

# Veritone Energy: Optimizer

Dynamic. Adaptive. Reliable.

We are witnessing the energy transition, with the global energy sector shifting away from fossil-based systems of energy production and consumption to unpredictable and less reliable green energy sources, new forms of energy storage, and energy supply and demand imbalances that impact grid stability, customer satisfaction, and company profitability. The energy sector urgently needs solutions to make green energy more predictable, reliable, and cost-effective and AI is the answer.

## IMPROVE THE PERFORMANCE OF COMPLEX GRID OPERATIONS IN REAL-TIME

Veritone harnesses the power of AI to revolutionize today's energy ecosystems through proprietary, intelligent, near-real-time energy optimization, giving you the knowledge of how much of what type of energy to deliver where, ensuring grid resilience in the face of the unexpected. The AI-powered Optimizer uses domain rules, highly accurate energy forecasts, historical and sensor data to produce the optimal dispatch model at any given time. This optimal energy supply distribution increases grid reliability while conserving energy and reducing cost. Based on internal strategy drivers and external market opportunity, the Optimizer fuses together real-time forecasting, economics, rules, and active learning to deliver autonomous energy grid management.

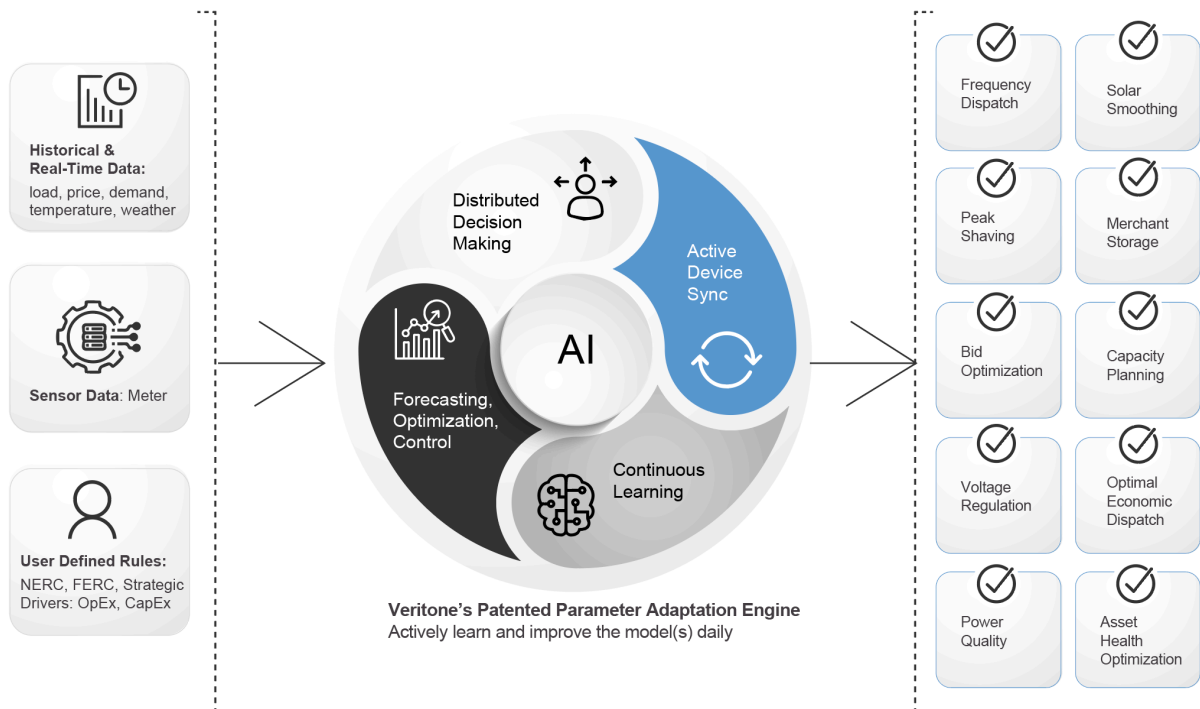


## KEY BENEFITS

- ☒ **INCREASE GRID RELIABILITY**  
Increase your ability to prevent blackouts, autonomous operation if isolated from the main grid, confidently manage highly variable loads
- ☒ **REDUCE OPERATIONAL COSTS**  
Increase longevity of your grid assets, reduce maintenance costs, lower generation and wholesale power purchase costs
- ☒ **IMPROVE CAPACITY PLANNING**  
Determine optimal renewable energy source mix for each site
- ☒ **UNCOVER NEW REVENUE STREAMS**  
Value stack assets to increase revenue opportunities, provide frequency support services
- ☒ **DECREASE CO2 EMISSIONS**  
Maximize renewables to reduce reliance on fossil fuels

