ELM Energy LLC™

FieldSight™ MicroGrid

MONITORING AND CONTROL

FieldSight™

MicroGrid
Monitoring and Control

PRODUCT OVERVIEW

ELM Energy's FieldSight MicroGrid solution uses best in class hardware in combination with sophisticated backend architecture and communication interfaces to enable the operator to efficiently monitor and control their various MicroGrid assets from a single portal.

KEY FEATURES

- **Generation Optimization and Balancing**
  - Automatically maximize the use of renewables in generation profile
  - Optimize operation of traditional fossil based generation
  - Reduce total operating costs and Green House Gas Emissions
- **Increased Power Reliability**
  - Maintain a consistent power source no matter the status of "grid" power
  - Easily create "Islanded" MicroGrid's when required
  - Manage power demand to match available power supply reducing grid instability
- **FieldSight Energy Insight**
  - The FieldSight portal gives MicroGrid operators the ability to make educated decisions and validate and track activities
  - Regardless of equipment type, monitor and control all MicroGrid assets in a single portal

APPLICATIONS

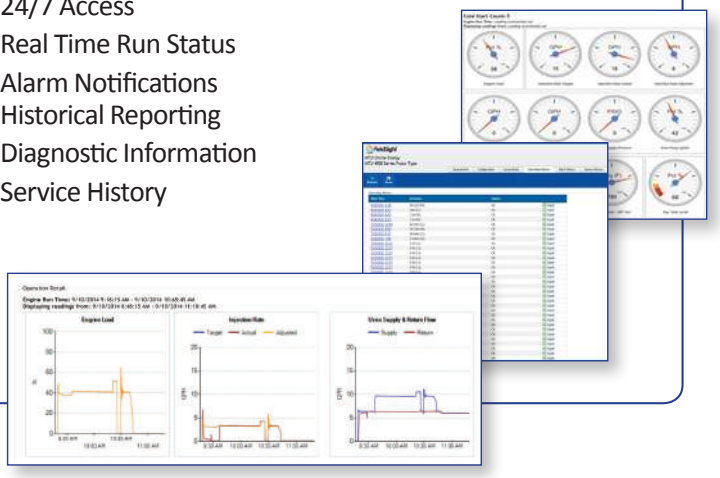
- **Off the Grid MicroGrid Installations**
  - Create consistent "islanded" power when utility power isn't available
  - Maximize the production of available renewables
  - Increase power reliability through complete MicroGrid monitoring and control
- **Grid-Tied MicroGrid Installations**
  - Maintain a consistent power source no matter the status of utility power
  - Use On-Site Generation when utility power is most expensive
  - Maximize the return on investment from On-Site Generation
- **Distributed Generation**
  - Create a revenue source from your Generation assets by selling back to the Utility
  - Autonomous dispatch of generation assets when economics justify operation

HARDWARE

- Based off of proven National
- Instruments cRio Platform
- Secure Linux based Real Time Industrial PC
- ModBus/CAN Bus/ SCADA Communication
- Color Touchscreen
- Ethernet / 3G / Wifi / Satellite communication
- Up to 128 Independent digital Analog Inputs / Outputs

SECURE WEB BASED PORTAL

- 24/7 Access
- Real Time Run Status
- Alarm Notifications
- Historical Reporting
- Diagnostic Information
- Service History



FIELDSIGHT MICROGRID TECHNOLOGY

Hardware

- Secure Linux based Real Time Industrial PC
- 667MHz to 1.33 GHz Dual Processors
- Onboard FPGA up to 85,000 logic cells, 40MHz Base Clock
- -40 C to 70 C operation (without any required additional cooling)

Asset Connectivity

- ModBus (485 / TCP)
- CanBus
- Other Existing SCADA systems
- Analog
- Digital
- SOAP / REST Web Services
- Dry Contacts
- ODBC (Databases)

Communication

- 3g/4g cellular
- Satellite
- Industrial WiFi
- LandLine / Ethernet
- Serial

User Interface

- Cabinet Mounted Touch Screen
- Web Portal
- Mobile Portal
- API to existing solutions/database

