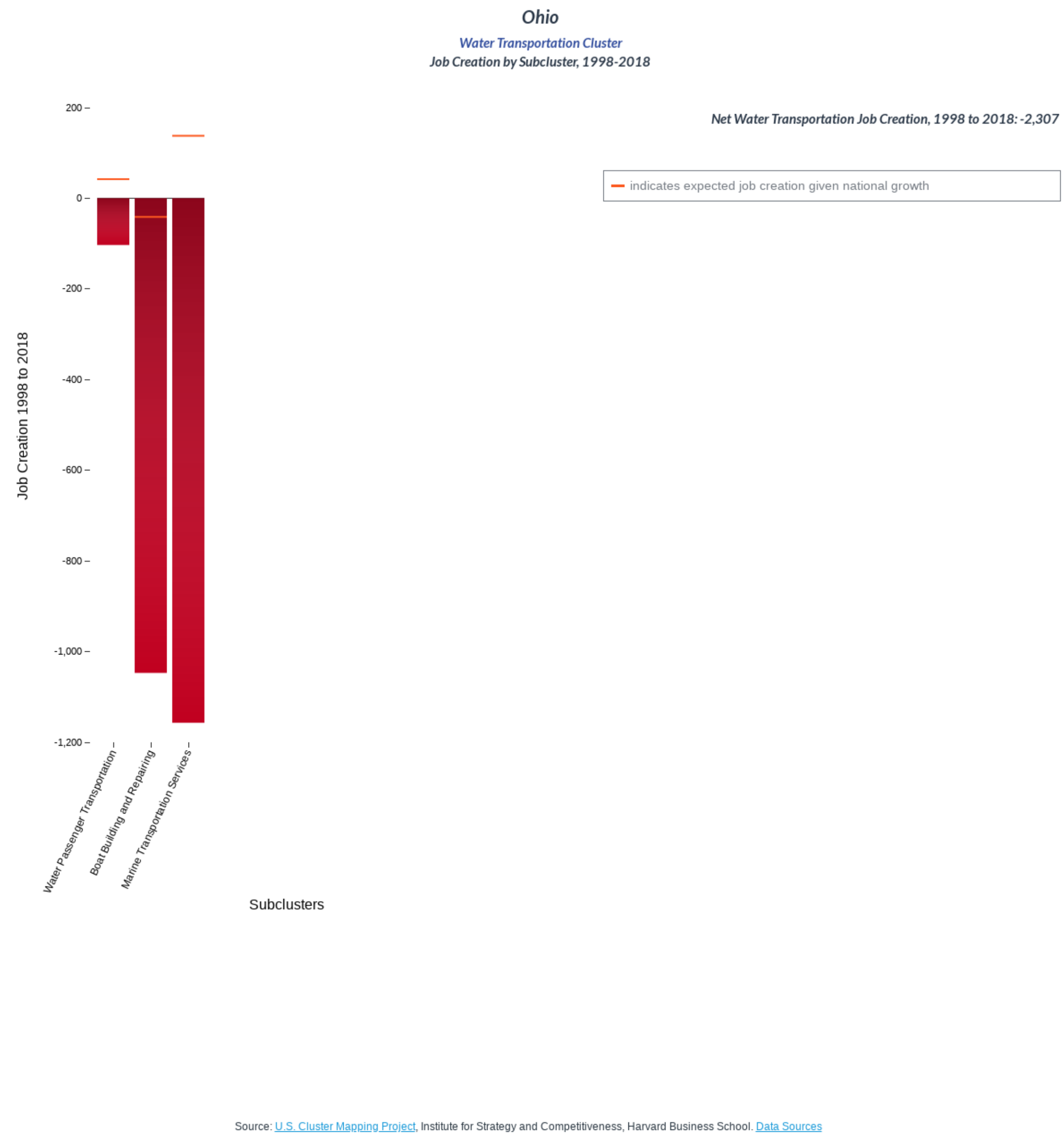

Figure 4: Ohio water transportation industry's job creation by subcluster 1998-2018

Source: https://www.clustermapping.us/region-cluster

Coal product manufacturing

There are 3 businesses specializing in coal product manufacturing in Scioto. Two of the three businesses operate in wire products, steel, and iron, which bring $145,000 in annual revenue. One of the three businesses is Haverhill North Coke LLC., a coke-making plant owned by SunCoke Energy INC. SunCoke INC. accounts for 34% of total US coke production capacity (www.suncoke.com). Haverhill North Coke LLC., one of the five coke making plants owned by SunCoke, brings in annual revenue of $50 million to $75 million a year.

