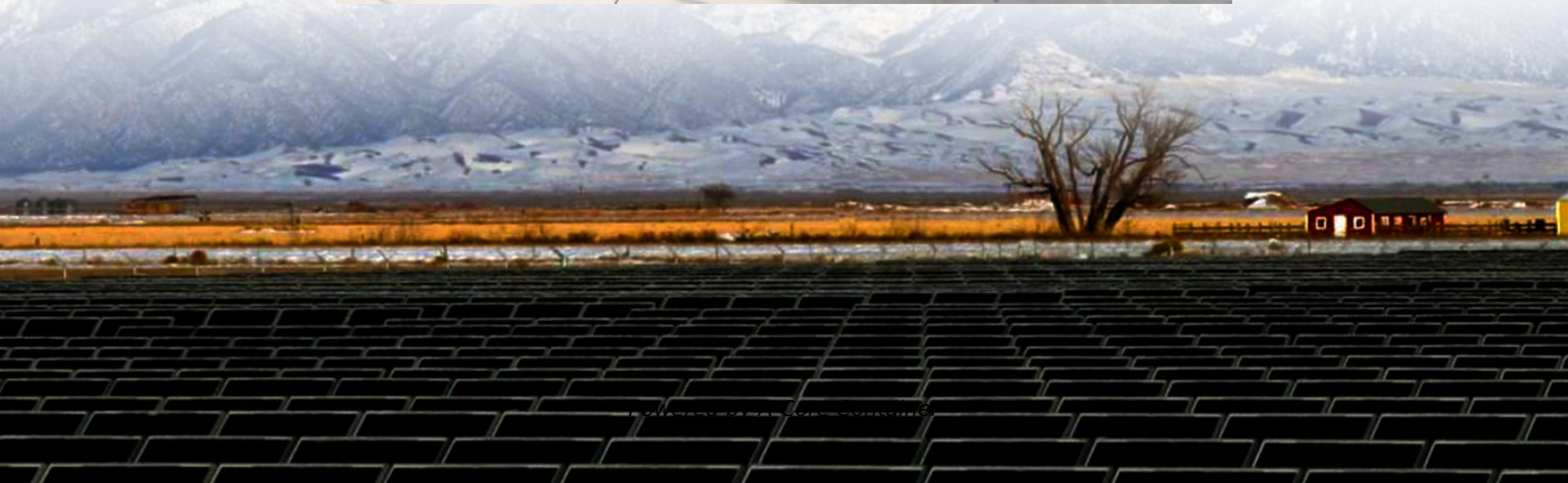


## A-Core Container

# Uzbekistan on the cost of flow batteries for communication base stations



## Overview

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What is the capital cost of flow battery?

The capital cost of flow battery includes the cost components of cell stacks (electrodes, membranes, gaskets and bolts), electrolytes (active materials, salts, solvents, bromine sequestration agents), balance of plant (BOP) (tanks, pumps, heat exchangers, condensers and rebalance cells) and power conversion system (PCS).

Why are flow batteries rated based on stack size?

Since other batteries have a fixed energy to power ( $E / P$ ) ratio, the architecture of flow batteries enables energy and power to be decoupled, which can be adjusted with the amount of the electrolytes and the sizes of the total electrode areas, hence the power rating is based on the stack size or number.

What is a redox flow battery (RFB)?

Redox flow battery (RFB) is a promising technology to store large amounts of energies in liquid electrolytes attributable to their unique architectures.

Are aqueous flow batteries still competitive?

It can be seen that competitive systems are still realistic from the current status of aqueous flow batteries, while their non-aqueous counterparts remain challenging unless tremendous improvements (e.g. higher current density, wider voltage window) have been made on several aspects.

How much do all-V and Zn-Br systems cost?

The capital costs of all-V and Zn-Br systems were estimated to be USD\$ 170 — 580 (kW h)<sup>-1</sup> and comparable with previous reports (USD\$ 350 — 600 (kW h)<sup>-1</sup> at  $E / P = 4$ ) [40, 41], which are still higher than the DoE cost target (USD\$ < 100 (kW h)<sup>-1</sup>).

What is the global demand for batteries?

The global demand of batteries is expected to grow 25 % annually from 185 GW h in 2020 to over 2,000 GW h by 2030 . For the United States and China, the demands of using batteries for energy storage and electrification of transport will increase by more than 100 and 10 times, respectively.

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