Appalachian Regional Commission

Coal Production and Employment in the Appalachian Region 2000-2024

Appalachian Regional Commission

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Executive Summary

This report provides an update on coal production and employment in the Appalachian Region from 2000 through 2024. High level takeaways are as follows:

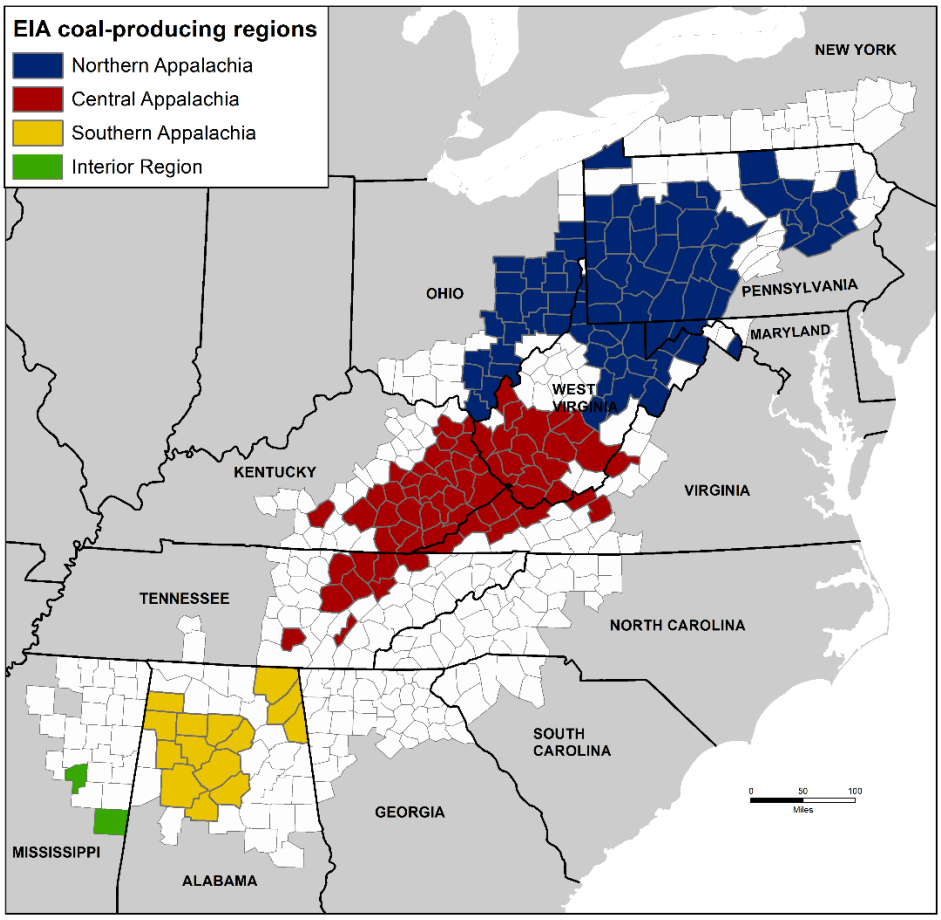
- Considering data for the 2000-2024 period, coal production peaked in 2001 in Appalachia and in 2008 for the rest of the country. Since these recent highs, there have been declines of 63 percent in Appalachia and 55 percent in the non-Appalachian United States, respectively.
- A large portion of these declines have taken place over the past ten to fifteen years. From 2011 to 2024, both Appalachia and the rest of the country saw decreases in coal production of 53 percent.
- Despite these longer-term downward trends, there has been a slight uptick in coal production over the past few years in Appalachia: from approximately 141 million short tons in 2020 to 160 million short tons in 2024, an increase of 13 percent. Meanwhile, coal production in the rest of the country declined from 2020 to 2024, dropping from 394 million short tons to 352 million short tons, a decrease of 11 percent.
- Production within the region has shifted dramatically over the past two decades. Central Appalachia used to account for the majority of coal production in the region: in 2001 and 2002, the subregion produced 63 percent of the region's coal, but by 2024, this figure had dropped to 38 percent. Since 2014, Northern Appalachia has accounted for the majority of the region's coal production, producing 53 percent of Appalachia's coal in 2024. (Note: these subregions refer to the EIA's definition of coal-producing regions and do not align with ARC's five-subregion classification system.)
- Coal employment has declined in both the Appalachian Region and the rest of the United States since 2000. During the 2000-2024 period, employment peaked in 2011 in Appalachia (60,224 workers) and in 2012 for the rest of the country (32,170). Since these recent highs, as of 2024, there have been drops of 54 percent in Appalachia and 48 percent in the non-Appalachian United States, respectively.
- Coal employment was lowest in the region in 2021, at 23,130 workers. From 2021 to 2024, the region saw an increase of 20 percent, with coal employment reaching 27,829 in 2024. The rest of the country saw a slight decrease from 2021 to 2024, with employment declining from 16,871 to 16,781 workers.

