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1 Shelf with flow battery stacks at the research flow battery in the Application Center Redox Flow (picture courtesy of J. Schmalz GmbH).
2 Application Center Redox Flow with 2 MW wind turbine.
3 Tank area of the research flow battery at Fraunhofer ICT.

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APPLICATION CENTER REDOX FLOW

The Application Center Redox Flow at the Fraunhofer Institute for Chemical Technology ICT provides the infrastructure for testing battery components at a larger scale and in a micro-grid environment. The integrated research battery, which is based on a vanadium RFB, is connected to a 2 MW wind turbine, which provides a fluctuating energy source for realistic battery operation.

The Application Center Redox Flow makes a unique test environment available for the large-scale testing of battery components. Tests on cell components, battery management systems and energy management control systems can be performed in a real environment with fluctuating renewable power sources. These power sources are the already installed 2MW wind turbine as well as photovoltaics and a 400 kW combined heat and power unit. These sources are integrated into the institute's 20 kV ring grid. This infrastructure offers the advantage of developing and testing large-scale solutions in an authentic micro grid environment.

The Application Center Redox Flow also includes chemistry labs, a stack building workshop, a mechanical/ electronics workshop, stack testing facilities and a special facility for battery disassembly and post mortem analyses of stacks and battery components.

Our services

- Testing and qualification of batteries and battery components such as battery stacks, valves, sensors, safety equipment and electrolyte formulations in a large-scale plant. The stacks can be connected to AC or DC and can be tested with original wind profiles.
- Development platforms for battery as well as energy management software in a safe but authentic large-scale environment.
- Post mortem analysis of battery stacks and battery components in a safe environment.
- Overpressure testing of battery stacks/ testing stacks at high fluidic pressure.

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