

Innovation: The Key to Immediate, Achievable Emissions Reductions

STUDY FINDS POTENTIAL FOR HIGH EFFICIENCY, LOW EMISSIONS (HELE) TECHNOLOGIES IN THE U.S.

A January 2019 study conducted by Wood Mackenzie found that Japan, Western Europe and China are currently leading the world in the use of HELE technologies that reduce emissions, highlighting the significant opportunity for deployment in the U.S. Improving the average efficiency rate of coal-fired power plants from 33 to 40 percent by using these affordable, commercially-proven technologies could cut U.S. coal-plant emissions by up to 21 percent. Voters support such a change.



- 67 percent of voters support an all-of-the-above energy strategy that includes coal, and believe that the U.S. should prioritize investments in HELE coal plants
- 81 percent of voters believe it is important to maintain America's diverse energy mix – including coal – to preserve the affordability and reliability of the grid in the U.S.

Benchmarking the Fleet. Global coal-fired power capacity has increased 62 percent since 2000, driven by the deployment of HELE technology. Global HELE penetration has increased from 30 percent in 2010 to 43 percent today, and it is projected to continue to rise. However, deployment of HELE technology in the U.S. is lagging, stymied by cheap natural gas and capital costs higher than those seen in Europe and Asia.

The Need for Balance. Increased deployment of advanced coal plants in the U.S. will be essential to preserve the dispatchable fuel diversity that has long been a strength of the U.S. electricity system. Over-reliance on natural gas, dependent on just-in-time fuel delivery, poses a threat to reliability and affordability. Through diversification, price increases or supply disruptions in any one fuel can be offset by another. An IHS Markit study from 2017 found that eroding diversity in U.S. power grid will result in greater price fluctuations, higher power bills and compromise the reliability of electricity supply.

Overlooked Benefits. Along with strengthening the fuel security, reliability and resiliency of the grid, HELE plants

also offer key benefits not currently reflected in conventional power plant economics. Chiefly, they don't require significant infrastructure upgrades or additions, nor do they require backstop generation or energy storage. They can enhance the health of the grid while competing sources of generation weaken it.

Emissions Reduction Potential. HELE technologies exist today that could considerably reduce emissions. A one percentage point improvement in the efficiency of a standard coal plant, results in a 2-3 percent reduction in CO₂ emissions. Using that calculation, improving the average efficiency rate of coal-fired power plants from 33 percent to 40 percent could cut U.S. coal-plant emissions by up to 21 percent.

What's Next? While the report recognizes the obstacles that face coal plants in the U.S., it highlights opportunities for HELE, including the instability of natural gas prices and limitations on the penetration of renewables. The report also notes steps the government could take to encourage the development of high efficiency, low emissions technologies in the U.S., including leveling the playing field and financing support. Access the report at <https://bit.ly/2WMMu6cY>