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Home » Energy » Future Sodium Ion Batteries Could Be Ten Times Cheaper for Energy Storage

CATL of China is mass producing generation 1 sodium ion batteries starting next month. The first factory has about a 40 GWH per year capacity.

China has 16 out of 20 globally planned or built sodium battery factories according to Benchmark Minerals.

CATL’s first-generation sodium battery generates 160-watt-hours per kilogram. This is 10% less energy than iron LFP batteries and 40% less than mass produced nickel batteries. CATL plans to increase the energy density of next generation sodium ion to 200 Wh/kg. CATL’s sodium-ion batteries will be used by China’s Chery, the first automaker to use the technology.

The first generation sodium ion are a bit cheaper than LFP but the volumes will not be worldchanging. However, the second generation sodium ion could reach $40 per kWh. Iron LFP batteries could get to $50/kWh with really high volume and efficiency at the cell level. The future low price of sodium ion would make for insanely cheap fixed storage products like the Tesla Megapack and Powerwalls.

They also do not have practical material limits. There is no shortage of salt or soda ash. The United States has about 90% of the world’s readily mined reserves of soda ash. Wyoming has 47 billion tons of mineable soda ash in the Green River basin. There would be hundreds of TWH of power storage from each billion tons of soda ash.

Soda Ash Mine in Wyoming

A new mine project near Green River will tap into the world"s largest soda ash deposit and satisfy the growing demand for electric vehicles and solar panels.

The Wyoming mine, which the company is calling Project West, has the potential to produce 3 million tons to start and is scalable, so the company can increase production later. To facilitate soda ash exports, the company received a permit to export 14 million tons from a Stockton, California, port terminal. The mining will be done with an in-situ process to extract soda ash from trona ore. The ore is then processed into soda ash.

Water is injected as a brine or salt and water solution. It is then circulated throughout the mine workings to dissolve soda ash and salt from the original pillars and walls. The brine is pumped to an evaporation pond.

Submersible pumps are used, each pumping about 9,000 liters per minute. As the liquid cools, the soda ash and salt crystals settle to the bottom of the pond. The cool brine is then heated and reinjected into the mine to start dissolving soda ash again. The remaining soda ash in the ponds is removed with floating dredges and pumped to the mill.

Brian Wang is a Futurist Thought Leader and a popular Science blogger with 1 million readers per month. His blog Nextbigfuture is ranked #1 Science News Blog. It covers many disruptive technology and trends including Space, Robotics, Artificial Intelligence, Medicine, Anti-aging Biotechnology, and Nanotechnology.

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