

The logo for GridOS, featuring the word "GridOS" in a bold, white, sans-serif font with a registered trademark symbol (®) to its upper right. The background of the top half of the page is a blurred screenshot of a software interface with various charts and data points, overlaid with a white grid pattern.

TRANSACTIONAL ENERGY MANAGEMENT

What Differentiates GridOS-TEMS?

Market simulation and operation performed on GridOS native 3-phase unbalanced AC power flows

DER-agnostic platform for evaluating and enabling participation by prosumers and consumers

Model-based operation that respects system security constraints and grid requirements

Utility and prosumer-facing platform allowing cloud and on-prem deployments

DER business models configurable to the system's unique technical and economic factors

Web-based interface allows secure operation from any modern operating system

The Need for Transactional Energy

DERs are fundamentally changing energy supply and demand wherever they are located. Their presence and capabilities create the opportunity for new utility operational and business models based on a platform approach to the grid-DER relationship. The objective of the platform should be to strengthen the relationships between the utility and its newly empowered prosumers.

Key to this is assigning a value to the various services DERs can provide, and defining the system's needs for them. Opus One's GridOS Transactional Energy Management System (GridOS-TEMS) helps operators optimally manage these resources by providing location and time-specific signals for DER operation and compensation based on total value to the grid.

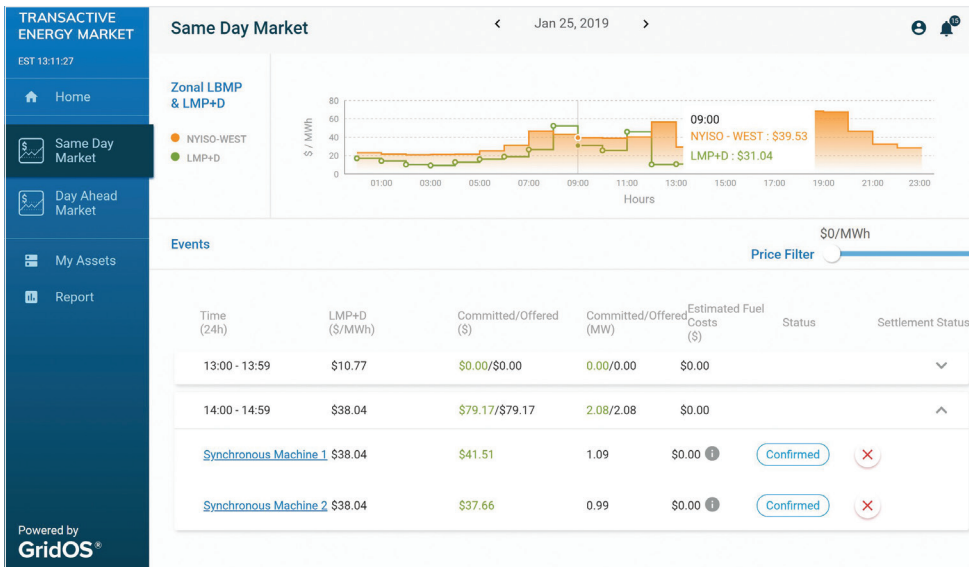
By combining these new capabilities with GridOS-TEMS, we have illuminated the value proposition of DER - opening new business models centered around DER value to the consumer, prosumer, utility and larger grid beyond. In doing so, the TEMS facilitates decision making processes based on DER value from planning to operations to rates to markets.

GridOS-TEMS

GridOS-TEMS provides functionality to both simulate and operate a DER market through a DER participation and management interface used by distribution system operators and DER operators. The TEMS is a model-based system which connects the utility to DER, and then optimizes their operation based on the distribution system they reside within and the bulk system above them. GridOS is DER agnostic and considers the DER's full cost of operation, as well as the market area's alternative procurement options to generate optimal requests for services from DER.

For both simulations and operations, GridOS-TEMS facilitates the DER management process by housing load forecasts, notifications, and pricing signals in a single, configurable platform. It supports a range of operational models ranging from full DER owner/operator control to full utility control to anything in between.





GridOS Transactive Energy Management

Inputs

- Utility Network Models
- Distribution Value Stack and Bulk System Pricing
- Load and weather forecasts
- DER operation parameters

Outputs

- DER-level hourly price
- DER-level operational signals
- DER-level transactions reports
- Real-time participation and pricing updates

Energy Services

- Energy (\$/MWh)
- Ancillary Services (\$/MVar)
- Capacity (\$/MW-Year)
- Emissions (\$/MT)

Easy Adoption

Substation to feeder-level shadow/simulation markets

Technology agnostic DER adoption

Configurable location, time, and DER-specific price signals

Seamless integration with utility and bulk system data

Operator and market specific settlement

Align DER Investment and Operation

DER represent a non-wires solution to traditional investments. The TEMS platform supports the operation and evaluation of non-wires solutions alongside traditional ones by assessing their total value to the grid based on location and utilization. Through its consideration of bulk and distribution system variables, GridOS-TEMS provides a strong foundation for utilities to launch DER programs, evaluate rate and tariff design, and manage the next evolution of net metering and targeted demand response programs. The image above shows a same day market along with participating DER.

Price and operational signals generated by the TEMS software can be distributed to the relevant area for DER-specific response and settlement, or can be used solely to inform dispatch, enabling a wide range of business model development.

DER Engagement

DER ownership and operatorship models vary by region, but GridOS-TEMS allows grid operators to create price signals for optimal DER response, regardless of technology owner or legislative landscape. In this way, the platform allows for DER from rooftop solar to EV chargers to utility batteries to be simultaneously considered in distribution system operation, meeting utility goals and regulatory requirements.



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