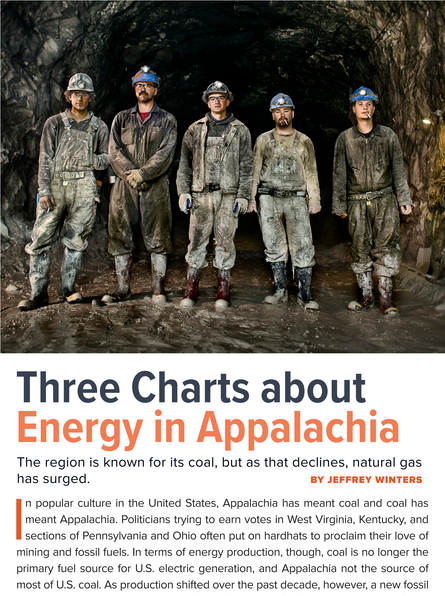


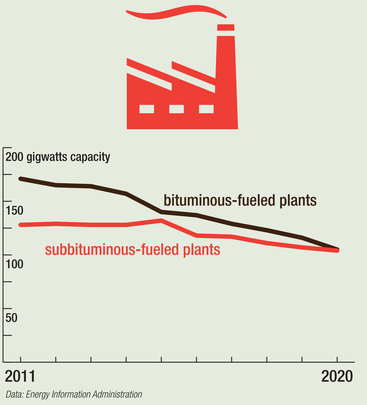
# Three Charts about Energy in Appalachia

The region is known for its coal, but as that declines, natural gas has surged.

BY JEFFREY WINTERS

In popular culture in the United States, Appalachia has meant coal and coal has meant Appalachia. Politicians trying to earn votes in West Virginia, Kentucky, and sections of Pennsylvania and Ohio often put on hardhats to proclaim their love of mining and fossil fuels. In terms of energy production, though, coal is no longer the primary fuel source for U.S. electric generation, and Appalachia not the source of most of U.S. coal. As production shifted over the past decade, however, a new fossil fuel has risen up in former coal country: Natural gas extracted from shale formations.

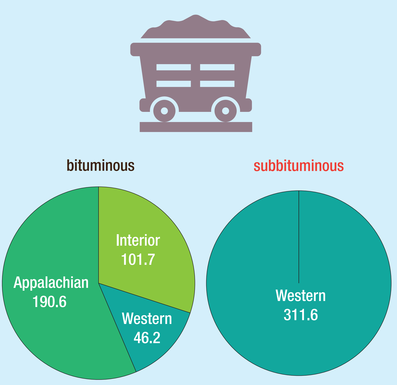
## U.S. COAL-FIRED GENERATING CAPACITY BITUMINOUS VERSUS SUBBITUMINOUS




*Data: Energy Information Administration*

The decline of coal power for electric generation has been ongoing for the past decade and more, driven by cheap and relatively clean natural gas and by a building spree for wind turbines. Less noted has been way that decline in coal has been distributed. Virtually all the coal used to power electric generation is ranked as either bituminous or subbituminous. Because large subbituminous coal deposits lie close to the surface and can be mined from open pits, it is cheaper to extract than bituminous coal. Subbituminous coal also has less sulfur than bituminous coal, meaning that plants that burn it require less extensive pollution controls. According to data from the Energy Information Administration, the electricity generating capacity by burning bituminous coal fell from 171 GW to 105 GW between 2011 and 2020, while subbituminous capacity held up better, falling from 128 GW to 104 GW over the same time.

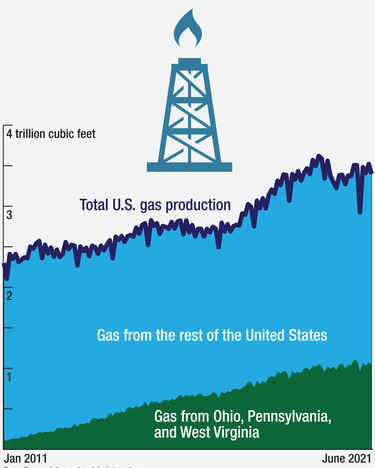
## COAL PRODUCTION BY COAL RANK AND REGION, 2019 (MILLION SHORT TONS)




*Data: Energy Information Administration*

Bituminous coal deposits are widely distributed; there are mines extracting it in Arizona, New Mexico, Indiana, and Alabama. The largest portion of bituminous coal production is in Appalachia, however, with nearly 500 mines digging out 190 million short tons of it in 2019. Subbituminous coal, on the other hand, is concentrated in the western U.S., and the vast majority of it is mined in the Powder River Basin of Wyoming. With bituminous coal taking a hit as coal power declines, the effects have been felt disproportionately in Appalachia, especially West Virginia, Pennsylvania, and Kentucky.

## NATURAL GAS PRODUCTION (GROSS WITHDRAWALS)




*Data: Energy Information Administration*

While the bituminous coal mined in Appalachia has fallen into disfavor, another energy source has been developed in the region. Natural gas pulled from shale deposits underlying Ohio, Pennsylvania, and West Virginia were a small part of U.S. gas production in 2011, but over the subsequent decade it grew to encompass nearly one-third of the industry. The gas gushing from these wells (and from those in Texas) helped drive down the price of gas, prompting utilities to close bituminous-fired power plants and build combined-cycle gas turbine plants as replacements. Unfortunately, while that gas production helped reduce U.S. carbon emissions, it did little to replace the coal mining jobs lost because of the switch. According to a February 2021 report in the Pittsburgh Post-Gazette, "Jobs in the 22 counties at the heart of the shale boom grew by just 1.7%, compared to 10% nationally and nearly 4% in the three states."