PV PLANT SCADA

BATTERY STORAGE

SERVI6

GREENING PROGRESS

Powering a Sustainable Future

About Nova Solar Pv Plant

The Nova Solar PV Plant, located near Fier, Albania, represents a major step forward in renewable energy development. Currently, the plant has 70MWp of installed PV capacity, with a final target of 150MWp. Additionally, the plant is being expanded with a 50/100MWh Battery Energy Storage System (BESS) to enhance energy efficiency and grid stability.

Regarding the SCADA System Development and Integration, Servi6 has played a key role in designing, developing, and integrating a comprehensive SCADA system using zenon by Copa-Data. The system is tailored to ensure seamless operation, high reliability and full control of all plant components.

Key Features of the SCADA System

1. Seamless Communication - Integration of 300 Huawei 330kW inverters across 20 field transformer kiosks. Direct communication with medium-voltage and high-voltage equipment and support for multiple communication protocols to ensure interoperability
2. Redundancy and High Availability. Fully redundant SCADA architecture to grantee continuous operation. Data synchronization between servers to prevent information loss and automatic failover mechanisms for uninterrupted monitoring and control
3. Advanced Monitoring and Control. Real-time data acquisition from inverters, transformers and switchgear. Centralized control of all operational parameters, alarms, and events. Historical data logging for performance analysis and reporting
4. BESS Integration and Energy Management. Intelligent charge and discharge control to optimize energy storage. Full SCADA and Energy Management System (EMS) for improved grid stability. Predictive analytics for enhanced system efficiency Servi6's SCADA solution ensures optimized performance, enhanced reliability and full automation for the Nova Solar PV Plant, making it one of the most advanced renewable energy projects in Albania.

Scope of SCADA System Development for Nova Solar PV Plant

1 Engineering of SCADA and Remote I/O Panels

Design and development of SCADA panels and remote I/O panels for all field transformer kiosks to ensure seamless data acquisition and control.

2 Panel Assembly and Factory Acceptance Testing (F.A.T.)

Assembly of SCADA and I/O panels, followed by FAT to verify system functionality before deployment.

3 SCADA System Engineering for IEC 61850 Communicati on

Implementation of IEC 61850 communication with Schneider IEDs, ensuring reliable and standardized communication between protection and automation devices.

4 Custom SCADA System Development

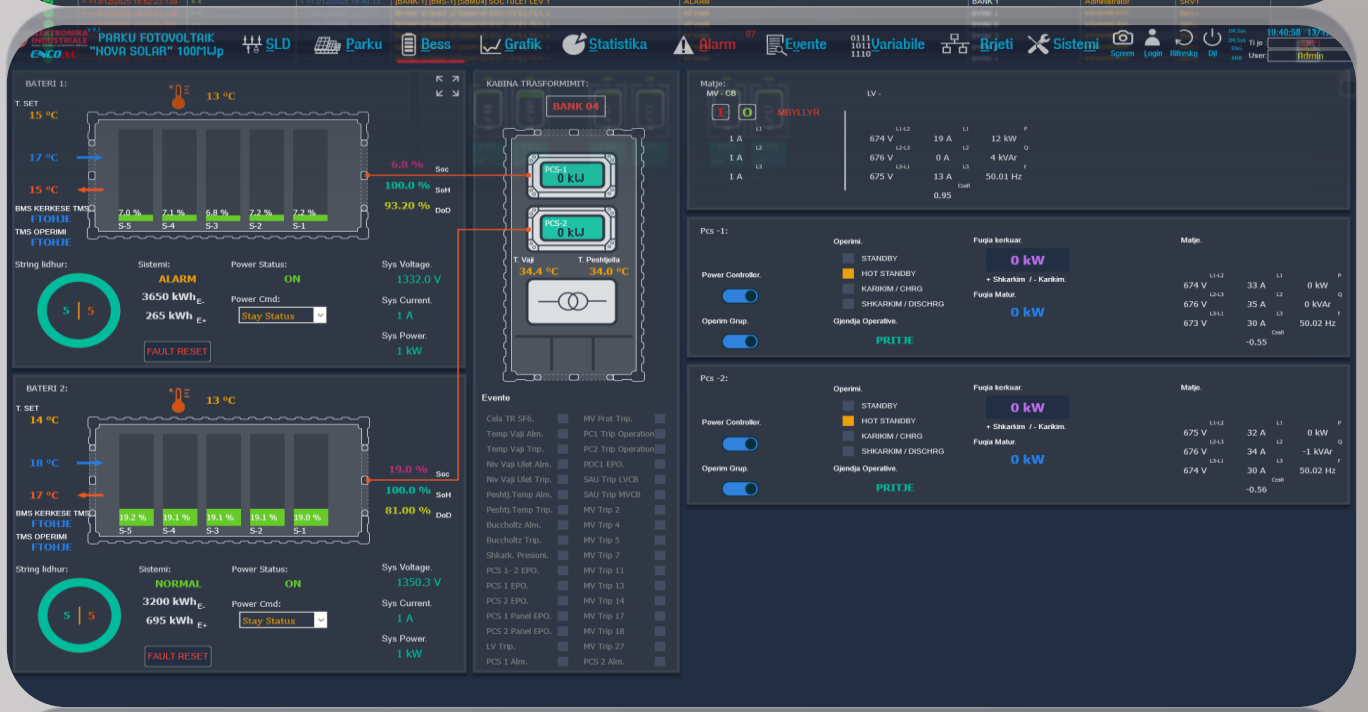
Development of a SCADA system tailored to customer requirements, including: Production reports generated every 15 minutes, hourly, and daily. Environmental data export and integration with forecasting systems. Automated data transmission to forecasting companies via FTP.