Mapping Lawrence County's and Scioto County's core competencies to existing and emergent non-coal industry opportunities

The loss of the two coal power plants in Adams County and the decline in coal are expected to have a significant and negative impact on the revenues of several key business entities in Ohio. There are, however, other existing economic capabilities and strengths in Ohio that could provide alternative opportunities for coal-driven business activity that could 1) supplant the loss of the coal powered electric plants, 2) create new manufacturing jobs, 3) support the infrastructure initiative funded by new federal funding, and 4) use coal with a net reduction in national and possibly, international CO2 emissions. This strategy would make use of Ohio's capabilities in coal wholesales, coke production – an essential component required for steel production – and transportation.

One potential strategy would be to coalesce existing Scioto and Lawrence County competencies toward Ohio's existing core competence in steel production. In 2018, the state of Ohio ranked 3rd in steel production (US Cluster Mapping). From 1998 to 2018, Ohio lost 15,000 jobs in steel production (Figure 6). However, the steel production industry in Ohio is still competitive nationwide and employs over 36,000 workers in 2018 (Figure 5). By boosting steel production in Ohio, we can help divert coal to coke production from thermal electric power generation. In other words, we will be able to support the coal wholesaler industry in Lawrence in the absence of coal-based electric, boost coke production in Scioto, and create more jobs in Ohio's steel production industry. It is also important to point out that CO2 emissions from Coke are significantly less than for coal-based electric power generation. According to Wu et al (2018), 46% of global CO2 emission is from the direct use of low rank coal and one third of global CO2 emission is from coal-fired power plants. Furthermore, the majority of steel mills in Ohio are located in the Cincinnati, Akron, and Cleveland areas, and boosting steel production would increase the demand for transporting coke from Scioto to steel mills, thus, enhancing trucking and water transportation industries.