Introduction

This brief report examines coal production and employment trends in the Appalachian Region from 2000 to 2024, along with comparative analysis for the non-Appalachian United States. The report relies on mine-level data from the U.S. Mine Safety and Health Administration (MSHA), gathered and compiled for the Appalachian Regional Commission by EconAlyze, LLC.

In addition to the region-wide analysis, the report also features subregion-level analysis. However, unlike other ARC research reports, which typically feature a five-part subregion classification system, this report uses the Energy Information Administration (EIA)'s definition of coal-producing regions, which includes three in Appalachia: Northern, Central, and Southern. Below, Figure 1 shows all counties in the region that produced coal in any year from 2000 to 2024, along with their respective classifications in EIA's coal-producing regions.

Figure 1: Appalachian counties in EIA's coal-producing regions



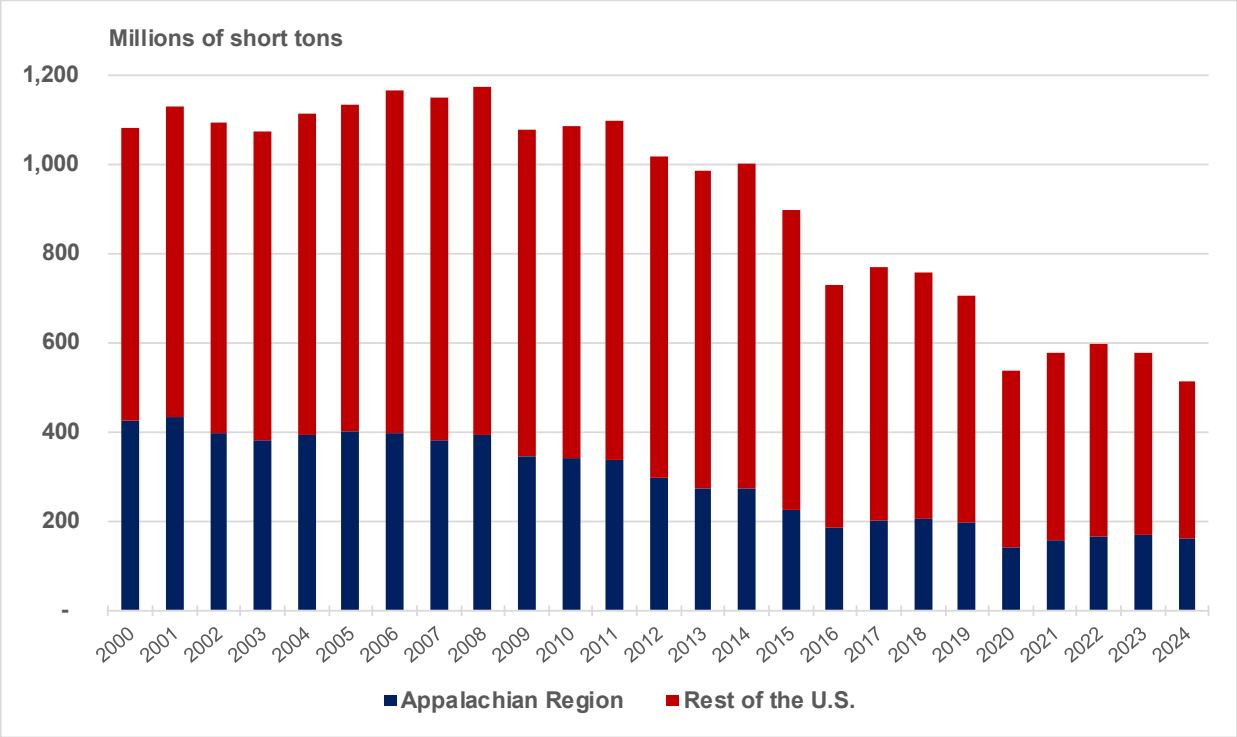
Sources: U.S. Mine Safety and Health Administration (MSHA); U.S. Energy Information and Administration (EIA). Note: two coal-producing counties in Appalachian Mississippi—Choctaw and Kemper—are classified by EIA as being within the Interior Region. These counties are included in region-wide totals but are excluded from the subregion-level analysis. County-level production and employment data are available in the report's accompany spreadsheet.

Coal Production

Looking at trends since the turn of the century, as seen in Figure 2, coal production in Appalachia peaked in 2001, at 433 million short tons. In the rest of the United States, production peaked in 2008, at 779 million short tons. Since then, despite some year-over-year increases for both geographies, there has been a downward trend in production. Compared to these recent highs, 2024 production levels in Appalachia (160 million short tons) and the rest of the country (352 million short tons) were 63 percent and 55 percent lower, respectively.