5 On-Site Testing and Commissio ning

Reliable automation technologies designed for complex industrial applications, including all on-site activities (SAT and commissioning till the energization).

Scada Control Room

- Country: Albania
- 70MWp Solar PV plant
- 50MW/100MWh Battery Storage
- Design and supply of electrical remote I/O panels
- IEC 104 communication protocol with Huawei inverter
- Production report and forecast



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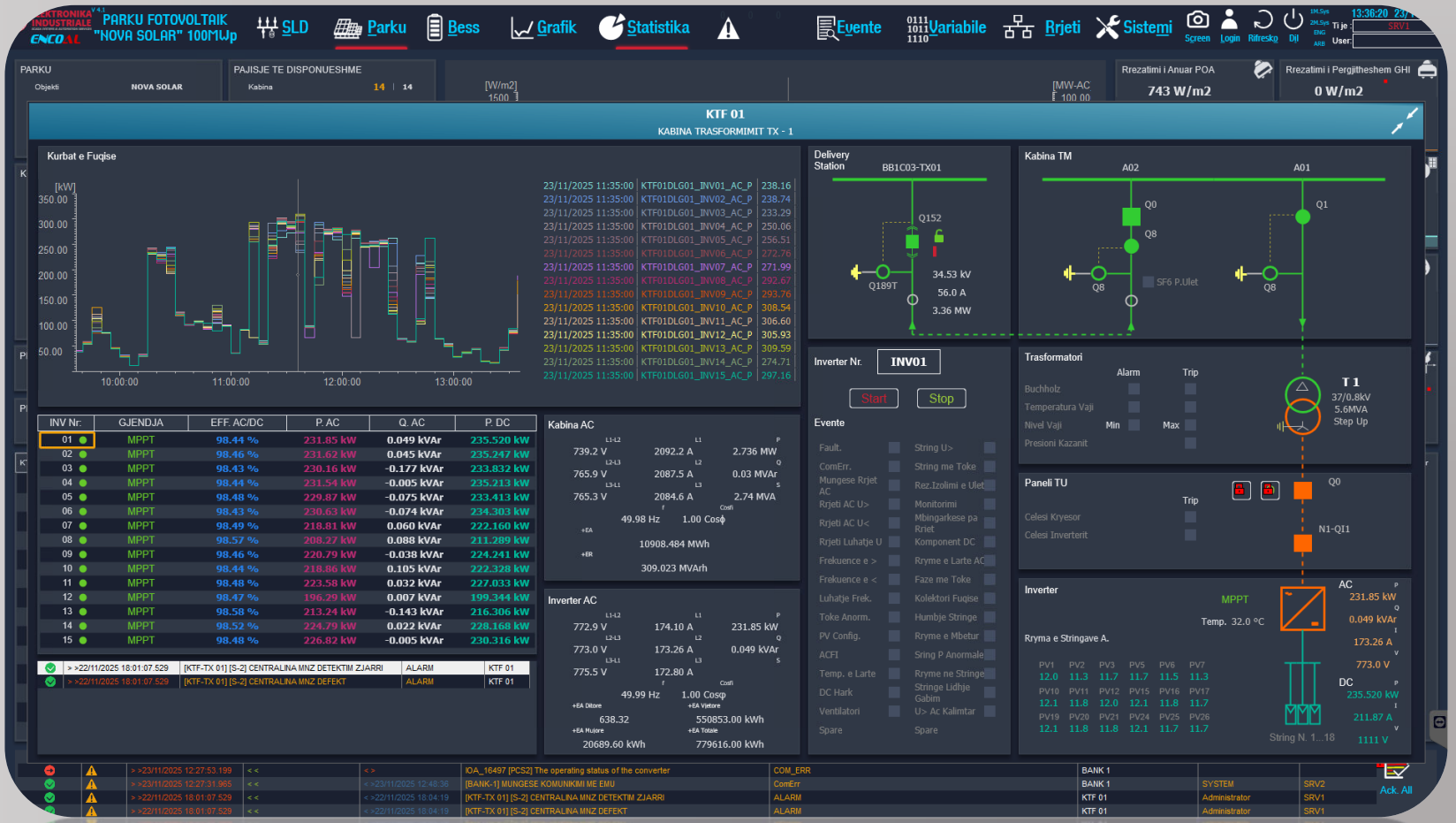
- **Main SCADA Page Information:**
- Field Skid, Production & Performance
- Environmental Data
- Plant Availability & Inverter on Grid
- Different Colors for Inverter Status
- With one click you can access to all information for each field kiosk