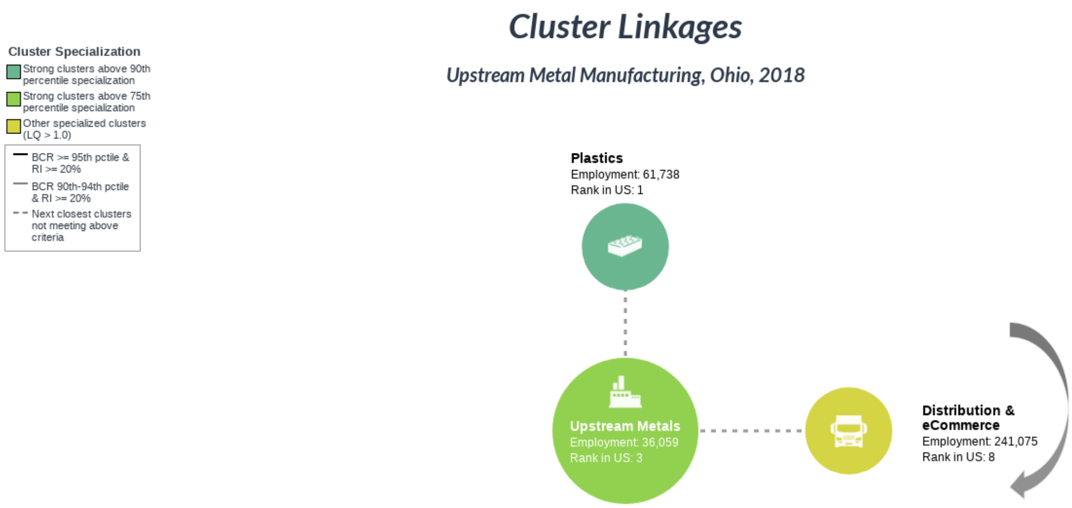

Figure 5: Ohio upstream metal industry’s ranking and employment

Source: https://www.clustermapping.us/region-cluster

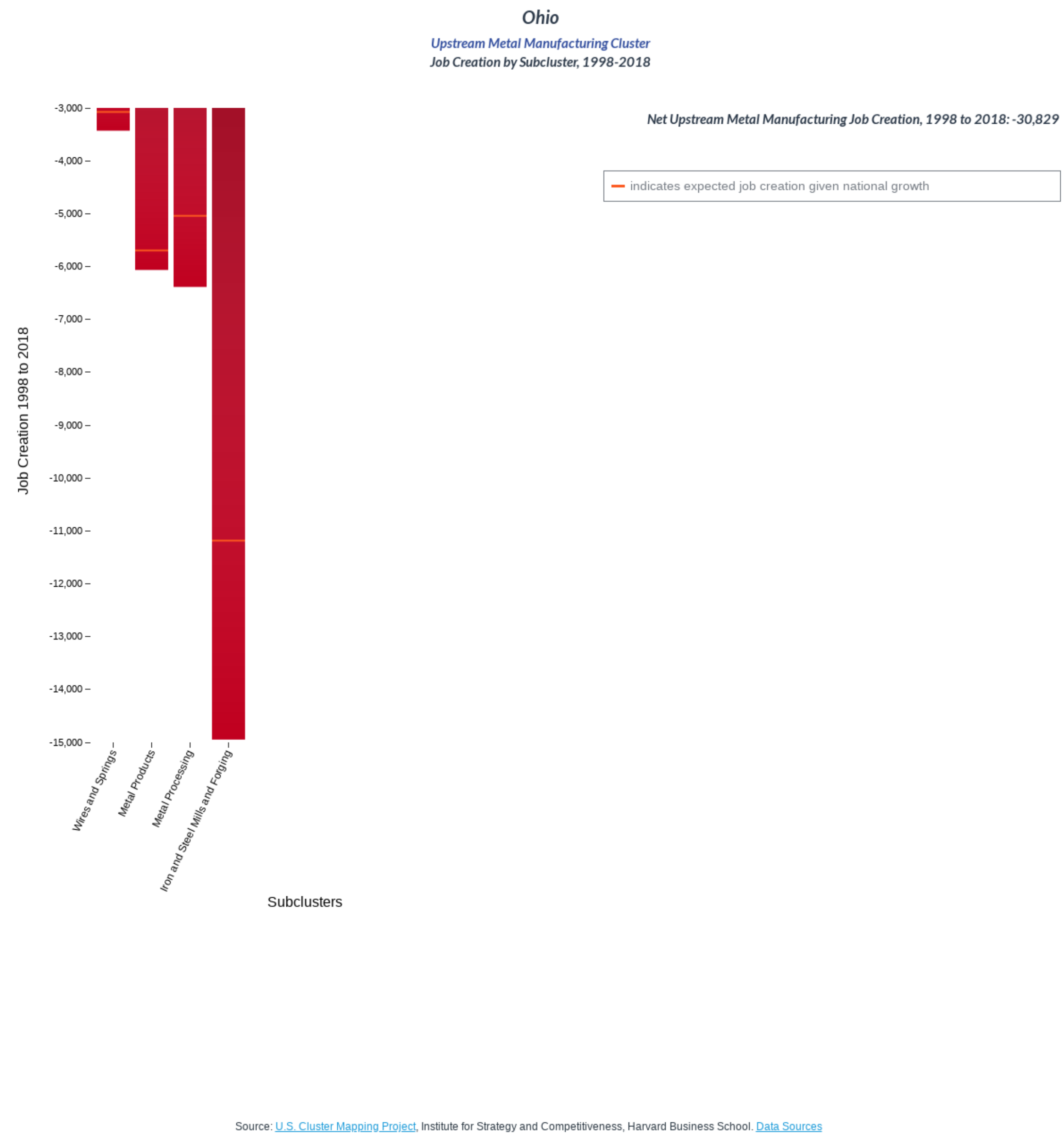

Figure 6: Ohio upstream metal industry's job creation by subcluster 1998-2018

Source: https://www.clustermapping.us/region-cluster

According to the World Steel association, in 2020 the total world's crude steel production was 1.88 billion tons. China steel production now dominates the international market, with over 1.06 billion tons; or 56.7% of total world production, followed by India, with 100.25 million tons of crude steel. US steel production ranks number 4 globally with 72.7 million tons of crude steel production. However, steel production from China and India is the most polluting, with CO2 emissions intensity per ton of steel almost double the levels from other industrial nations, including the US, Korea, Mexico, and Brazil (Kim and Worrell, 2002). Thus, an increase in US steel production and sales away from China and India provides for a global net decrease in steel production's CO2 emissions and subsequent climate impact.

The steel production industry in Ohio is still competitive nationwide despite the decline in employment. Steel production in the state of Ohio is still ranked 3rd in the nation. In 2021, steel production from Ohio account for 14.5 million tons, or 20% of total US made steel (Ohio Steel Council, 2021). Boosting steel production in Ohio would not only protect Lawrence County and Scioto County from loss of coal-based electric power generation but would also 1) expand US manufacturing capabilities to meet the infrastructure growth funded by Federal funds, 2) restore Ohio jobs in steel production, 3) support other key Ohio based competencies in coke production and all the transportation services needed to bolster a return to competitive coke and steel production in Ohio.

In 2021 President Joe Biden signed House Resolution 3684 (H.R.3684) - Infrastructure Investment and Jobs Act, that will provide more than $300 billion over a 5-year time frame for the construction and improvement of a variety of infrastructure projects, including highways, roads, and bridges (H.R.3684, Title 1). Of note are the provisions for rural bridge repair and construction. Beside the provision concerning highways, roads, and bridges, the Infrastructure Investment and Job Act also provides