



GENERAC[®]

**GRID
SERVICES**

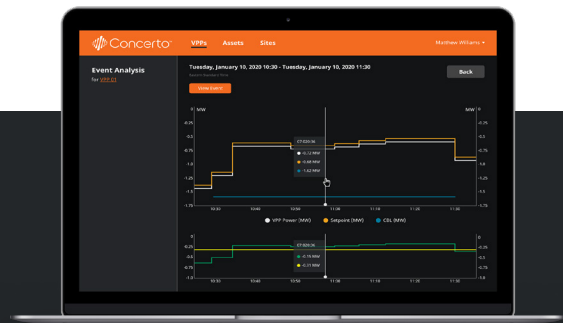
Distributed **Energy Orchestration**



Leading the evolution to **more resilient, efficient and sustainable** energy solutions.

This is the promise on which we deliver — to regulated utilities and unregulated energy companies — and to homes and businesses who share our vision of a more sustainable, reliable and carbon-neutral energy future. We do this by harnessing the power of distributed energy.

Whether the end goal is reducing peak demand and system infrastructure costs — or participating in ancillary services, wholesale or capacity markets — the inherent grid flexibility in distributed energy resources enables profoundly beneficial changes across the energy ecosystem. But only if these resources can be intelligently orchestrated to predict, optimize and control the power of this flexibility. That's where Generac Grid Services comes in.



ONE PLATFORM: MANY SOLUTIONS

Generac's real-time energy balancing platform, Concerto, is the only distributed energy optimization and control platform whose capabilities and use cases span the entire spectrum of asset types, grid services and energy flexibility opportunities — on both the supply and demand side of the power grid.

From C&I process loads to utility-scale renewables and in-home devices like smart thermostats and EV chargers, Concerto is a multi-service platform that aggregates and controls the load flexibility from an unlimited number and range of grid edge assets.

And from advanced demand response, to energy market dynamic dispatch, to highly complex distribution optimization, Concerto is a comprehensive solution for distributed energy orchestration and control. It is for reasons like these that Concerto is recognized by organizations like Guidehouse Insights and IDS as one of the world's leading Virtual Power Plant (VPP) and Distributed Energy Resource Management System (DERMS) solutions.



The Generac Grid Services difference

There are many reasons that General Grid Services and Concerto lead the distributed energy orchestration market.



SPEED

Responds at the rate of a traditional power system, with the ability to solve forecasted and real-time capacity needs.



ADAPTABILITY

Built as a flexible platform that can evolve as new business models emerge, markets mature and asset technologies develop.



SCALABILITY

Designed to match the highly distributed nature of DERs and accommodate their exponential growth on the grid. Concerto can optimize the dispatch of hundreds of thousands of DER assets every second.



SECURITY

A fundamental building block to prevent serious threats to the stability of our power system, Concerto is hosted on a cloud-based server that is certified to the strictest cybersecurity standards.



ACCURACY

Enables a continuous, closed loop system, providing accurate forecasts of how DER assets will perform and real-time confirmation of how they are behaving when called upon.



THE ORCHESTRATING POWER OF CONCERTO

With the speed, accuracy and scalability needed to ensure that just the right amount of energy is always moving to the right place at precisely the right time, Concerto continuously shifts and adjusts the flexibility from vast networks of distributed energy assets to respond to the real-time needs of the power system and energy markets. Concerto strikes the optimal balance between adding too much resource (and thus adding costs) and too little resource (and thus increasing risk).



Solving today's energy balance challenges

– and safeguarding a clean energy future

Another reason Concerto stands above other distributed energy control software is that it's being actively used today to solve far-reaching, real-world energy balancing challenges — and it's solving them at scale.

In the U.S., **Eversource** is using Concerto to control distributed energy from large fleets of both residential and commercial & industrial customers. Their goal? To provide value to end customers by avoiding costly grid peaks, thereby saving money, lowering carbon emissions and reducing costs of hardening the grid against future disruptions. DERs are orchestrated for participation in DR events as well as other energy balancing scenarios under New England ISO programs, and the utility can also dispatch and manipulate these resources to benefit the distribution grid.

For **AGL Energy** in Australia, Concerto is powering one of the world's largest and most sophisticated VPPs, with a wide range of vendor assets involved and numerous types of grid services provided. With solar PV installed at 25% of the homes in its service territory, AGL is aggregating and orchestrating the solar and battery systems of these households to maximize value streams across customers, wholesale markets and network services.

In Canada, **Alectra** uses Concerto for sophisticated orchestration of different DERs, ranging from load banks, batteries, building loads and EV chargers to perform grid services such as automated DR and peak demand management — and to pave the way for the provision of grid services to Ontario's Independent Electricity System Operator (IESO).

