

DWEA 2026

*Opening New Doors for NPS100C with
Electrical Certification to UL 1741 SB*



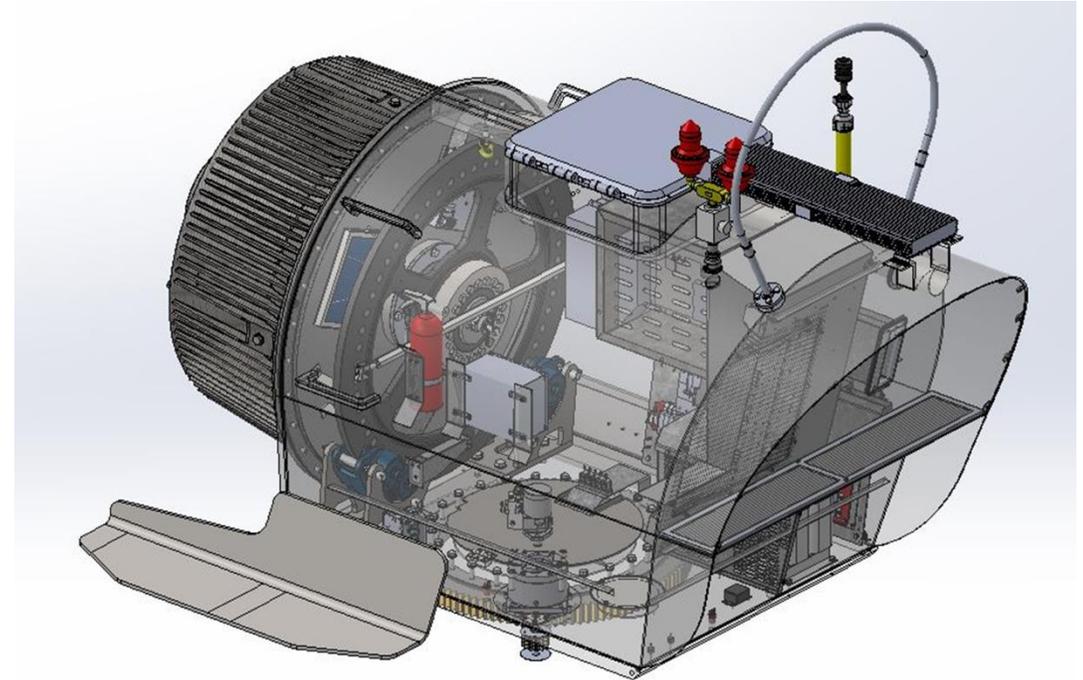
Northern
POWER SYSTEMS

1266 East Main St. Suite 455
Stamford, CT 06902
USA

Chris Connor
cconnor@nps100.com

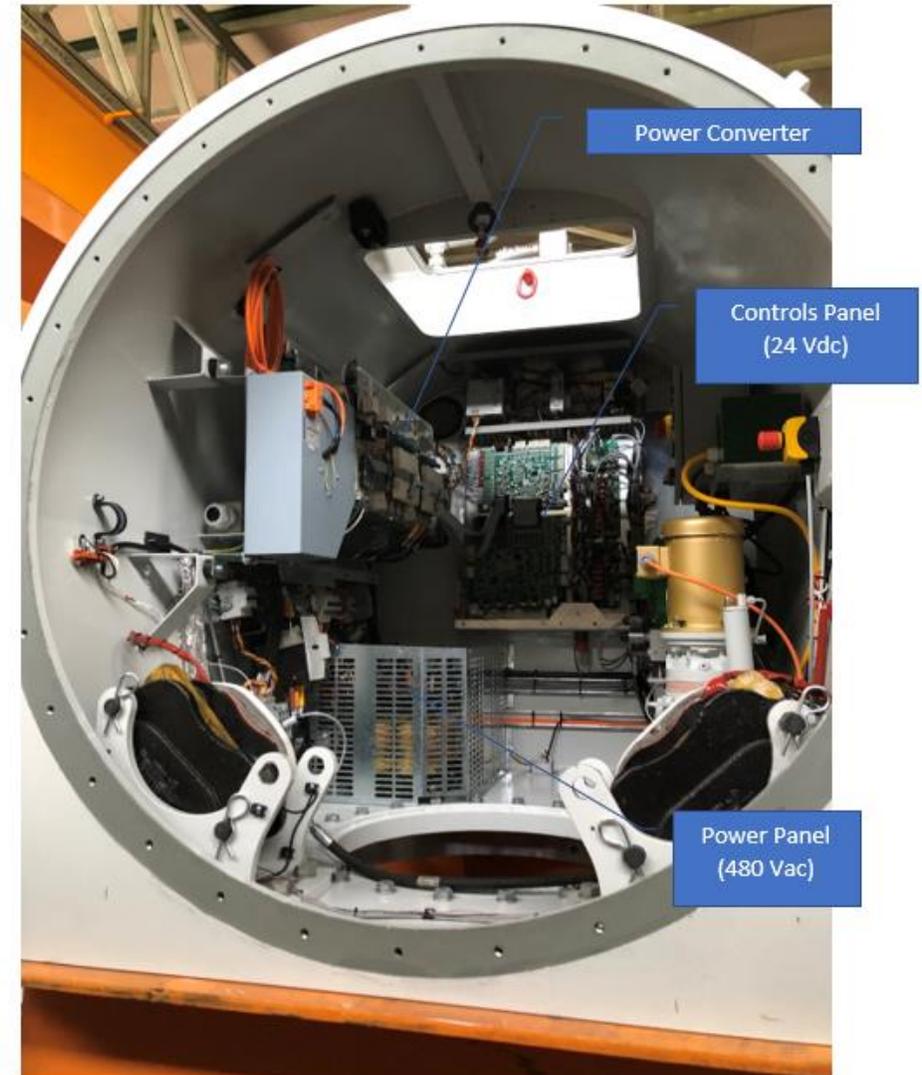
UL 1741 Supplement B (UL 1741 SB)

- Previous generation of the NPS100 wind turbine (the NPS100B) was certified to “original” UL 1741 1st Edition, but much more testing is required now!
- “Grid Support Utility-Interactive Inverter”
 - Mandates several features/capabilities to actively support the grid during disturbances, rather than “just” riding through or disconnecting
 - Mandates real-time communication interface with utility / grid operator, so that performance can be changed remotely, and grid support can be called on if needed...each DER is a mini power plant!
 - Communication interface is also used to (largely) automate the testing
- Huge Thanks to...
 - NLR (NREL) CIP Program
 - DER Security
 - Sandia



NPS 100C Power Converter – Overview

- NPS 100C Power Converter is integrated within the NPS 100C-XX wind turbine (all rotor sizes/configurations). It consists of:
 - Power Converter (in nacelle)
 - Grid Interface Cabinets (in tower base)
 - Isolation Transformer (in tower base)
- Power Converter Ratings