More recently, there was a sharp drop in coal production from 2019 to 2020, as the COVID-19 pandemic weighed heavily on already declining numbers. While production in Appalachia increased each year from 2020 to 2023, production dropped from 168 million short tons in 2023 to 160 million short tons in 2024. The rest of the country, after seeing increases from 2020 to 2022, saw declines in coal production in both 2023 and 2024. Compared to 2019 figures, both Appalachia and the rest of the United States had much lower coal production levels in 2024: 18 percent and 31 percent lower, respectively.

Figure 2: Coal Mining Production, Appalachia and the Rest of the United States

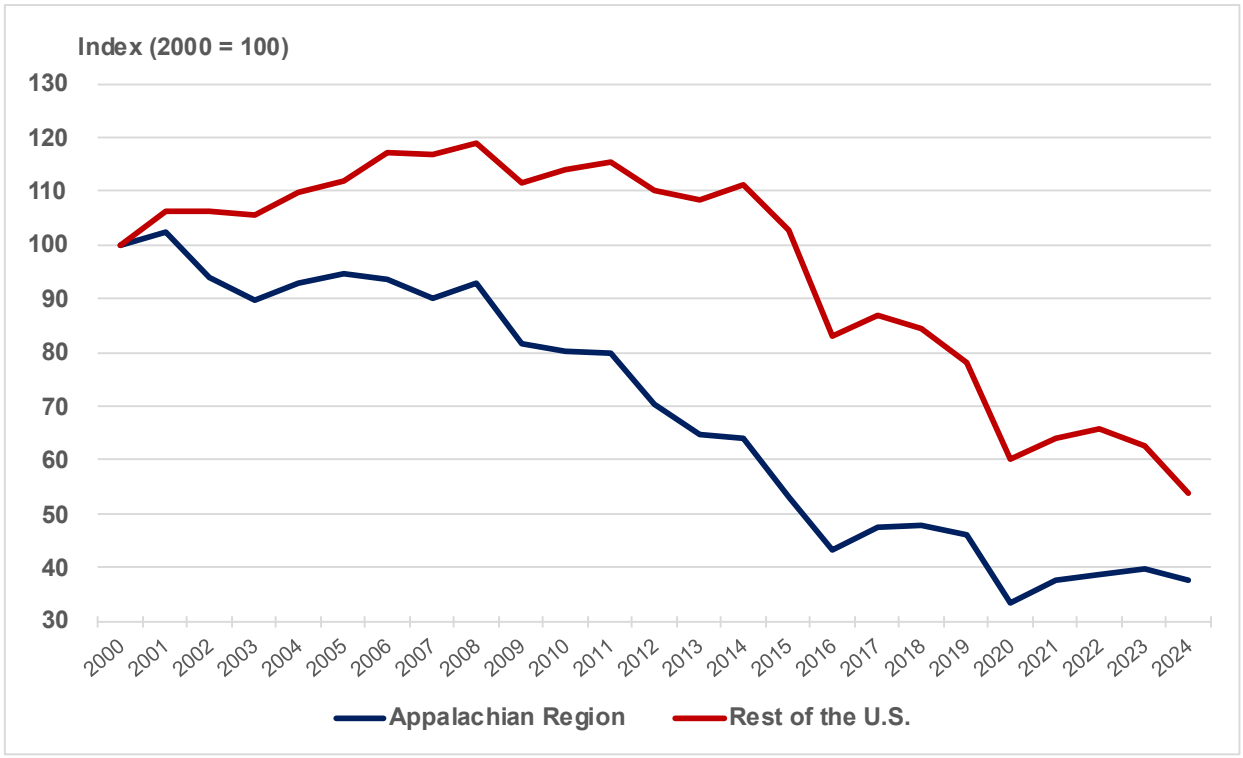


Source: U.S. Mine Safety and Health Administration (MSHA)

Figure 3 tracks how coal production in Appalachia and the rest of the United States has changed over the past two-plus decades, relative to an initial indexed year (2000). As can be seen, from 2000 to 2024, coal production dropped more sharply in Appalachia than elsewhere in the country.

While coal production increased in the region from 2000 to 2001, there has been a downward trend since then, and in 2024, Appalachia's production level was just 38 percent of what it was in 2000. The rest of the country saw higher coal production levels through 2015—relative to its production level in 2000—but then production dropped sharply in 2016 and has been mostly declining ever since. For the non-Appalachian United States, its production level in 2024 was 54 percent of what it was in 2000.

