

An Ultra-Stable Reference Electrode as In-Situ System Diagnostics Tool for Redox Flow Batteries (Abstract)

CRADA #634 (PNNL #81802)

February 2024

Qian Huang

Stryten Critical E-Storage, LLC (Stryten
Energy LLC)

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor Battelle Memorial Institute, nor any of their employees, **makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.** Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof, or Battelle Memorial Institute. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

PACIFIC NORTHWEST NATIONAL LABORATORY
operated by
BATTELLE
for the
UNITED STATES DEPARTMENT OF ENERGY
under Contract DE-AC05-76RL01830

Printed in the United States of America

Available to DOE and DOE contractors from
the Office of Scientific and Technical
Information,
P.O. Box 62, Oak Ridge, TN 37831-0062
www.osti.gov
ph: (865) 576-8401
fox: (865) 576-5728
email: reports@osti.gov

Available to the public from the National Technical Information Service
5301 Shawnee Rd., Alexandria, VA 22312
ph: (800) 553-NTIS (6847)
or (703) 605-6000
email: info@ntis.gov
Online ordering: <http://www.ntis.gov>

An Ultra-Stable Reference Electrode as In-Situ System Diagnostics Tool for Redox Flow Batteries (Abstract)

CRADA #634 (PNNL #81802)

Abstract

February 2024

Qian Huang

Prepared for
the U.S. Department of Energy
under Contract DE-AC05-76RL01830

Pacific Northwest National Laboratory
Richland, Washington 99354

Abstract

The objective of the proposed project is to develop and demonstrate an ultra-stable reference electrode (RE) technology as an in-situ system diagnostics tool integrated in kW scaled commercial vanadium redox flow battery (VRFB) stacks for long-duration energy storage (LDES) applications and to advance its commercialization, with expected cell reliability enhancement in stack life increase of 6-10 % and levelized cost of storage (LCOS) reduction of 5-8 %. In this project, PNNL will partner with Stryten Energy LLC, with a total budget of \$250K and 50% cost share for one year.

Pacific Northwest National Laboratory

902 Battelle Boulevard
P.O. Box 999
Richland, WA 99354
1-888-375-PNNL (7665)

www.pnnl.gov