

U.S. Department of Energy Competitiveness Improvement Project (CIP)

2022 Small Turbine Certification Awardee: NPS Solutions

Project dates: April 24, 2023–Jan. 23, 2025

Project Overview

Certification To Bring Turbine Inverter Into Compliance for Grid Interconnection

Inverters convert the direct current power generated by wind turbines into the alternating current needed to serve local loads and feed onto the electricity grid. Although distributed wind systems typically supply electricity for homes and businesses near the turbines, these systems can also provide clean power to strengthen grid resilience. Certification to UL 1741 SA ensures that inverters will enable distributed wind turbines to provide grid support services and stay online when the grid experiences stability issues.

Small companies often find the electrical listing process too complex and expensive to undertake on their own, so few distributed wind turbine inverters are certified to this standard. A U.S. Department of Energy (DOE) Competitiveness Improvement Project (CIP) award is helping [NPS Solutions \(NPS\)](#) secure this critical certification for the inverter in its 100-kilowatt NPS 100C wind turbine, which is optimized for on-site generation at farms, businesses, schools, hospitals, and remote locations.

Project Outcomes and Deliverable

By the end of this project, NPS will complete UL 1741 SA certification/listing of its NPS 100C turbine inverter. UL certification is a critical first step in deploying NPS' distributed wind technology at a commercial scale. The UL listing will also position NPS to pursue further certifications as electrical standards continue to evolve.

“Certification and testing costs are often prohibitive for manufacturers our size. The technical and financial support available through DOE’s Competitiveness Improvement Project is vital for smaller distributed wind manufacturers, like us, to ensure the safety, quality, and performance of our products.”

Chris Connor, principal engineer, NPS

Project Approach

NPS will engage with a nationally recognized testing laboratory to conduct the 100C turbine inverter UL testing and certification. In addition, NPS may also seek technical assistance from the National Renewable Energy Laboratory (NREL) or another DOE national laboratory to help automate the required inverter testing through development of new software programs.

“Inverter listing for the NPS 100C turbine is a huge step toward bringing this turbine back to the U.S. market.”

Brent Summerville, technical monitor, NREL





Project Collaborator

Current project partners include:

- [RE Innovations](#)—certification consultant.

Project Financial Information

Award Amount: \$188,240

Awardee Share: \$47,060

Total: \$235,300

Small Turbine Certification

One of nine types of CIP awards, Small Turbine Certification projects apply to turbines up to 150-kilowatt peak power that are seeking certification to ANSI/ACP 101-1-2021, *The Small Wind Turbine Standard*. The effort may also include work to list the turbine assembly or component(s) to applicable electrical safety standards.

More Information

Visit NREL's website at www.nrel.gov/wind/competitiveness-improvement-project.html

NPS Solutions SUB-2023-10281

A CIP award is helping NPS Solutions certify the inverter in its 100-kilowatt 100C wind turbine. *Photo from Chris Connor, NPS Solutions LLC*