

United States of America

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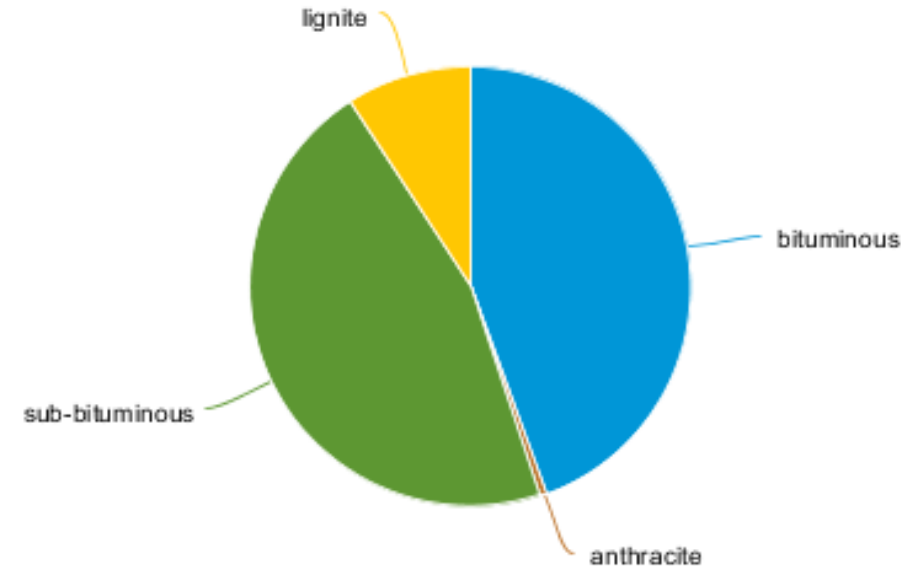
U.S. Environmental Protection Agency

Coal Sector Trends Over the Past Five Years

- Demand for coal nationally:
 - In 2020, U.S. coal consumption decreased by 19% compared to 2019. For 2021, coal consumption is projected to be higher than in 2020 (final data are not yet available).
 - The electric power sector accounted for about 91% of the total U.S. coal consumed in 2020.
 - The U.S. Energy Information Administration projects coal consumption to decrease in 2022 and in 2023.
 - Demand for coking coal has been growing, slightly offsetting the decrease in demand from the electric power sector.
 - Recent increases in gas prices may increase demand for coal.

U.S. coal production by rank, 2020

total: 535,434 thousand short tons

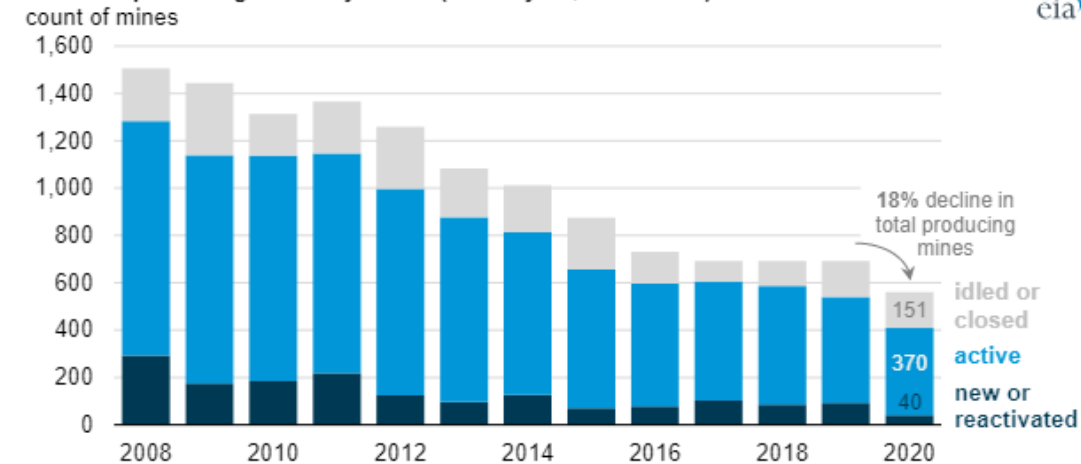


eia Source: Annual Coal Report Table 6.

Coal Sector Trends Over the Past Five Years

- Overall, the number of operating mines decreased:
 - By the end of 2020, the number of producing coal mines in the United States decreased to 546 mines (146 underground mines, 350 surface).
 - In 2020, 40 coal mines were opened or reactivated, while 151 mines were idled or closed.
 - This overall decrease resulted in an 18% annual decline in the total number of producing coal mines from 2019.
 - This trend reflects a reduced investment in the U.S. coal industry and less demand for coal in the U.S. electric power sector and internationally.