Figure 3: Coal Mining Production, Appalachia and the Rest of the United States



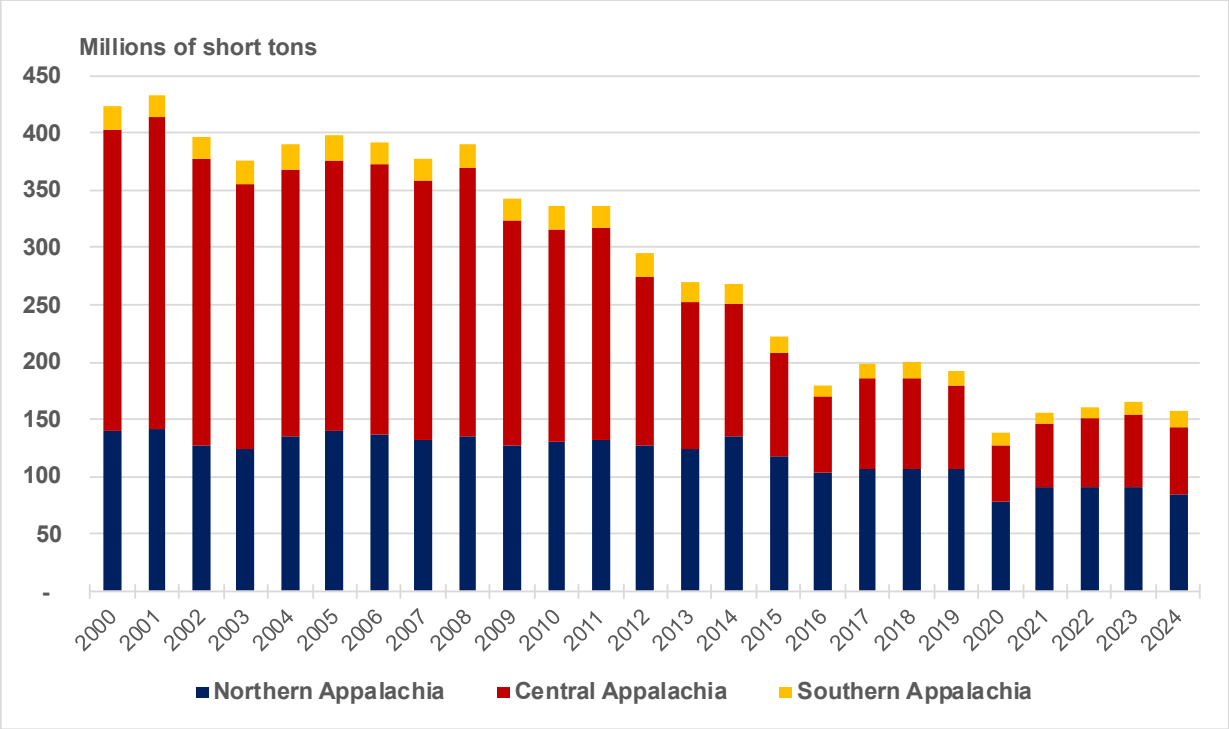
Source: U.S. Mine Safety and Health Administration (MSHA)

Figure 4 shows how production has changed across the three coal-producing Appalachian subregions from 2000 to 2024. Northern and Central Appalachia have accounted for the majority of coal production in the region, ranging from 91 to 95 percent of the region's total production over the time period.

Still, there has been a significant shift in terms of where coal is produced in Appalachia. Early in the 2000-2024 period, Central Appalachia accounted for approximately twice the amount of production as Northern Appalachia. For example, in 2002, production in Central Appalachia was 249 million short tons; in Northern Appalachia, it was 128 million short tons.

In 2014, however, Northern Appalachia produced more coal (134 million short tons) than Central Appalachia (117 million short tons)—and this has been the case for every year since. In 2024, Northern Appalachia produced 84 million short tons, compared to 60 million short tons in Central Appalachia and 14 million short tons in Southern Appalachia.