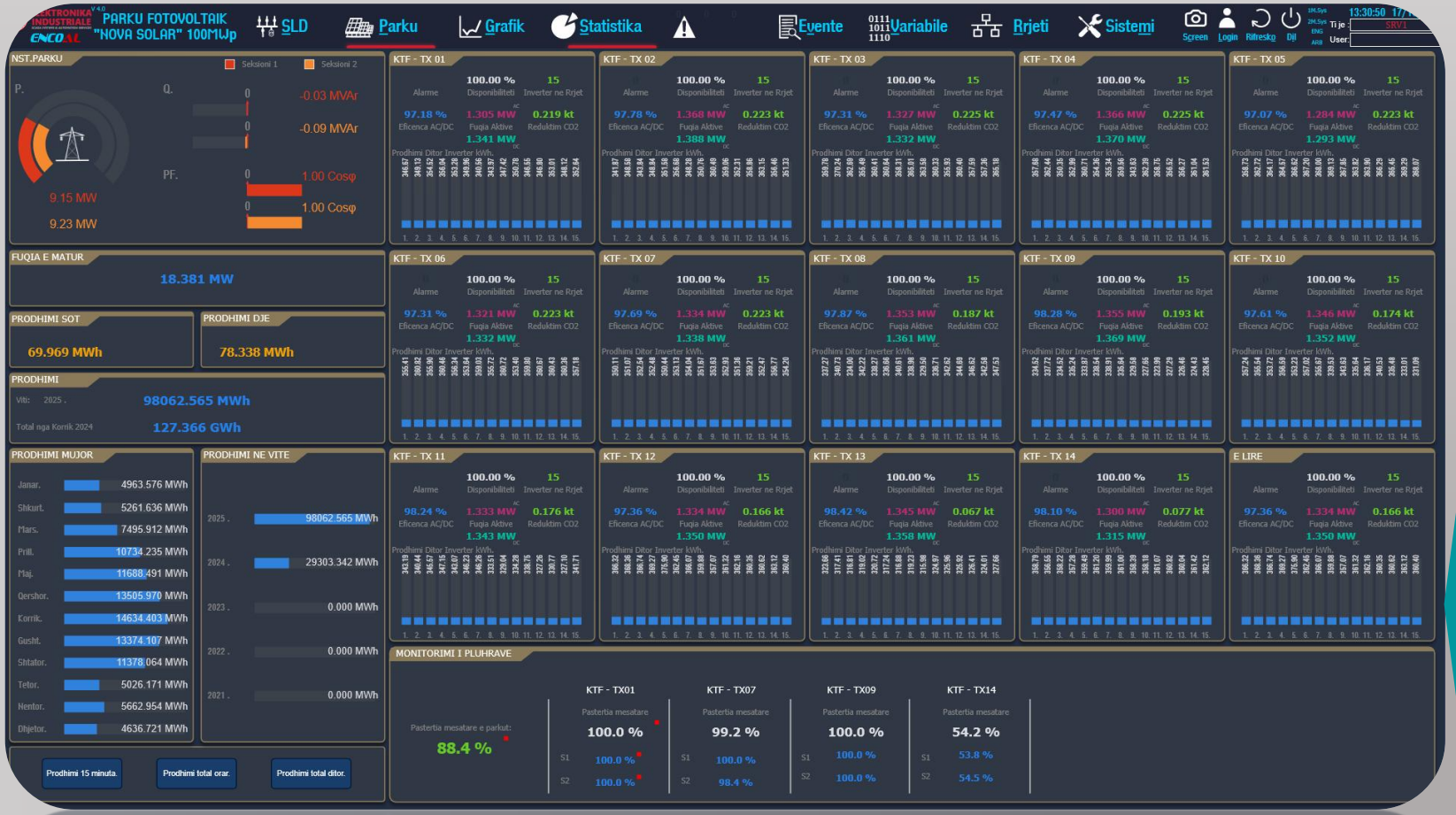
- **Kiosk Page Information:**

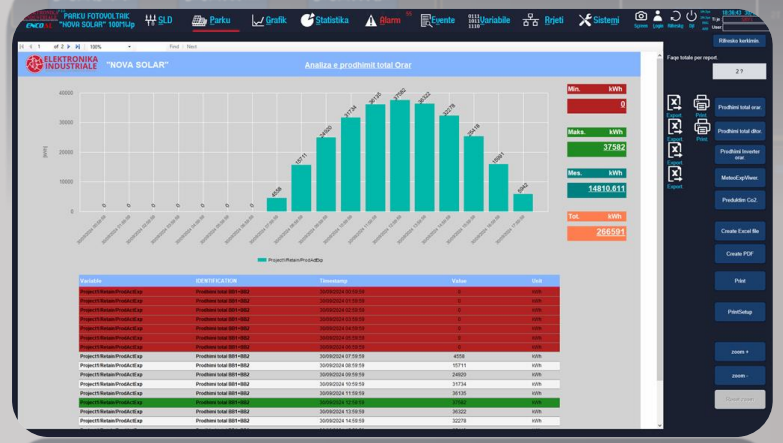
•Each transformation kiosk displays the main data for all inverters, as well as individual data for each inverter, including the load of each string. With a built-in algorithm, the customer is notified via