U.S. coal-producing mines by status (end of year, 2008–2020)

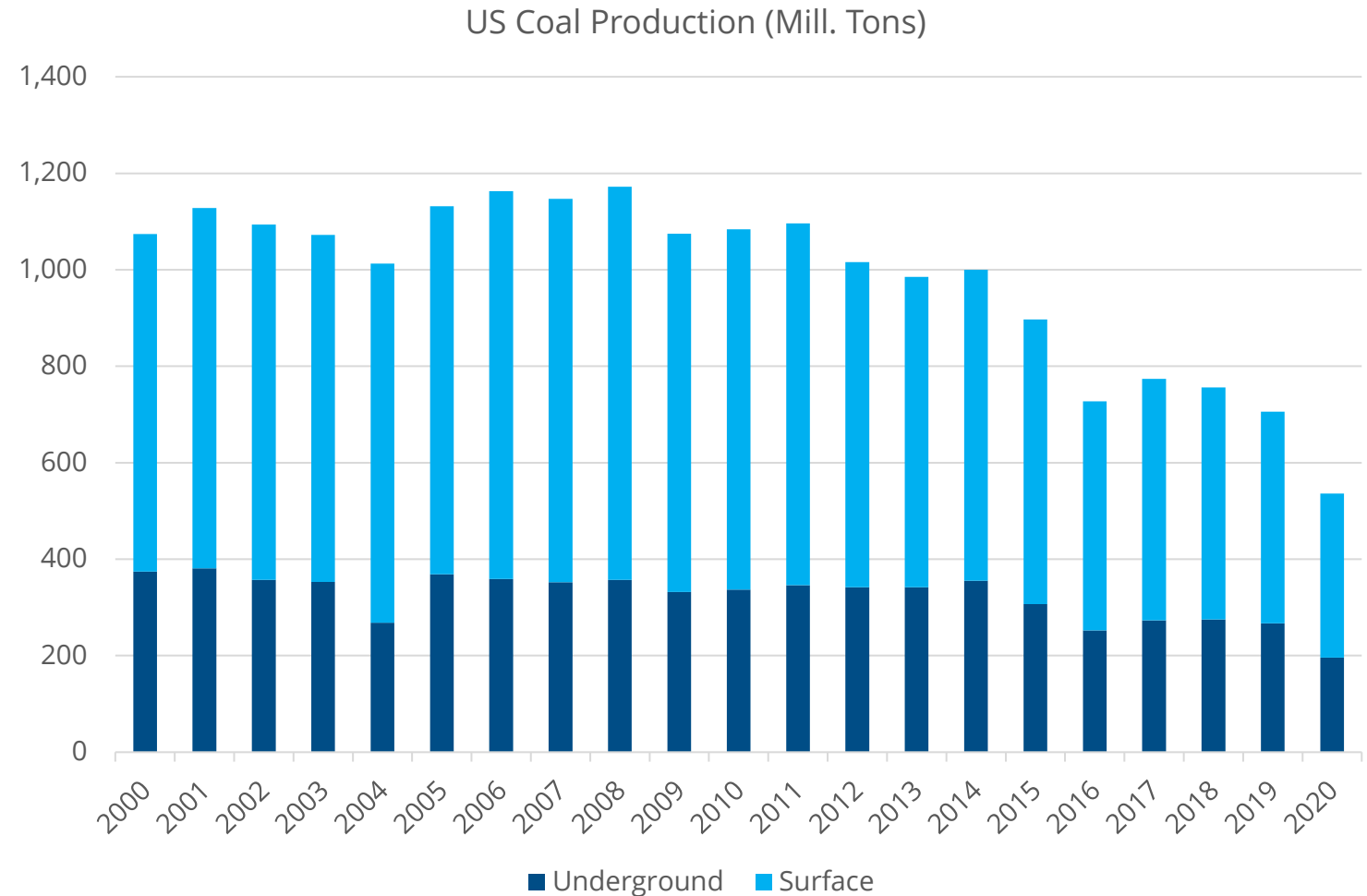


Source: Graph by the U.S. Energy Information Administration (EIA), based on U.S. Department of Labor, Mine Safety and Health Administration, Form 7000-2, *Quarterly Mine Employment and Coal Production Report*