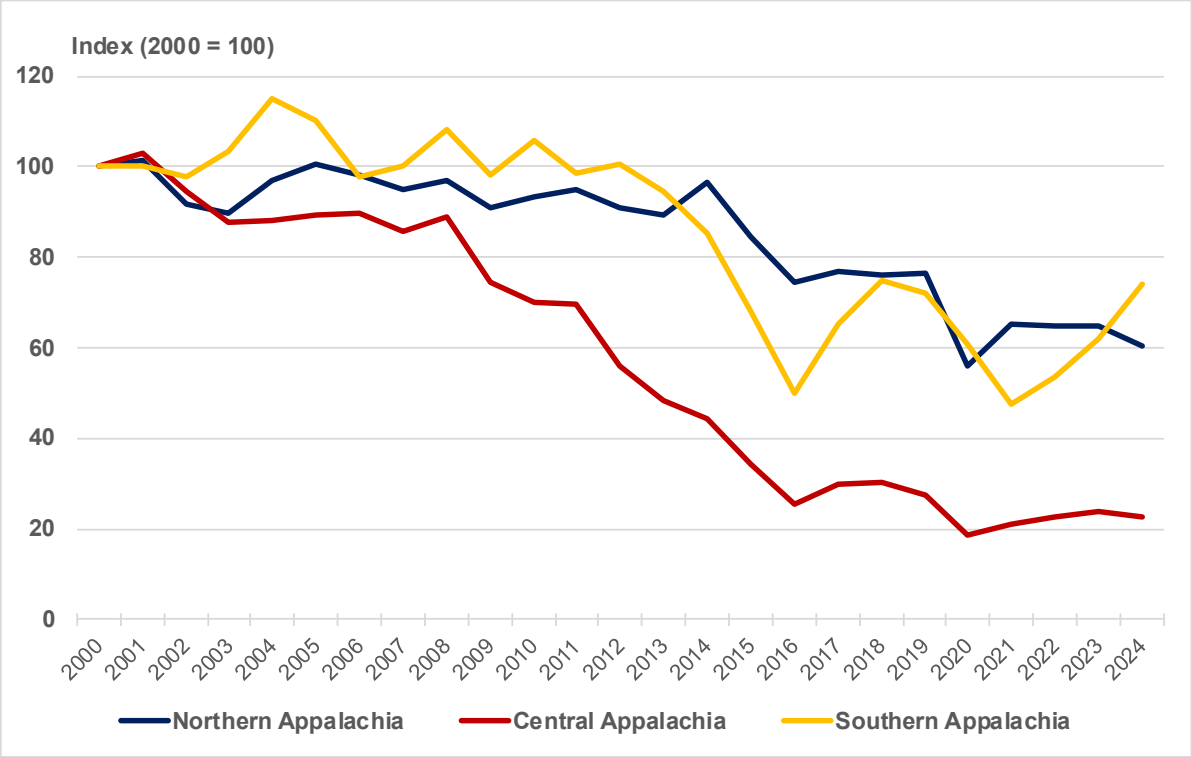
Figure 4: Coal Mining Production, Appalachian Coal-Producing Subregions



Source: U.S. Mine Safety and Health Administration (MSHA)

Figure 5 sheds more light on these shifting coal production patterns within the region. While both Northern and Southern Appalachia have seen steady declines in coal production since 2000, Central Appalachia has seen a particularly sharp drop in production: its 2024 production level was just 23 percent of its 2000 level. In other words, coal production in Central Appalachia is now just one-quarter of what it was at the turn of the century. This compares to figures of 60 percent and 74 percent, respectively, for Northern and Southern Appalachia.

Figure 5: Coal Mining Production, Appalachian Coal-Producing Subregions



Source: U.S. Mine Safety and Health Administration (MSHA)