## CAPABILITIES

Improve the planning, operation, and resilience of your power system



## BATTERY OPTIMIZATION

In order to maximize the economic benefits of battery storage, one must have the ability to use battery storage for multiple different applications. The AI-driven Optimizer enables dynamic, real-time digital twin modeling of batteries to ensure optimal power distribution and battery life. Using real-time AI that predicts energy supply and demand minutes ahead, instead of days, and with added dynamic conditions of the battery and the operating environment at any given time, the battery can be optimized for frequency dispatch signals, solar smoothing, peak shaving, and arbitrage or be bundled with other grid applications for value stacking.

### FREQUENCY DISPATCH

The AI-driven Optimizer allows you to take advantage of battery storage in order to increase operational efficiency of your system. Leveraging demand, generation, and price forecasts and frequency signal, you are able to respond to the frequency signal in real-time, allowing you to maximize your revenue.

### SOLAR SMOOTHING

In order to mitigate the fundamental intermittencies of solar power, the AI-driven Optimizer leverages battery storage for solar smoothing to confidently supplement the gaps in solar power, while minimizing maintenance costs and increasing reliability of solar generation. By leveraging generation forecasts (PV, wind) and historical and current frequency dispatch signal from a utility, the Optimizer reduces frequency fluctuations in utility scale renewable plants, making these plants fully dispatchable.

### PEAK SHAVING

The ability to accommodate fluctuating electricity demand on an hourly basis is vital to power system planning and operations. The AI-driven Optimizer allows you to optimize your battery storage by leveraging price and demand forecasts to confidently off-set highly variable loads, while improving reliability and keeping the operating costs low.

### MERCHANT STORAGE

Using historical and forecasted price and demand data the Optimizer utilizes near real-time dynamic optimization based on load demand and risk forecasting, ingesting these forecasts to generate battery charge/discharge commands, allowing you to maximize profits through energy arbitrage.

## CAPACITY PLANNING

Due to the intermittent nature of distributed energy resources, the need for a more flexible power system has never been greater. Given constraints such as weather, demand, and price fluctuations, the AI-driven Optimizer dynamically models the energy sources available to optimally dispatch required amounts of clean, continuous, and reliable power, assuring supply and demand are always in balance.

## VOLTAGE REGULATION

There are many variables that impact the voltage levels going through distribution systems. The AI-driven Optimizer uses historical and capacity data and generator constraints to dynamically determine operating voltage range in order to keep the voltage levels close to a desired value. Running generators at lower voltage requires less power from the grid, resulting in significant cost savings.

## OPTIMAL ECONOMIC DISPATCH

One of the most important operational functions of an energy management system is to find the optimal generation mix among the existing units, while minimizing the total generation cost, satisfying the power balance and other constraints in the system. Using generation and demand forecasts, meter and weather

data, Veritone's AI-driven Optimizer synchronizes and optimizes each controlled DER with another, with the power grid, and other uncontrolled devices to achieve performance metrics that meet local demand, reduce cost, maintain reliability and resiliency, and satisfy environmental issues.

## POWER QUALITY

Power quality issues lead to revenue loss, early equipment failures, and power losses, and identifying the causes for such is crucial for a healthy energy system. With the AI-driven Optimizer, you not only identify the symptoms of poor power quality but have the ability to correct them in real-time, improving energy harmonics and power output. With its active filtering capability, the Optimizer helps you reduce harmful harmonics and prevent energy losses during transmission.

## BID OPTIMIZATION

In order to create and maintain a competitive position in the wholesale electricity market, a DER owner must overcome intermittency of DERs and market price uncertainties. Using historical and forecasted demand, generation, and price data, the AI-driven Optimizer finds the optimal bidding and scheduling strategies in real-time to allow the DER owner to maximize the revenue opportunities.

	Decrease CO2 Emissions	Improve Planning	Maximize Profitability	Increase Grid Reliability	Reduce Operational Cost
Capacity Planning	✓	✓	✓	✓	✓
Optimal Economic Dispatch	✓	✓	✓	✓	✓
Solar Smoothing	✓	✓	✓	✓	✓
Frequency Dispatch		✓	✓	✓	✓
Peak Shaving		✓	✓	✓	✓
Power Quality				✓	✓
Voltage Regulation				✓	✓
Bid Optimization			✓		✓
Merchant Storage		✓	✓		