an alarm if any string experiences problems or reduced power due to electrical issues, shading, or dust on the PV modules.

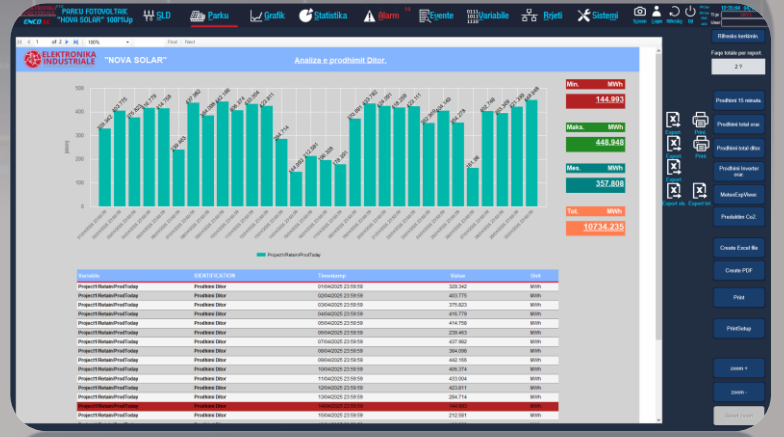
•Also inverter trip and alarm are showed

•Comparison trend analysis for inverters in each kiosk, enabling advanced diagnostics and performance monitoring.