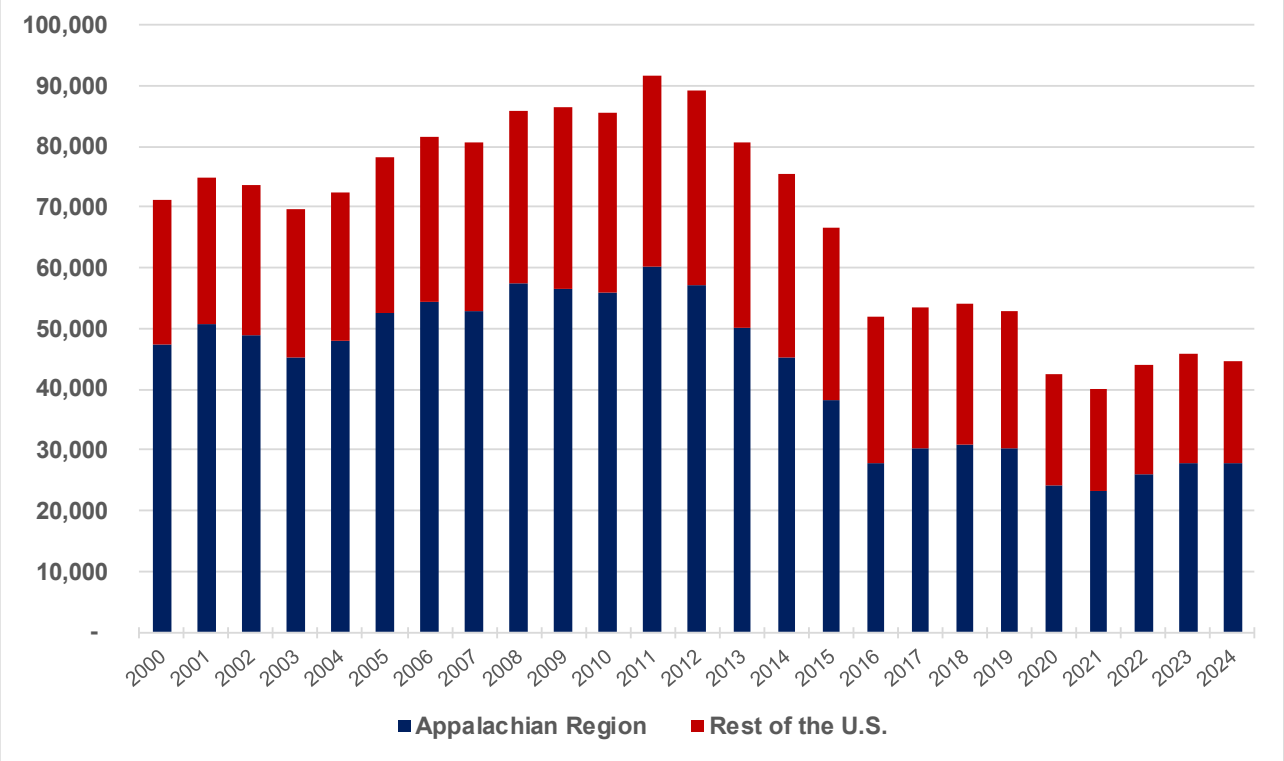
Coal Mining Employment

Turning to coal mining employment, trends in Appalachia and the rest of the country have been similar to those for production: long-term downward trends with occasional year-over-year increases. However, peaks in employment levels during the 2000-2024 period were more recent than the peaks in terms of production. Coal mining employment was at its highest level in 2011 for Appalachia (60,224 workers) and in 2012 for the rest of the country (32,170). Since these recent peaks, as of 2024, there have been drops of 54 percent in Appalachia and 48 percent for the non-Appalachian United States, respectively.

Coal mining employment was lowest in the region in 2021, at 23,130 workers, though there was an increase of 20 percent over the next three years, with employment in the industry reaching 27,829 workers in 2024. The rest of the country saw only a slight decrease from 2021 to 2024, with coal mining employment declining from 16,871 to 16,781 workers.

Despite these recent increases, coal mining employment levels in both geographies were lower in 2024 than in 2019, the last "pre-pandemic" year of data.

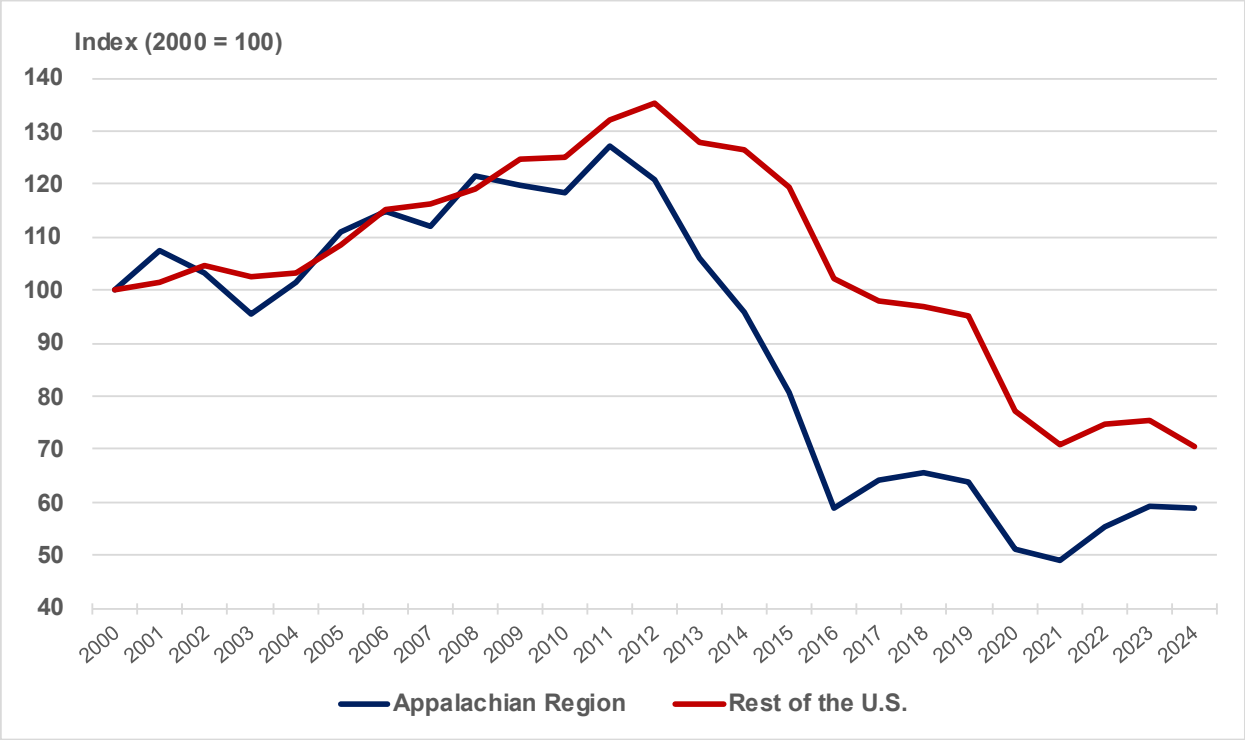
Figure 6: Coal Mining Employment, Appalachia and the Rest of the United States