Coal Sector Trends Over the Past Five Years

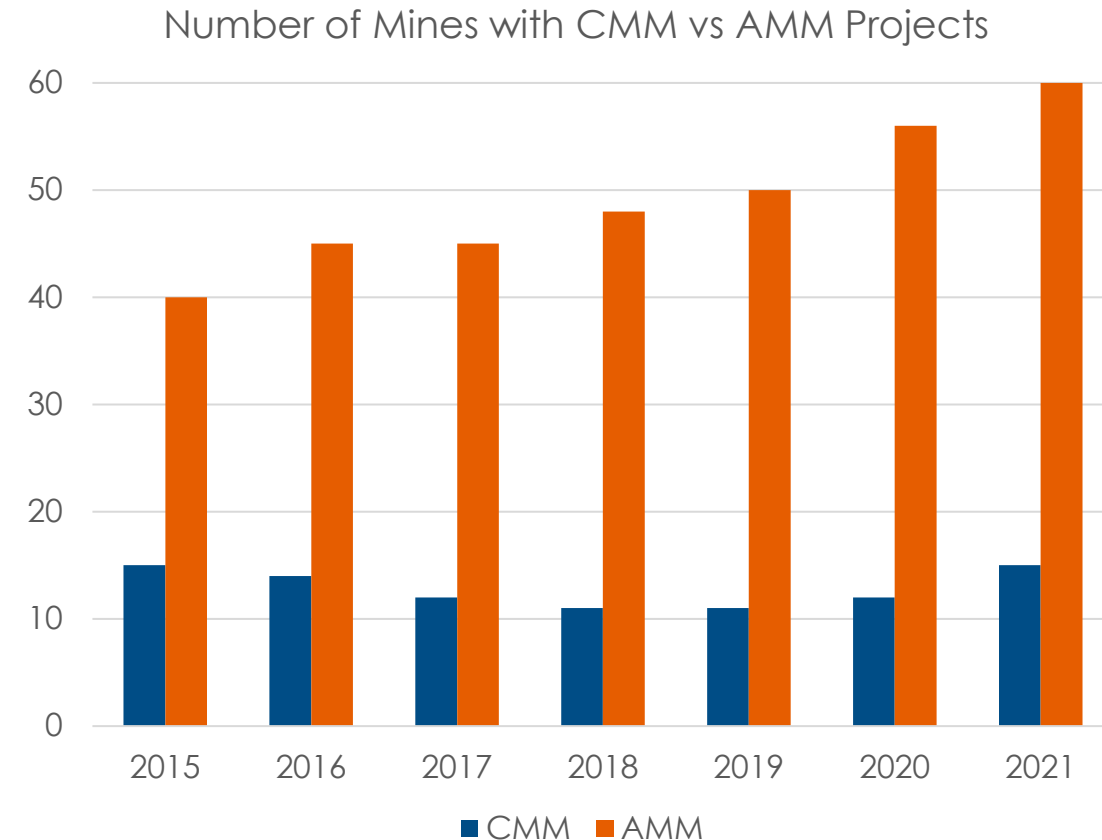
■ Coal production:

- Coal production decreased in 2020 but is projected to increase for 2021 (data not yet available).
- EIA expects U.S. coal production to increase by over 4% (or 25 million short tons) in 2022.



Coal Mine Methane Overview

- 2020 methane emissions from coal mines (from U.S. EPA estimates):
 - Active underground: 31.4 MMTCO₂e
 - Abandoned underground: 8.4 MMTCO₂e
- Recent developments on CMM mitigation projects:
 - As of October 2021, 15 active coal mines hosted 23 CMM projects
 - The number of AMM projects has increased: 60 abandoned mines hosted 32 AMM projects



CMM Projects in the United States

- In 2020, CMM projects avoided 15.4 MMTCO₂e in methane emissions from active mines.
- In 2020, AMM projects avoided 2.6 MMTCO₂e in methane emissions at abandoned mines.



| Mine Type | Number of Mines with Projects | Number of Projects | Use in Pipeline | Use in Electric Generation | Use in Heaters | Use in Boiler/Dryer | Flare | VAM |
|-----------------------|-------------------------------|--------------------|-----------------|----------------------------|----------------|---------------------|-------|-----|
| Active underground | 15 | 23 | 13 | 0 | 1 | 1 | 7 | 1 |
| Abandoned underground | 60 | 32 | 12 | 1 | 0 | 0 | 19 | 0 |

Source: U.S. EPA, 2021.

Policies Supporting Mitigation of Methane from Coal Mining

- Policies that support mitigation of methane from coal mines at state levels:
 - In some states, CMM is included in renewable/alternative energy portfolio standards (CO, IN, OH, PA, UT).
 - Incentives in some states include relief from royalty fees (CO, UT, WY).
 - Carbon markets help improve cash flow projects: California's Air Resources Board, Climate Action Reserve, American Carbon Registry, Verra.
- Federal-level strategic plan for action on methane:
 - 2021 U.S. Methane Emissions Reduction Action Plan focuses on opportunities to reduce methane from abandoned underground coal mines.

