



GE VERNOVA

GRIDBEATS™ APS – AUTOMATION AND PROTECTION SYSTEM

De-risk the future of your grid
Helping operators power a more
adaptive, resilient grid.

As the grid has grown, so has its operational complexity. Aging infrastructure now holds us back from being able to pursue technological advancements. Simply keeping power flowing is becoming a tougher task. Growing cyber threats are raising the stakes even higher.

80 MILLION

**KILOMETRES (~50M MILES) OF NEW
GRID LINES WILL BE REQUIRED BY 2040
AROUND THE WORLD – EQUIVALENT TO
BUILDING A WHOLE NEW GLOBAL GRID.**

(IEA, 2023)



3X

**MORE GLOBAL
ELECTRICITY CAPACITY
EXPECTED BY 2050**

(EnerOutlook, 2023)



14%

**YEAR-ON-YEAR
DERs GROWTH IS
MAKING THE GRID
MORE COMPLEX**

(Irena, 2025)



50%

**OF THE UTILITY
WORKFORCE
COULD RETIRE IN
THE NEXT DECADE**

(Irena, 2025)

80%

**YEAR-ON-YEAR
INCREASE IN
CYBER ATTACKS
ON UTILITIES**

(Trustwave, 2024)



THE SOLUTION: GRIDBEATS™ APS

**Designed to help operators de-risk
the future of their grid, GridBeats™ APS
is a single, cutting edge, always on,
software-defined platform for protection
and control in the substation.**

By using GE Vernova's patented hardware abstraction technology, one GridBeats™ APS platform can support all P&C applications and simplify operations. With up to 80% less hardware variety to deal with, it's up to 80% faster to get new hardware approved in digitalized substations and 60% faster in conventional substations.

GE Vernova's patented independent firmware technology separates real-time P&C code from non-real-time platform firmware. This allows operators to update cybersecurity and communication code without having to revalidate or retest P&C functionality. This can cut firmware revalidation effort by 54% and device-level testing effort by 73% — while also helping reduce O&M costs by up to 40%.

CHALLENGE

Aging infrastructure

Improving infrastructure often means incrementally adding new hardware and software. As a result, today's grid is full of aging systems that require retrofitting. Existing technologies make these updates complex, costly, and disruptive.

Capacity expansion

Grid devices are traditionally built to serve just one function. For a new capability, operators would need to purchase a new device. This can be an expensive, time-consuming, and risky task.

Operational complexity

As the grid has grown in its capabilities, it has also grown in its complexity. DERs, renewables, disconnected infrastructure, a retiring workforce — managing complexity often prevents operators from being able to focus on value-add opportunities.

Cyber threats

By taking a device offline or rebooting it, parts of the grid can become unprotected or less resilient to faults or cyber threats. This often forces operators to choose between keeping a device online and keeping a device up to date.

HOW GRIDBEATS™ APS HELPS

Streamlines operations

GridBeats™ APS allows operators to update cybersecurity and communications codes without having to revalidate or retest P&C functionality.

Flexes to demands

GridBeats™ APS brings flexibility and the ability to run multiple P&C applications on a single device. Applications can also be upgraded via software license updates, allowing devices to meet changing demands and extending their lifecycles.

Simplifies control

GridBeats™ APS is designed to help operators overcome complexity. With a single device, operators can simplify procurement, reduce learning curves, and streamline configuration — for a more productive operation.

Keeps devices online

GridBeats™ APS lets operators unbundle core P&C functions from platform elements, so they can remotely update or patch platform firmware in minutes without the need to take devices offline. This keeps P&C devices secure, improving resilience and reliability and avoiding the costs of downtime.

TAKE BACK CONTROL WITH APS

To learn how APS can help you take back control, modernize your grid, and de-risk your future, visit:

[Learn more](#)

MEET GRID DEMANDS, TODAY AND TOMORROW

The GridBeats™ portfolio helps operators improve monitoring, control, and communications for a more resilient and reliable grid. Explore GridBeats™ here:

[gevernova.com/
grid-solutions/gridbeats](https://gevernova.com/grid-solutions/gridbeats)



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