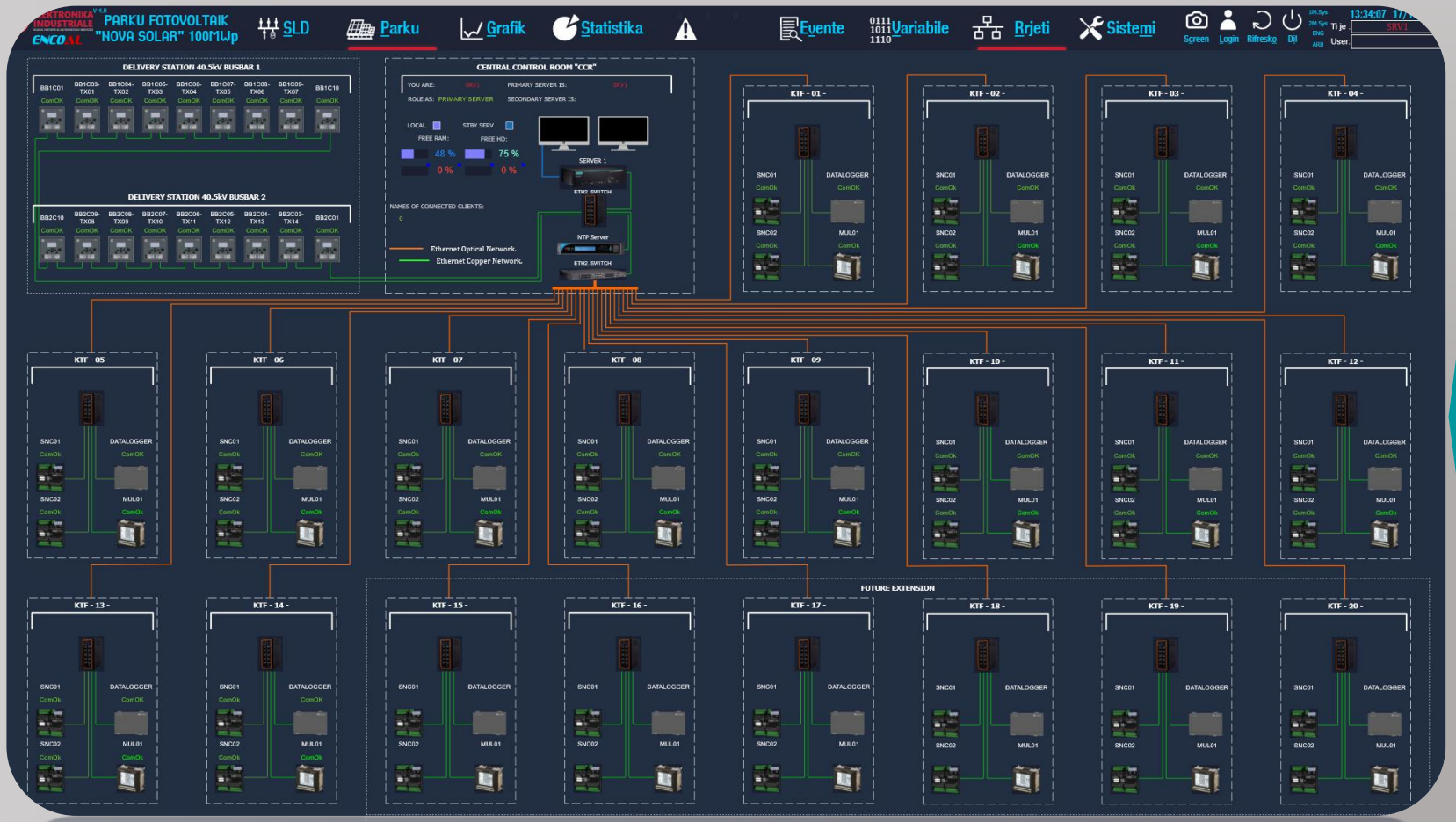
- **Single Line Diagram (SLD) page** displays all electrical devices, from inverters to the 35kV delivery station switchgear, including:
- Circuit breaker status (open/closed) Current and voltage measurements at key points in the system.
- Transformer temperature, alarm trip.



