COAL IN AMERICA 2020: BY THE NUMBERS

Since 2007, U.S. power producers have aggressively turned away from coal, leading to a sharp contraction in the industry

- According to the Department of Energy, "nearly all" of U.S. coal consumption occurs at coal fired power plants (EIA 2019). In 2007, U.S. coal **production** and **consumption** reached their historical peaks and have declined precipitously every year since. U.S. coal consumption in 2019 was 51% below the 2007 peak (EIA 2019), and the lowest since 1977 (EIA 2018).
- According to the Consensus Revenue Estimating Group, Wyoming coal production has tracked this falloff. **Output from Wyoming coal mines peaked in 2008 at 466 million tons and declined by 42% to an estimated 270 million tons in 2019** (CREG 2019). Wyoming production is expected to decline further, to **240 million tons by 2024** (CREG 2019), roughly half of the 2008 peak.
- Since 2010, U.S. coal-fired power **generation** has declined from 46% to 24% of total generation. By 2021 coal's share is projected to drop to just over 20% (EIA 2020). *(See Figure 1, reverse)*
- Since early 2015, about 54 gigawatts (GW) of U.S. coal-fired capacity has been retired, and virtually no new coal capacity has come online. In 2019 and 2020, EIA estimates the retirement of an additional 18.5 GW, about 8% of the total remaining coal-fired capacity. (EIA 2020).
- As U.S. coal demand has declined, the number of active coal mines has decreased by more than half, from 1,435 mines in 2008 to 666 mines in 2018 (EIA 2019). As the U.S. market contracted, smaller, less efficient mines were the first to close, primarily in Appalachia. Although underground mines had a larger percentage of closures from 2008 to 2017 (60% vs. 49% of surface mines), surface mines have seen larger declines in production, falling 39% (vs. 24% for underground mines) (EIA 2019).

The collapse of demand for coal will continue as U.S. electric power producers turn to natural gas and renewables, in response to clear market signals

- **In 2019 natural gas-fired generating plants surpassed coal-fired plants in the U.S. by over 500 billion kilowatt-hours** (EIA 2020). Generating capacity at natural gas combined cycle (NGCC) and combustion turbine (CT) power plants in the U.S. totaled 528 GW, more than double that of coal-fired power plants (Public Power 2019). According to the Department of Energy, new NGCC plants will continue to come online as coal plant retirements continue, positioning gas-powered electricity generation as the most prevalent power source in the U.S. for the foreseeable future (DOE Annual Energy Outlook 2019).
- **Analysts expect natural gas prices to stay low, at or around $2MMBtu, reducing coal demand and production.** Wood Mackenzie projects that for every penny that natural gas prices fluctuate, about 750,000 tons of Powder River Basin coal demand is affected positively or negatively (S&P Global 2020).
- **U.S. monthly electricity generation from renewable sources exceeded coal-fired generation for the first time ever in April 2019**, reflecting seasonal factors, long-term increases in renewable generation, and continued decreases in coal generation. **Renewable sources provided 23% of total electricity generation to coal's 20%** (DOE 2019). *(Figure 2)*
- In 2020, planned U.S. electric generating capacity additions favor renewable energy. This trend is driven by rapidly declining solar and wind energy costs, and renewable energy standards enacted by most of the states. Expected new installations of both solar (13.48 GW) and wind (18.46 GW) generation capacity exceed planned natural gas additions (9.31 GW) (EIA 2020). *(Figure 3)*
- According to a July 10, 2019 Moody's Investors Service report, demand for U.S. thermal coal will "erode significantly" between 2020 and 2030 **as total coal use for U.S. power generation falls from its current mid-20% contribution to as little as 11%,** based on scheduled and likely retirements of coal-fired power plants (S&P Global 2019). **Eleven coal companies have filed for bankruptcy protection since 2017** (Newsweek 2019).

FIGURE 1: U.S. Electricity Generation Capacity, by Energy Source (2010-2021)

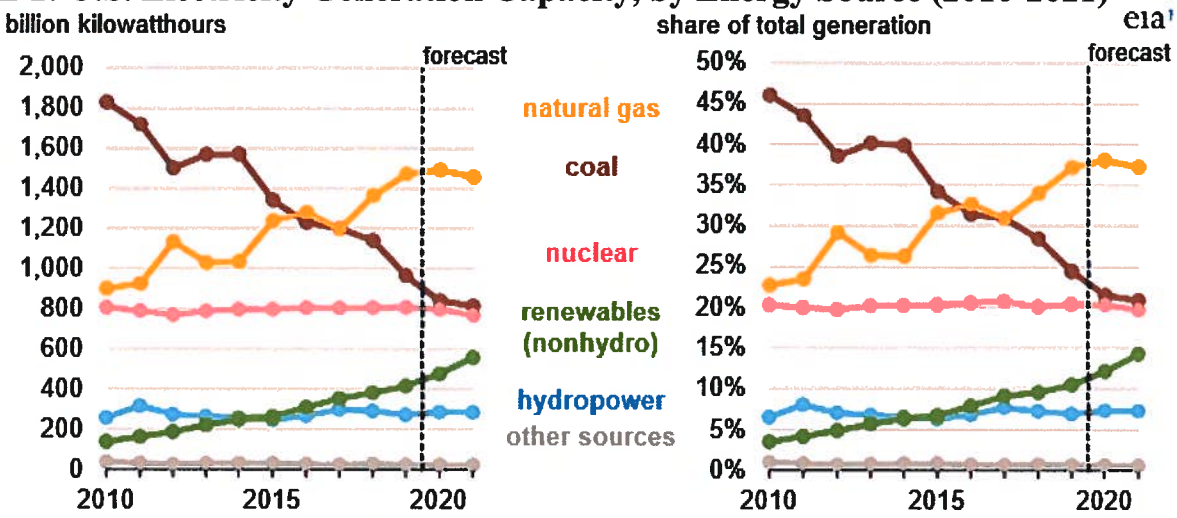

FIGURE 2: U.S. Electricity Generation, Coal vs. Renewables (including hydro)

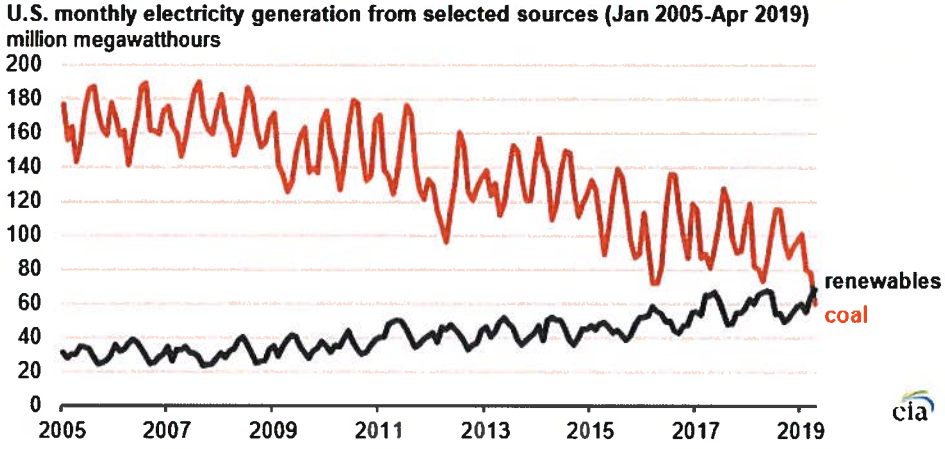

FIGURE 3: Planned U.S Electric Generating Capacity Additions (2020)