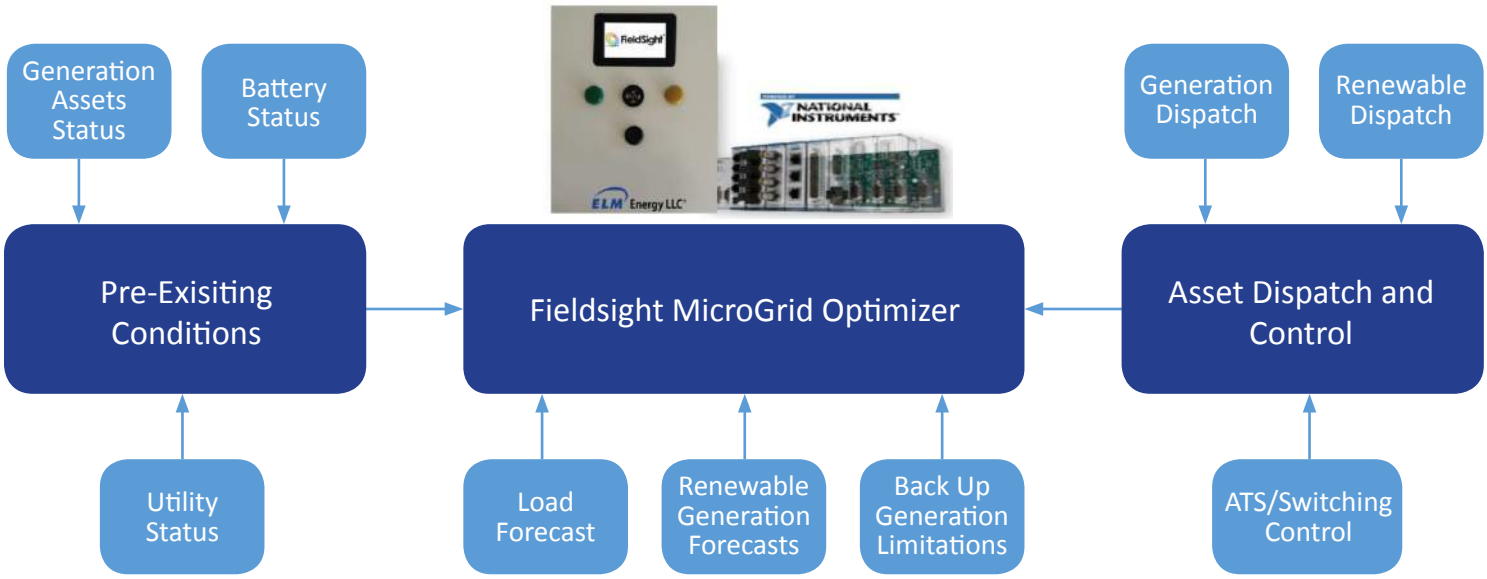
MicroGrid Control

- Remote Start and Stop
- Automated Intelligent onboard Control (FPGA driven)
- Automated onboard Diagnostics

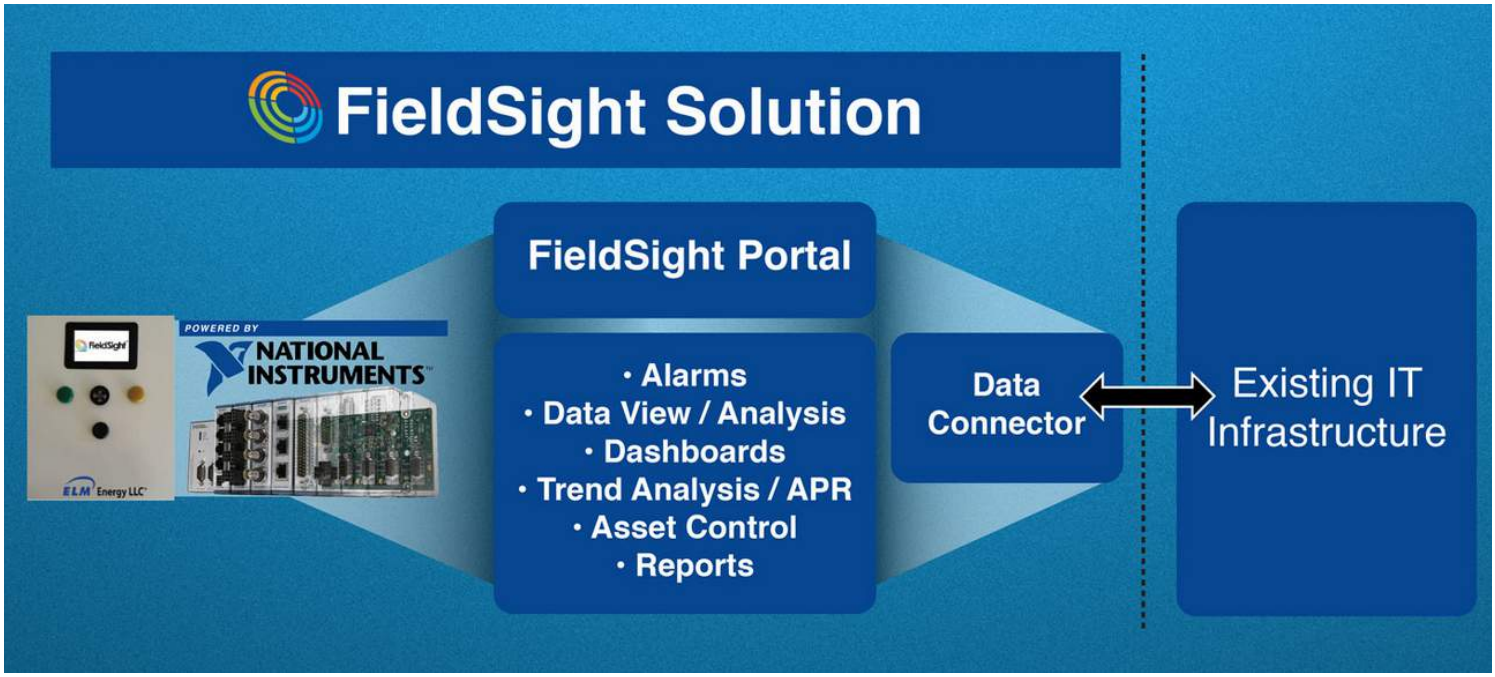
MONITORING/CONTROL OVERVIEW

Assets	Control and Logic	Communications
Diesel Generation	Remote Start and Stop	3G Cellular
Solar Generation	Load Forecasting	Landline
Wind Generation	Optimal Power Dispatching	WiFi
Distributed Battery Storage	Power Reliability	Satellite
Industrial Load	Isochronous Generation Control	Local download of data
Combined Heat and Power Systems		
Transmission and Switch Assets		

FIELDSIGHT ASSET DISPATCH/CONTROL MATRIX



FIELDSIGHT WEB PORTAL



- Web and Mobile Friendly
- Create custom alarms- Voice, SMS, or Email
- Virtual Dashboards (Installed or hosted)
- Integration to existing databases – SQL, PI, Local, XLS outputs
- Ethernet / 3G / Wifi / Satellite communication

For more information contact:

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