



GE VERNOVA

PROTECT AGAINST DISRUPTION:

GRID ORCHESTRATION SOFTWARE
CAN MITIGATE THE EFFECTS OF
DISRUPTIVE EVENTS



IT HAPPENS ALL THE TIME

Every year climate change causes numerous, frequent disruptions to the grid. Baking heat waves and crippling cold spells send power usage skyrocketing. Hurricanes happen with increasing frequency and intensity. Wildfires grow in size every summer. Severe thunderstorms can happen virtually anywhere, anytime, with or without tornadoes. The list goes on and on. And the U.S. Department of Energy has reported that the number of power outages due to extreme weather has doubled over the past two decades.

It should come as no surprise, therefore, that the North American Electric Reliability Corporation warned that two-thirds of North America is at risk of energy shortfalls due to anticipated heatwaves. Indeed, in the summer of 2022 the Texas grid set 11 all-time peak demand records, with electricity demand exceeding supply for the first time ever. Events like these are happening more and more often, with the Department of Energy declaring that grid resiliency must be increased to prepare for a future of severe weather.

The good news is that there is a solution. GE Vernova offers a portfolio of grid orchestration software to help mitigate the effects of disruptions, including reducing outages, damages, chaos, and costs. These smart and secure solutions unlock proactive planning for disruptive events, offering modern software tools to help utilities prepare, respond, and recover.

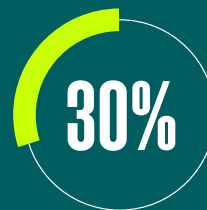
Explore the benefits this collection provides for all phases of an event: before, during, and after.

01

GridOS[®] VISUAL INTELLIGENCE



Ensuring a reliable and resilient grid that can withstand disruptions starts long before the first drop of rain falls. Utilities need to work proactively all year long to mitigate the impact of damaging events. The most common method of limiting this impact is through vegetation management, which can often be inefficient and imprecise. Not so with GridOS Visual Intelligence.



30% of the world's electricity is generated with the help of GE Vernova technology

Here is how Visual Intelligence can help mitigate the effects of disruptive events:

1

Better trimming effectiveness

A pitfall of many vegetation management solutions is that they strictly deal with vegetation scans. This means utilities can see the location of problematic vegetation, but not its proximity to network assets. The latter typically comes from another solution entirely, making it difficult to see exactly where vegetation needs to be trimmed and when.

Smallworld Geo Network Management (GNM), a GE Vernova software solution, creates a detailed map of a utilities entire electrical network, from generation to consumption. Visual Intelligence (VI) is augmented with GNM's network-mapping capabilities and can overlay vegetation readouts with any network map. This means utilities can access an incredibly detailed, all-in-one map that shows the locations of both assets and the surrounding vegetation. With that information utilities can send crews to the precise spots where vegetation needs to be trimmed or removed and when it's needed. The cost savings in terms of efficiency, effectiveness, and productivity speak for themselves.

2

More flexible technology

It's important to note that while there are many vegetation management solutions on the market, the vast majority only support LiDAR data or satellite data – not both. VI can take in data from both satellite and LiDAR scans and combine them to create the clearest picture of the vegetation surrounding a network.

3

Improved cost effectiveness

Every utility knows that fuel and labor are two of the biggest costs associated with their vegetation management strategy. Utilities can reduce both with VI's AI-driven trimming recommendations. These handy predictions estimate the number and type of workers needed for a given countermeasure, along with its expected duration. This helps utilities avoid overspending on unneeded resources and mobilize just the right amount, every time.



02

GridOS[®] DISRUPTION PREPARE

When a disruptive event is on the horizon, utilities need to kick their short-term, proactive planning into overdrive. That's where GridOS Disruption Prepare comes in with its forecasting and planning capabilities. With GridOS Disruption Prepare, utilities can take action to mitigate damage and ensure a speedy recovery.

Here is how GridOS Disruption Prepare helps utilities proactively plan and take action to protect against disruption events:

1

More detailed understanding of impact

Utilities need as much advance notice as possible to prepare for potential disruptions. Disruption Readiness includes an analytics tool that generates a detailed impact assessment up to 72 hours before an event. The tool examines weather forecasts, outage data, and infrastructure maps to your infrastructure to predict the event's likely impact on assets and help determine what actions should be taken in response. With this advanced notice, utilities can mobilize just the right amount of resources needed for recovery.

2

Minimized damages

Damages add up fast during a disruptive event. Luckily, Disruption Readiness can tell utilities exactly which assets are in the event's projected path. It can even tell exactly which ones are likely to suffer damage based on historical trends. This insight gives utilities time to take proactive measures to mitigate damages, whether by moving mobile assets, reinforcing utility poles, or other actions.

3

Improved safety

Worker safety is always of the utmost concern for utilities, especially during hazardous situations like disruptions. With Disruption Readiness, utilities can see the disruptive event's projected path and stage resources in safe areas.

4

Faster recovery

Disruption Readiness' damage predictions can help utilities reduce recovery times by enabling strategic resource positioning. For example, GridOS Disruption Prepare can determine an incoming storm will damage a cluster of utility poles. Utilities can use this insight to stage pole-repair specialists, along with replacement poles and power lines, as close to that area as possible while being out of harm's way. When utilities have the insights to determine the most practical and efficient staging locations, disruption recovery happens much faster.



03

GridOS[®] EOMS OUTAGE ASSIST

The disruptive event has struck and is underway. But this is no time to sit back and wait for the aftermath. With Outage Assist, powered by Energy Outage Management System, utilities can stay active during the disruption event to reduce outages and restoration times, improve cost recovery, and prepare for restoration activities.