Source: U.S. Mine Safety and Health Administration (MSHA)

Figure 7 tracks how coal mining employment has changed in Appalachia and the rest of the country over the past two-plus decades, relative to an initial indexed year (2000). The region and non-Appalachian United States saw general increases in employment for the first half of the 2000-2024 period, reaching peaks in 2011 and 2012, respectively. Since then, however, coal mining employment in Appalachia has declined more sharply than that in the rest of the country. In 2024, coal mining employment in the region was just 59 percent of its 2000 level; in the rest of the country, this figure was 71 percent.

Figure 7: Coal Mining Employment, Appalachia and the Rest of the United States

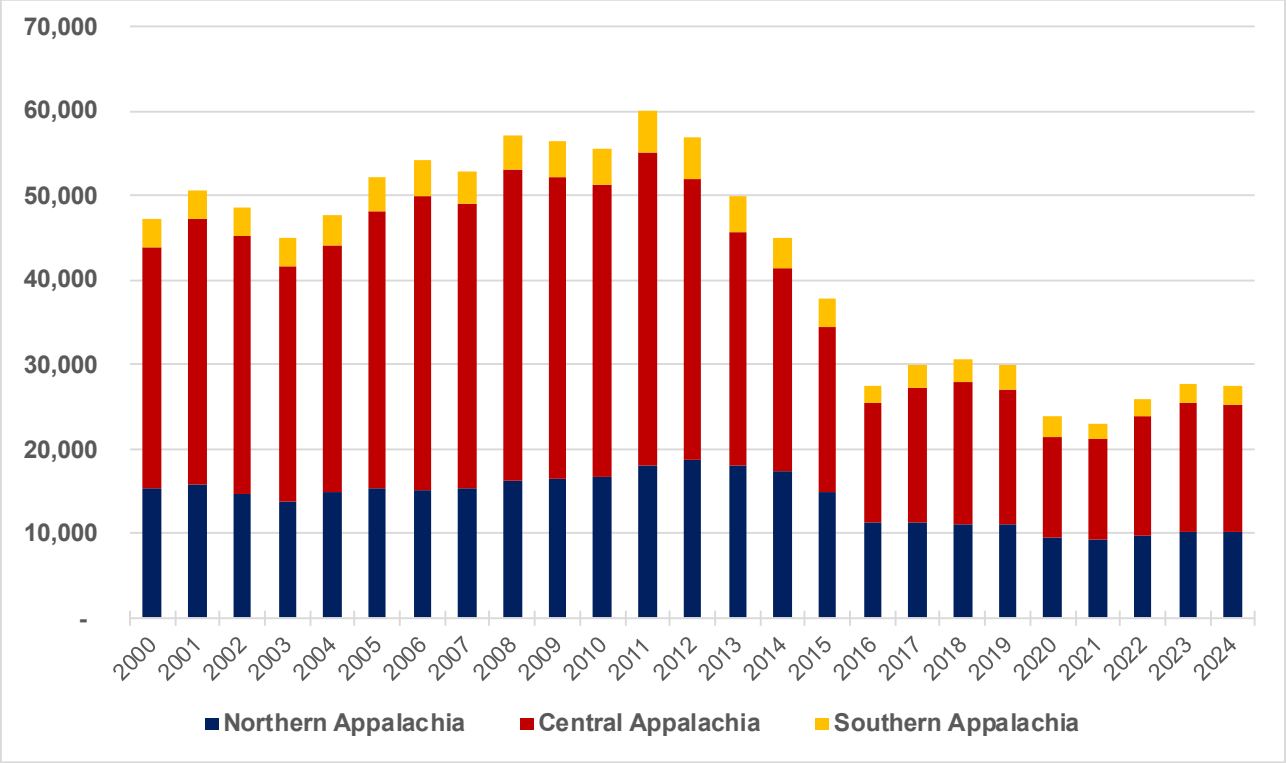


Source: U.S. Mine Safety and Health Administration (MSHA)

Figure 8 shows how coal mining employment has changed in the Appalachian coal-producing subregions from 2000 to 2024. The majority of the region's employment in the coal industry has been found in Northern and Central Appalachia, with these two subregions accounting for anywhere from 90 to 93 percent of Appalachia's total employment in the industry over the time period.