significant funds for railroad reform, long distant trains, and transit. The total investment in highways, roads, bridges, rails, and other transit could add up to $550 billion. This massive investment in US Infrastructure will require an unprecedented acquisition of steel, estimated by the Steel Manufacturers Association and the American Iron and Steel Institute (AISI) to be over 27.5 million metric tons at a time when US blast furnaces are already working at capacity. In addition, by Executive Order on January 25, 2021, President Biden mandated that federally funded projects use US made products and services wherever possible, an order that was further strengthened in July 2021 with a proposed rules change to the Buy American Act. These political realities and federal resources provide opportunities for Ohio industries to modernize and expand its steel production, redirect coal wholesales, coke production and transportation capabilities to providing the US with high quality, US-made steel, that is produced with lower net CO_2 production than imported steel, particularly that of China and India. This strategy, in addition to supporting coal-based industry in an ecologically responsible manner, also increases US manufacturing jobs in the US heartland.

References:

US Cluster Mapping. Retrieved from https://www.clustermapping.us/region-cluster/upstream_metal_manufacturing/state/ohio

Ohio Steel Council (2021). Retrieved from https://www.ohiosteel.org/economic-impact/

Kim, Y. and Worrell, E. (2002). International comparison of CO2 emission trends in the iron and steel industry. Energy Policy. Volume 30, Issue 10, August 2002, Pages: 827-838. https://doi.org/10.1016/S0301-4215(01)00130-6.

Wu, S., Jin, Z., and Deng, C. (2019). Molecular simulation of coal-fired plant flue gas competitive adsorption and diffusion on coal. Fuel. Volume 239, Pages 87-96, ISSN 0016-2361, https://doi.org/10.1016/j.fuel.2018.11.011.

World Steel Industry Association. Retrieved from https://www.worldsteel.org/steel-by-topic/statistics/World-Steel-in-Figures.html.

H.R. 3684: Infrastructure Investment and Jobs Act (2021). Retrieved from https://www.govtrack.us/congress/bills/117/hr3684/text.

Association and the American Iron and Steel Institute (2021). AISI Applauds House Passage of Bipartisan Infrastructure Bill. Retrieved from https://www.steel.org/2021/11/aisi-applauds-house-passage-of-bipartisan-infrastructure-bill/