In Germany, **RWE's** Concerto VPP orchestrates load flexibility from backup generators, small gas peaker units, CHP, large commercial and industrial loads, batteries and other distributed energy assets to achieve the utility's frequency regulation (secondary reserve) objectives and to participate in interruptible load markets as well as additional ancillary service markets and intra-day wholesale market trading. Concerto is also providing co-optimization of assets and market portfolios so that they can strategically meet multiple grid and market objectives

As these and many other utilities and energy retailers across the globe will testify, the Concerto platform delivers energy orchestration — and energy balance — at its most harmonious.

Distributed Energy Orchestration Platform

Complete Virtual Power Plant & Distributed Energy Resource Management System Solution



Advanced Demand Response

- Demand response
- Peak demand reduction
- Energy shifting/arbitrage



Dynamic Dispatch

- Advanced DR, plus:
 - Primary reserve market
 - Secondary reserve market
 - Tertiary reserve market
 - Energy shifting/trading
 - Oversupply/PV curtailment
 - Renewable firming
 - Precharge



Distribution Optimization

- Dynamic Dispatch, plus:
 - Power flow management
 - Threshold control
 - Volt/VAR response
 - Technical loss minimization
 - Conservation voltage reduction





START WITH ADVANCED DEMAND RESPONSE

Customers and utilities alike recognize the shared value of reducing peak demand and system infrastructure costs. While previous generations of demand response systems were able to help by simply turning end devices on or off, the Concerto platform operates more strategically — providing substantially greater value streams.

Concerto can simultaneously manage different types of customers, technologies and vendor brands. It can also individually adjust and measure the on/off response of each individual asset in real time. As a result, the degree of control in decreasing or increasing load and arbitraging between periods of low and high demand is surgically very precise, supporting everything from the simplest to the most complex demand response use case.



PROGRESS TO DYNAMIC DISPATCH

Since Concerto manages generation, energy storage and customer load, it can aggregate flexibility resources across the entire pool of potential DER assets to enable determination of market offers, optimization of reserve capacity and scheduling of mixed asset portfolios to meet real-time market commitments and power grid needs. Its wholesale market integration capabilities provide all the functionality of its advanced demand response features, plus a whole lot more.

With the capacity to control assets in two-second cycles so they can be used for advanced grid services — while also optimizing for end customer uses — Concerto is being used around the world to not only balance the grid, but also to provide economic value exchanges between prosumers and the larger grid and to usher in commercially viable forms of transactive energy. For energy retailers, Concerto integrates with trading platforms and transmission system operators to provide seamless market operations, bid reservations, optimization and dispatch of distributed energy resources. In regulated markets Concerto helps keep the power grid in a reliable supply/demand balance.



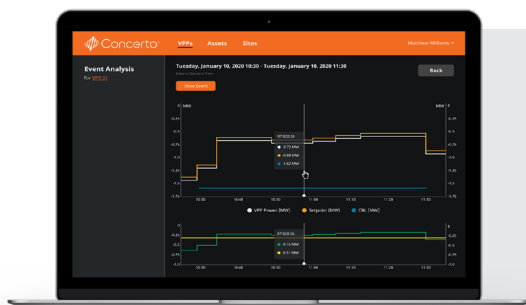
EVOLVE TO FULL DISTRIBUTION OPTIMIZATION

Concerto's distribution optimization capabilities add even deeper and more granular DER control capabilities, providing grid services that are highly dependent on the specific grid connection of each asset. These services are delivered by manipulating power flows along individual feeders, providing the ability to manage both real power (watts) and reactive power (VARs), and to increase load on one part of a feeder while decreasing load — and increasing generation — at another part of the same feeder.

Because the system knows exactly where each asset is located, it can precisely target which assets to control to mitigate the challenges caused by too many renewables or EVSEs coming online, while at the same time enabling a higher degree of renewable penetration and increasing the local hosting capacity of the grid.

ABOUT GENERAC GRID SERVICES

Generac Grid Services is changing the way the world generates and uses electricity. From solar + storage solutions, to backup generators, to virtual power plant technology that enables homeowners and business to sell their excess power back to the grid, Generac Grid Services is accelerating the world's transition to a cleaner, more reliable power grid. Our Concerto distributed energy orchestration platform helps ensure the operational stability of the world's power grids and energy markets and is the heart of our demand response, virtual power plant (VPP), and distribution grid management solutions. Concerto dynamically and continuously orchestrates and dispatches a full spectrum of distributed energy resources — from behind-the-meter battery-storage fleets to standby generators, C&I flexible load, renewables, electric vehicles and more.



No matter how complex your distributed energy challenges, Generac Grid Services' Concerto platform is the solution. We welcome the opportunity to tell you more and to show you Concerto in action.



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