Similar to trends in production, Central Appalachia's share of coal mining employment has declined over the past two decades, though the decrease hasn't been quite as sharp as the decline in production—and the Central subregion does still have the largest coal mining employment level among subregions (whereas Northern Appalachia has produced more coal than any subregion since 2014). In 2024, Central Appalachia had 14,860 workers employed in the industry (54 percent of the region's total), compared to 10,285 in Northern Appalachia (37 percent) and 2,463 in Southern Appalachia (9 percent).

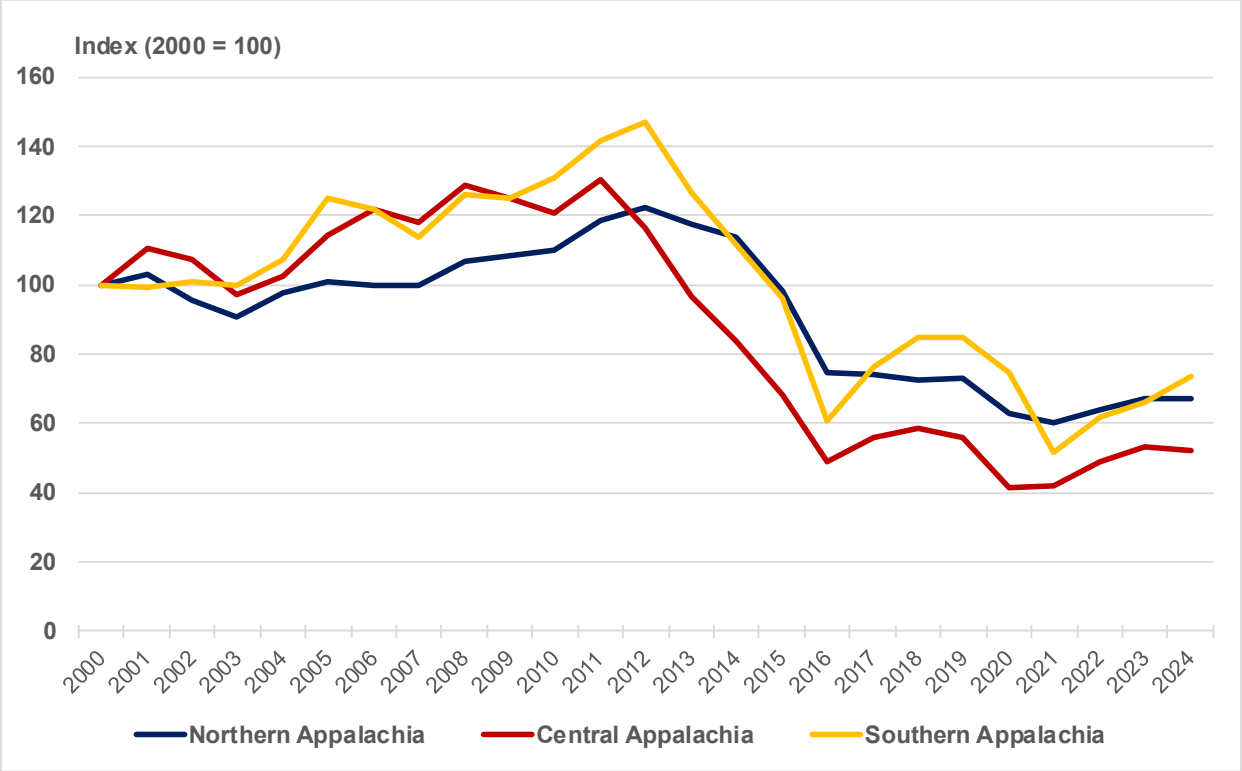
Figure 8: Coal Mining Employment, Appalachian Coal-Producing Subregions



Source: U.S. Mine Safety and Health Administration (MSHA)

Figure 9 shows coal mining employment levels for the three subregions have changed over time, relative to an initial indexed year (2000). All three subregions followed similar patterns from 2000 to 2024, though the decline for Central Appalachia has been more pronounced. In 2024, its coal mining employment level was just 52 percent of its 2000 figure; this compares to 67 percent and 73 percent for Northern and Southern Appalachia, respectively.

Figure 9: Coal Mining Employment, Appalachian Coal-Producing Subregions



Source: U.S. Mine Safety and Health Administration (MSHA)