Here's a closer look at how Outage Assist can help utilities prepare for faster restoration activities:

1

Better power regulation

Different areas use different amounts of power depending on the disruption impact. A key component of Outage Assist is the ability to shut off or reroute the flow of power based on high impact zones. This ensures maximum resiliency of the grid, even during times when it is being strained to its limit.

2

Improved visibility of assets

A key necessity during disruptive events is the ability to visualize assets and see at a glance the areas of greatest need. As the event unfolds, Outage Assist kicks in with the combined capabilities of ADMS and GNM. These capabilities give Outage Assist the ability to provide a full, complete view of what assets are damaged and their impact on power flow. This makes it easier for utilities to prioritize and coordinate restoration efforts.

3

Singular view of restoration resources

Too often, solutions that are meant to help utilities visualize the location of restoration assets and resources are spread across multiple interfaces or programs (perhaps one for personnel, one for equipment, etc.). With Outage Assist, utilities get better visibility and control over all the crews and resources required to effectively support restoration processes – from one, single platform.



04

STORM MANAGER

The event has passed and now it's time to start the recovery. But how do utilities efficiently assess impact and deploy resources? And what about all the complicated logistics of hiring, managing, housing, feeding, and paying the workers involved? Storm Manager plays a key role. By deploying this robust logistics management application, utilities can rapidly expand and coordinate their outage response workforce – whether internal or external – in the wake of a disruptive event.

Here's a closer look at how Storm Manager can help with the aftermath of a disruptive event:

1

Easier workforce management

After the disruptive event has struck, your affected areas will be swarming with potentially hundreds or thousands of workers – both your own employees and contracted crews. Storm Manager includes interfaces that enable you to acquire, mobilize, and assign crews to various recovery-related tasks. You can also track crews via GPS to verify their locations and availability at any given time. In addition, Storm Manager's mobile field app can be accessed and used by virtually all recovery workers, from utility crews and DoT workers, to firefighters and telecom crews, to insurance adjusters and FEMA agents. This minimizes complex, risky handoffs between entities and unites everyone involved on a single app.

2

Precise crew lodging assignments

Every contract worker you hire to aid recovery efforts needs to be accounted for. Storm Manager greatly streamlines this process by using crew rosters to assess demand, determining the best place for crews to stay based on their location, and automating room assignment notifications.

3

Faster invoice processing

Crew payments and expense reimbursements can quickly turn into a logistical nightmare without proper infrastructure in place to manage the process. Storm Manager avoids all that. It keeps a complete digital record of all expenses – including when, where, and by whom they were incurred – while also facilitating the approval and payment processes. With Storm Manager, you can ensure workers are paid in a timely manner, with minimal overtime required of your own staff.

18%

GE Vernova customers experience 18% less network outages*.

40%

GE Vernova customers realize 40% faster restoration times to keep the lights on for their customers*.

*DISCLAIMER: Data source from [Annual Electric Power Industry Report](#), Form EIA-861, October 2022, results based on utilities in the United States that have 1.25 million customers or more. Reliability data reflects average SAIDI and SAIFI with MEDs.

05

GridOS[®] ORCHESTRATION SOFTWARE AT PLAY

Each of the above products plays a unique role make up the Disruption portfolio. Each one plays a unique role in the before, during and after of major disruption events like wildfires, heatwaves, storms and more.

All of the below solutions are offered by the team that brought you GridOS, the first software portfolio designed exclusively for grid orchestration. With GridOS in your organization's toolbox, you can accelerate your journey to a modern and sustainable energy grid.



of the world's power transmission utilities are equipped with GE Vernova technology

Here's a look at how GridOS applications help utilities protect against disruptive events:

1

Visual Intelligence

Our enterprise grade, AI-powered Visual Intelligence platform helps utilities reduce the operational costs tied to trimming activities while improving reliability, predictability, and safety. We give utilities the ability to manage vegetation end-to-end, beginning with survey data management and analysis through work scoping and reporting. They can avoid using legacy inspection and risk management programs and paying millions of dollars for vegetation management. The result is a situation-aware solution that reduces the cost and complexity of traditional inspection approaches while improving risk management and productivity.

2

Advanced Distribution Management System (ADMS)

GE Vernova's ADMS provides software for the orchestration of the distribution grid beyond the functions of simply SCADA, DMS, and OMS. Our DER-enabled ADMS enhances grid reliability by leveraging new energy sources (DERs) and controllable loads to balance the grid while boosting grid resiliency to better prepare for and recover from storms. ADMS delivers reliability, productivity, and efficiency through a modern modular architecture, including containerized micro-service apps, with adaptive algorithms, predictive analytics, and a brilliant user experience.

3


Smallworld Geo Network Management (GNM)

When an event occurs, a utility needs to know what assets will be impacted and the likelihood the damage will occur based on the event strength and prediction. GNM helps utilities model network connectivity, design and build workflow management, and orchestrate infrastructure asset management challenges, throughout the entire network asset lifecycle. GNM tells you exactly where everything is, while its algorithm shows you which assets are most likely to be impacted by disruption events.



GE VERNOVA

For more information about **combating the effects of a disruptive events with grid orchestration software**, contact the GE Vernova Grid Software team:

 1-833-690-5552

ELECTRIFICATION SOFTWARE

GE Vernova's Electrification Software is focused on providing a suite of software products and services to customers aiming to accelerate a new era of energy by electrifying and decarbonizing the energy ecosystem through intelligent and efficient data analytics, monitoring, and management.