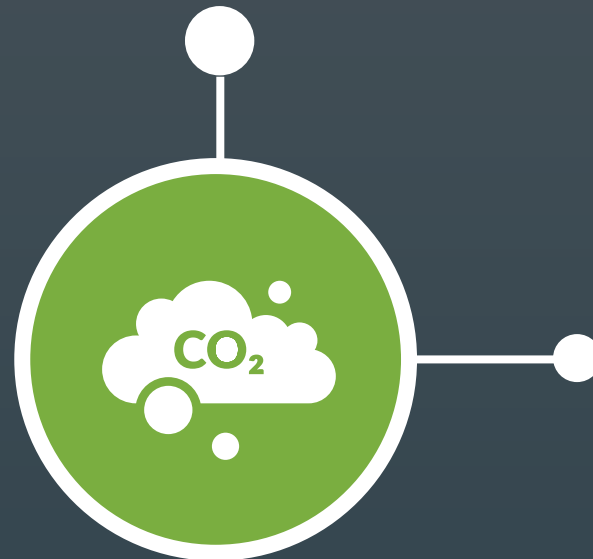


VRFB DEPLOYMENT EXPECTED TO GROW 22-FOLD BY 2031

According to Guidehouse Insights, the vanadium redox flow battery (VRFB) market is poised for 22-fold growth in the coming years, as demand for long-duration energy storage capabilities increases.



Long-duration energy storage provides **zero-carbon electricity** to the grid during times of insufficient renewable output and can be used to save excess renewable energy.



According to Vanitec calculations, the **Guidehouse Insights' projections** of VRFB deployment would equate to between **127,500 and 173,800 tons** of new vanadium demand by **2031**. That would be more than twice as much vanadium as is currently produced annually today.



Global annual **VRFB** project deployment revenue is projected to grow from **\$856.4 million** in **2022** to **\$7.76 billion by 2031**, with Asia Pacific accounting for **\$3.26 billion** of the revenue alone by 2031.



In a Eurometaux report on metals required for clean energy, **VRFBs** are one of the alternative **energy storage technologies** that may reach market penetration rates of **20%**. This point towards significant vanadium demand increases equivalent to **+110%** of current demand, echoing Guidehouse Insights' demand forecast.



Several important installations have demonstrated the performance and effectiveness of VRFBs. In **Japan**, **Sumitomo Electric installed a 15 MW/60 MWh** VRFB demonstration project in 2015, showing a 75 MWh discharge capacity. Currently, the company is installing a large VRFB system that will provide **51 MWh of energy** capacity between **2022 to 2043**.