 - 480V (at inverter), 50/60 Hz
 - 100 kW / 110 kVA
 - Grid voltages
 - 480V (UL 1741 SB)
 - 380V (Korea)
 - 400V (Europe)
 - 600V (North America)
 - Utility communications interface: SunSpec Modbus TCP
- For electrical certification testing, the same hardware components are re-packaged into a more compact arrangement



Testing Overview

- 2023: Project start (NREL CIP 2022)
- 2024: Hardware review and safety testing to UL 1741
- 2025: Extensive testing to UL 1741 SB / IEEE 1547.1:
 - Several rounds of software improvements...several rounds of testing required to test and pass all aspects!
 - Much of the testing was automated, but not all...substantial time and effort to run and post-process all tests
- 2026: Certification completed



Opportunities / What's Next?



- UL 1741 SB required for most utilities / jurisdictions in the US. Pursue new installations and re-powering opportunities
- New/improved grid support capabilities (and new “standard” SunSpec interface) also helpful (if not critical) for remote and microgrid installations / integrations.
- New software and capabilities extend to national grid codes for other markets:
 - Italy (CEI 0-21)
 - Germany (VDE-AR-N-4105)
 - Belgium (Synergrid)
 - UK (G99)



Thank you

For additional information please visit our
website: nps100.com

cconnor@nps100.com
info@nps100.com