Cheap US gas is killing nuclear; green power may fi nish the job

The natural gas boom is killing America’s nuclear industry. Wind and solar may finish the job.

While nuclear plants struggle to compete with the flood of cheap gas coming from the nation’s shale fields, they still offer a key advantage, supporters say: They generate 24-hour electricity without producing carbon emissions. Renewables, meanwhile, haven’t yet nailed down the storage capacity needed to do that. Proponents insist it’s only a matter of time.

Battery prices have plunged 85% from 2010 through 2018, and huge storage plants are planned in California and Arizona. Meanwhile, science is advancing on new technology — including chemical alternatives to lithium-ion systems — with the potential to supply power for 100 hours straight, sun or

no sun.

All signs point to the acceleration of renewable energy that can out-compete nuclear and fossil fuels," said Jodie Van Horn, director of the Sierra Club's Ready for 100 campaign, a group seeking a grid powered solely by renewables.

The drive for grids that are 100% emissions-free is being pushed by a growing number of U.S. states citing increasingly aggressive time frames. In July, New York mandated that 70% of the state's power come from renewables by 2030, and 100% by 2040. Seven other states, including California, have similar mandates, and Virginia's governor earlier this month announced an executive order calling for 100% clean energy there by 2050.

Still, there remains a gap between now and 2050. "To get to 80%-to-85%, you can see a path to get there with today's technologies," said Yayoi Sekine, an analyst with BloombergNEF. But using renewables to achieve the final 15%, "that's where the challenge really is."

By 2050, BNEF expects renewables to account for 48% of the U.S. power system, paired with multiple types of supplemental, peaking plants that can supply electricity when needed.

Today, these plants typically burn cheap gas, supplied by a muscled-up U.S. shale industry. By 2035, though, so-called battery peakers – large arrays that store energy when renewables are working at their peak, and send power when they're not – will be more cost-competitive, according to BNEF forecasts. Meanwhile, over the same period, nuclear will wane, as high costs force most reactors to just shut down.

The U.S. isn't the only place where the nuclear industry is struggling. Some nations that rely heavily on the technology, including France and Sweden, are reducing nuclear's load as old reactors retire, and diversifying into cheaper solar and wind power.

Still, the industry has the potential to grow in countries where costs can be reduced through shorter construction times. Engineers in China have been able to build and connect nuclear plants in less than seven years, on average, while their counterparts in the U.S. and Europe need a decade or more.