

RAILROAD WEEK IN REVIEW

May 24, 2024

“In the U.S., overall electricity demand increased approximately 4% year-over-year. While U.S. coal inventories declined in January, these levels have reversed and increased through March 31, 2024, resulting in stockpiles slightly above levels seen at the end of 2023. During the three months ended March 31, 2024, utility consumption of PRB coal increased approximately 6% compared to the prior year period.” — Peabody Energy Corp. Form 10-Q, March 31, 2024

“Environmental advocates face tough choices required to decarbonize economies. Nuclear power has the potential to provide high-impact change that can significantly move the needle. Given that nuclear power can provide an appealing solution, sentiment has turned much more positive in recent years. While there are still holdouts, the political tone toward nuclear power is on the upswing.” — Sprott Asset Management Nuclear White Paper

“The computational power required for sustaining AI's rise is doubling roughly every 100 days. To achieve a tenfold improvement in AI model efficiency, the computational power demand could surge by up to 10,000 times. The energy required to run AI tasks is already accelerating with an annual growth rate between 26% and 36%.” — World Economic Forum, [weforum.org](https://www.weforum.org)

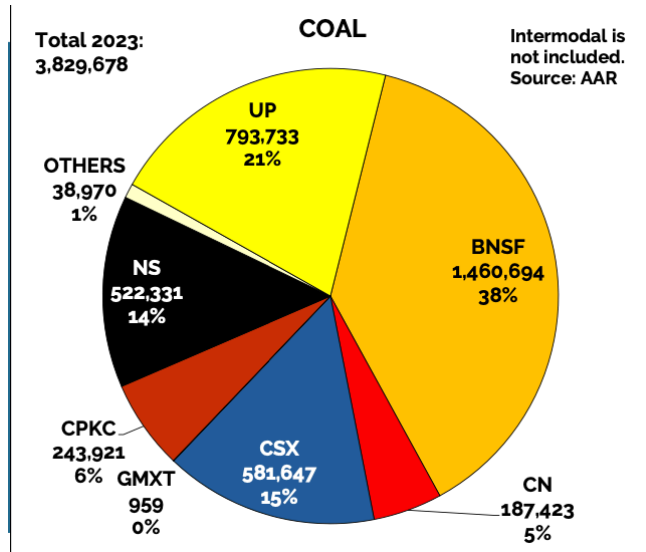
“Coal volume increases were driven by strong production and inventory replenishment in the automotive industry, increased demand for coal due to higher natural gas prices... weather conditions, and demand for other energy sources may impact the coal market.” — Union Pacific Form 10-K, 12/31/2022

The demand for reliable electric power is growing exponentially so dire predictions for the death of railroad coal tonnage may be premature. It's certainly a good business, though perhaps not as good as it once was. The AAR tells us, “Most coal in the U.S. is consumed at power plants, and approximately 70% of that coal is delivered by rail.

“In recent years, coal's share of U.S. electricity generation has fallen sharply, in part due to U.S. natural gas production (thanks to fracking and horizontal drilling) that has led to lower natural gas prices, making electricity generated from natural gas much more competitive. This has led to sharp declines in carloads of coal. In 2023, coal accounted for 29.2% of U.S. carloads, down from a peak of 48.3% in 2009. The peak year for carloads of coal was 2008.”

But all that was written before the reality of Artificial Intelligence happened upon us. Its huge demand for electricity is going to put tremendous pressure on the existing grid and — as the recent Texas winter proved — renewables couldn't handle the load and there was insufficient base power to fill in the gaps.

As demand outruns supply, prices go up, and we're seeing that now. This year, Henry Hub Natural Gas options are trading 237K contracts daily, up 101% year-over-year, with Q1 on-screen volume accounting for 64% of total daily volume, the highest since 2018. As you can see from the July futures chart below, increased demand pushes up prices and we're approaching the \$3.00 break-even price between coal and nat gas.



To be sure, UP's Kenny Rocker warned in his 4Q2023 analyst call remarks that "Coal will be challenged from low natural gas prices and weather." But it could well be that a hot summer is the weather event causing a greater reliance on baseline power than solar, wind, and water can provide.

The 2023 electric utility annual reports say nothing about AI and continue to push the shift from coal to nat gas. Says the Atlanta-based Southern Co: "Back in 2000, almost 80% of the electricity Southern sold was generated using coal. That share is now below 20% and falling. The company is aiming to retire all but eight coal plants by 2028 and reach net-zero carbon emissions from power generation by 2050. Nuclear, natural gas, and renewable energy are all increasing their share of generation."

The interest in small and medium nuclear power reactors is driven both by a desire to reduce the impact of capital costs and to provide power away from large grid systems. The International Atomic Energy Agency (IAEA) defines 'small' as under 300 MWe (million megawatts electric) and up to about 700 MWe as 'medium' – including many operational units from the 20th century. Together they have been referred to by the IAEA as small and medium reactors (SMRs). However, 'SMR' is used more commonly as an acronym for 'small modular reactor', designed for serial construction and collectively to comprise a large nuclear power plant.

SMRs can readily slot into brownfield sites in place of decommissioned coal-fired plants, the power outputs of which are seldom very large – more than 90% are under 500 MWe, and some are under 50 MWe. In the US, coal-fired units retired over 2010-12 averaged 97 MWe, and those expected to retire over 2015-25 average 145 MWe.

And this just in regarding the interest in and strength of companies in AI leadership positions: "Nvidia is riding high on its nine percent share price increase after another quarter of blockbuster sales and earnings..."[WSJ May 23]. Takes lots of electricity to run those puppies. And that means ample base power. So until those SMRs are up and running, it doesn't look like the PRB will be shutting down.

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