

Repowering Distributed Wind Turbines

Upgrading aged NPS / PGP turbines across North America

PowerGrid Partners • Shop-led refurbishment + modernization

Presenter: _____ Date: _____

When a turbine is “good but aged,” repowering targets the highest-wear subsystems to restore performance and reliability.



Repowering focuses on targeted high-value work — not a full greenfield rebuild.

Reduce unplanned downtime

Replace aging electrical components and address common failure points before they become outages.

Extend asset life

Refurbishment and upgrades can keep distributed assets productive while deferring full replacement.

Improve maintainability

Cleaned generators, refreshed blades, and updated contactors help bring maintenance back to a predictable cycle.



Northern Power Turbine Examples



Primary focus: Northern Power (NPS) distributed turbines

Common repower candidates:

- NPS 100C / NorthWind 100 class turbines
- Assets with solid structures but aging electrical + rotor components
- Units with blade surface wear or leading/trailing edge damage

A repeatable shop workflow — from intake inspection to recommissioning.

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1. Intake & Assessment

Site history, faults, visual checks

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2. Teardown

Disassembly, parts triage, cleaning prep

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3. Electrical Rebuild

New contactors, wiring, controls

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4. Generator Refresh

Clean, inspect, test, recondition

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5. Blade Refurb

Coating + LE/TE repairs as needed

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6. Reassemble & Test

QA checks, run-up, documentation

Your turbine. Our shop. A clear, documented path back to service.

Repowering is built around inspection, traceability, and repeatable quality checks.

Modernize the controls stack

Typical work scope

- Replace aging contactors and relays
- Inspect wiring, terminations, and insulation
- Refresh control panels & sensors as needed
- Verify grid-interface behavior and protective logic

Contactor replacement

New contactors reduce nuisance trips and improve switching reliability under frequent starts/stops.

Controls verification

Functional checks on interlocks, braking interfaces, and sensor signals prior to reassembly.

Documentation

Updated wiring notes, part traceability, and test records to support ongoing O&M.

Clean, inspect, test, and restore

Cleaning + inspection

- Remove debris, oil film, and corrosion
- Visual inspection for wear, hotspots, ingress
- Verify connectors and harness condition

Electrical checks

- Insulation resistance testing
- Continuity and grounding verification
- Sensor signal validation and calibration

Reconditioning

- Replace serviceable wear parts
- Tighten and torque to spec
- Final functional test before close-up

Typical wear: leading edge erosion



Our shop scope

- Strip, clean, and recoat blades
- Refresh protective coatings
- Repair leading/trailing edges when required
- Balance/finish to return blades to service-ready condition

Coating + composite repair are often the fastest path to meaningful performance recovery.



Leading edge (LE)

Inspect for erosion, chips, and cracking; rebuild profile and recoat for protection.

Trailing edge (TE)

Address splits, seam issues, or delamination risks; finish for aerodynamic integrity.

Every repower includes:

- Incoming inspection + photo documentation
- Parts traceability (contactors, wear parts, coatings)
- Electrical verification (continuity, IR, functional checks)
- Blade finish and repair sign-off
- Reassembly torque checks and final QA
- Commissioning checklist + handover package

Goal: predictable performance after the repower — and clean documentation for long-term O&M.





Fleet support, end-to-end

PowerGrid Partners repowers distributed wind turbines throughout North America.

We coordinate logistics, shop rebuilds, and the path back to commissioning — with a focus on NPS / PGP units.