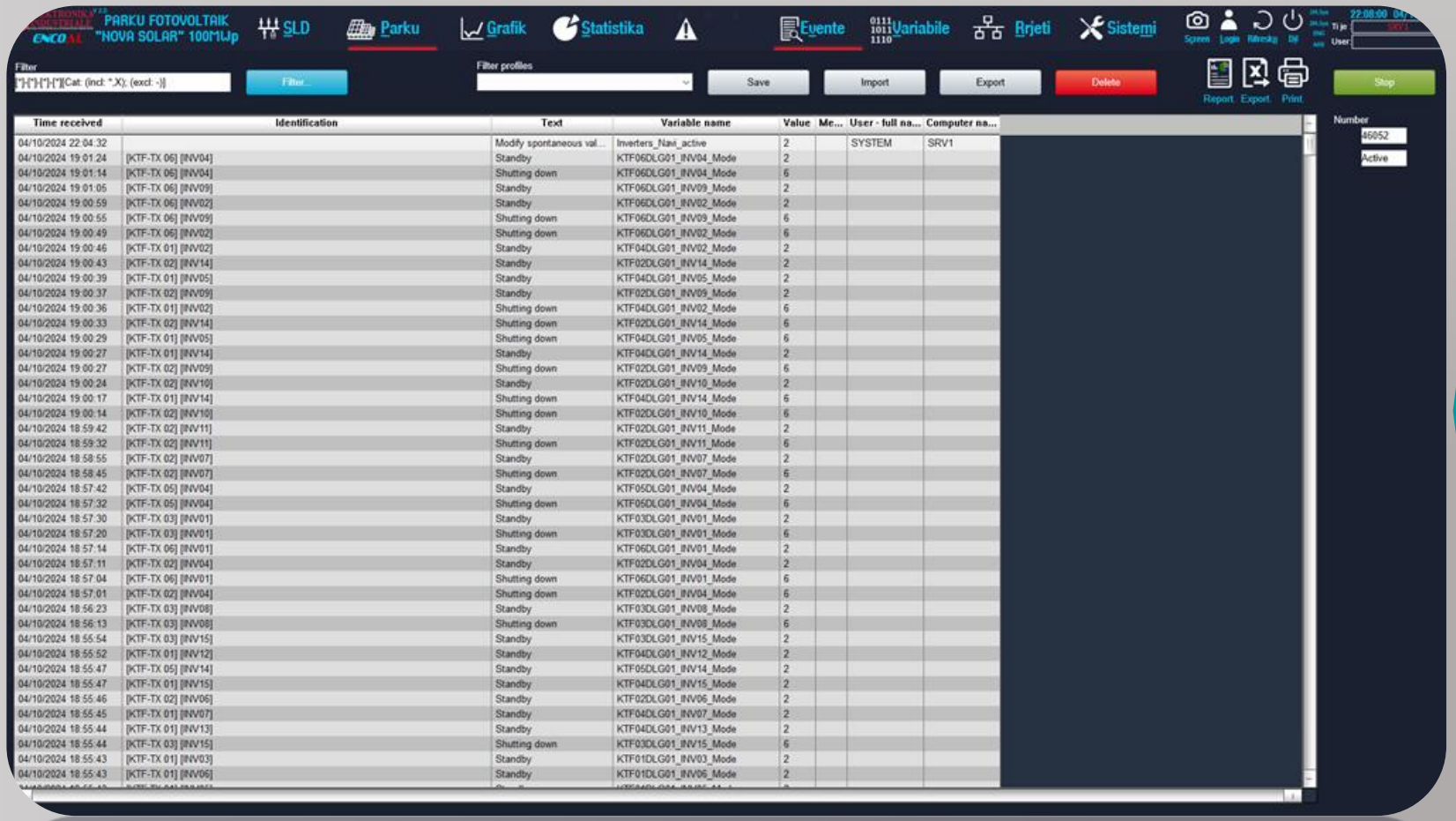




- **The Statistics Page** provides a comprehensive overview of key operational and performance metrics, ensuring real-time insights into plant efficiency and status. The displayed data includes:
- Today's and last day's production, allowing for quick daily performance assessment.
- Monthly, yearly and lifetime production to track long-term energy generation trends.
- Daily inverter production, including:
- AC/DC performance ratio, ensuring efficiency monitoring.
- Number of inverters online and connected to the grid.
- Total AC and DC power for each transformer kiosk, offering a detailed view of power distribution.
- Alarm statistics, displaying the total number of active and historical alarms for fault detection and troubleshooting. This page is essential for performance analysis, maintenance planning and optimizing site conditions.



- **The Network Page** provides a real-time overview of all connected devices within the main SCADA server, ensuring seamless communication and system reliability.
- Key Features:
- Graphical representation of all networked devices, including inverters, remote I/O panels, field transformer kiosk, protection relays and SCADA servers.
- Visual status check to monitor device connectivity and operational status.
- Alarm notifications for communication failures, enabling quick identification and resolution of network issues.
- This page is essential for diagnosing connectivity problems, ensuring system redundancy and maintaining stable communication across the entire SCADA network.



- **The Event Page** records all changes and operations performed by the operational team, ensuring full traceability and accountability within the SCADA system.
- Key Features:
- Comprehensive event logging, capturing all manual operations, system modifications and parameter changes.
- Timestamped records stored in a secure database for historical analysis.
- User identification, ensuring that each action is linked to the responsible operator.
- Filtering and search functionality, allowing quick access to specific events for troubleshooting and audits.
- This page is essential for maintaining operational security, analyzing system performance and ensuring compliance with industry standards.

- **Scada Panel** with Moxa IEC 61850 certified server.
- Field I/O remote **ComBox**

At Servi6 we combine innovation, expertise and a commitment to sustainability for shaping the future of energy automation and renewable progress.