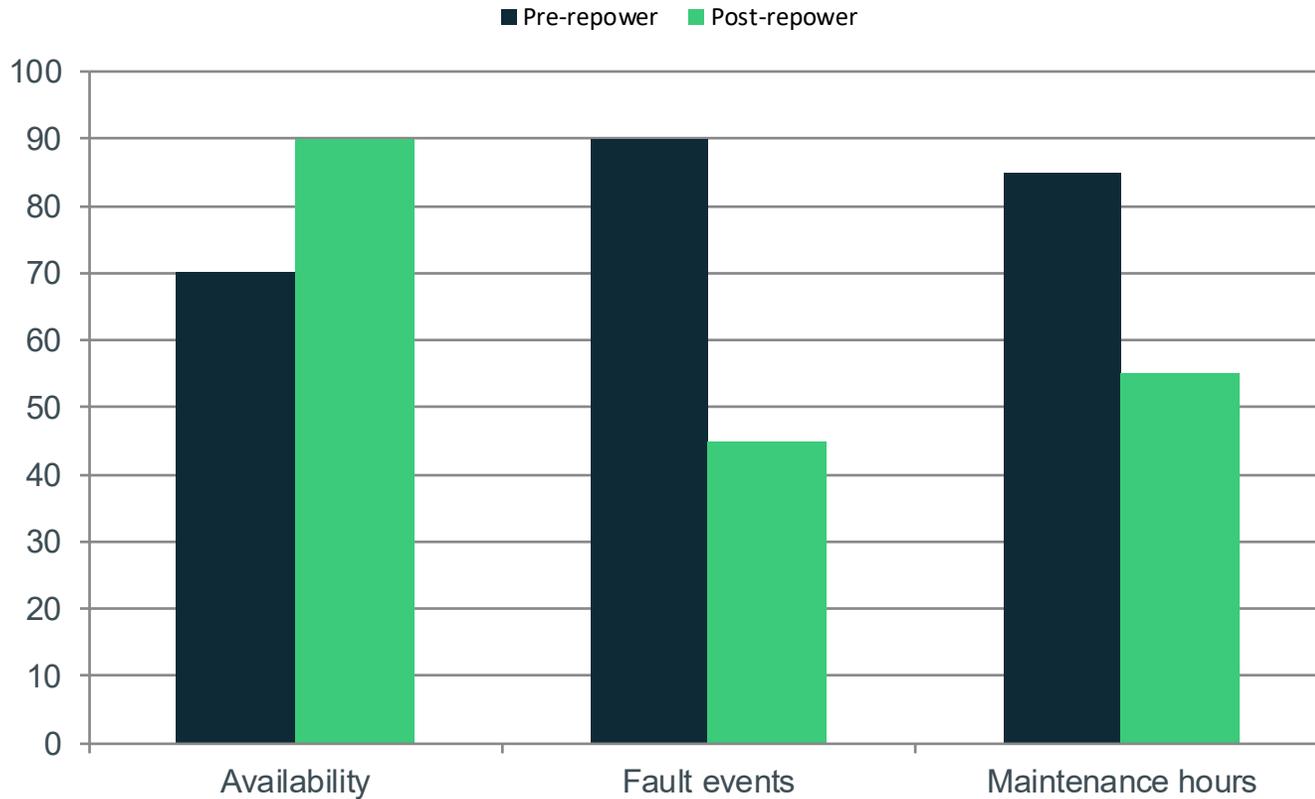
What customers get:

- Clear scope + schedule
- Refurbished rotor + generator
- Modernized electrical stack

Want to evaluate your fleet?

We can start with a short intake checklist + photo set to size the repower.

Repowering is designed to increase reliability and restore long-term serviceability.



Illustrative only — actual outcomes depend on turbine condition, site, and scope.

What owners value most

- Higher reliability from refreshed electrical hardware
- Better rotor condition after coating + edge repairs
- Cleaner generator condition and verified test results
- A documented baseline for ongoing O&M planning

Repower decision support

We can help evaluate condition, define scope, and estimate downtime windows.

Ready to repower?

Let's bring your NPS / PGP turbines back to reliable service.

Next steps

- Share turbine model + basic fault history
- Provide a quick photo set (nacelle, generator, blades)
- We propose a scope, parts list, and downtime window
- Shop rebuild + test, then recommission

Contact: _____ | Email: _____ | Phone: _____