TRINITI

Intelligent dashboards for Smart grid using Tableau

winAMR
Smart Metering and beyond

Dashboards for smart grid to visualize Meter Data, Energy Auditing, Power Quality Management, Outage Management, Peak Load Management, GIS enabled real-time monitoring

About winAMR

winAMR offers Smart Metering solutions for utilities globally. The solution comprises of a whole range of metering devices (MR), communication channels (AMI) that can support various technologies like RF mesh, PLCC, 6lowpan, GSM, GPRS etc. and Head end Server (IRIS) to interface between MR and utility MDMS systems.
Leveraging winAMR products, Utility companies can manage demand and load profile efficiently, thus saving extra cost of purchase during peak loads. By providing efficient, detailed, accurate/timely billing along with alerts on outages and due dates, these products enhance customer service.

Business Challenge

winAMR did not have a centralized visualization layer in place to view & manage the voluminous data generated by the smart grid installation. As part of Indian government's smart grid initiative, winAMR was chosen to execute the pilot project for Jeedimetla industrial estate at Hyderabad, India. Below were the main challenges identified:

- Existing reports developed and deployed by winAMR were **unintuitive** and **lacked user friendliness**
- Quality of the data fed to the reporting layer was poor due to lack of a well-architected data model
- **Inconsistent data governance**
- **Irrelevant** data
- **Poorly designed user interface**, which was less flexible for user interaction
- **Live data tracking** at presentation layer was missing
- No self-servicing abilities were provided by the reporting framework forcing business users to rely on IT for even minor changes to the reports
- Lack of visualization—minimum or no dashboarding features

Desired Outcome

The project's ultimate objective was to build and deploy a user interface layer which:

- Was more user friendly
- Provided the end user the ability to interact with visualizations
- Extracted and displayed live data feed, collected through various sources deployed at site
- Helped end users in analyzing the data through interactive dashboards
- Was appealing visually and enrich user-experience
- Provided reporting along multiple dimensions in line with objectives of various stakeholders—energy audit, quality management, outage management, peak load management teams

Solution

winAMR invited Triniti during the finalization of the solution implementation stage. Triniti team then leveraged its expertise in the Tableau BI space together with its strong technical understanding of the database platform and performed the following:

- Created a single dashboard that gives one-stop access to all of customer data.
- Developed multiple dashboards across various areas like Meter Data Management System, Power Quality Management System and Outage Management System.
- Provided agile, flexible solutions within the estimated timeframe.
- Integrated open GIS map in Tableau.
- Created button/Icons for the dashboards to enhance the User interface.
- Used stored procedures to define a data source for Tableau to improve response time.
- Improved overall dashboards performance and redesigned data model applying Tableau Performance Tuning.

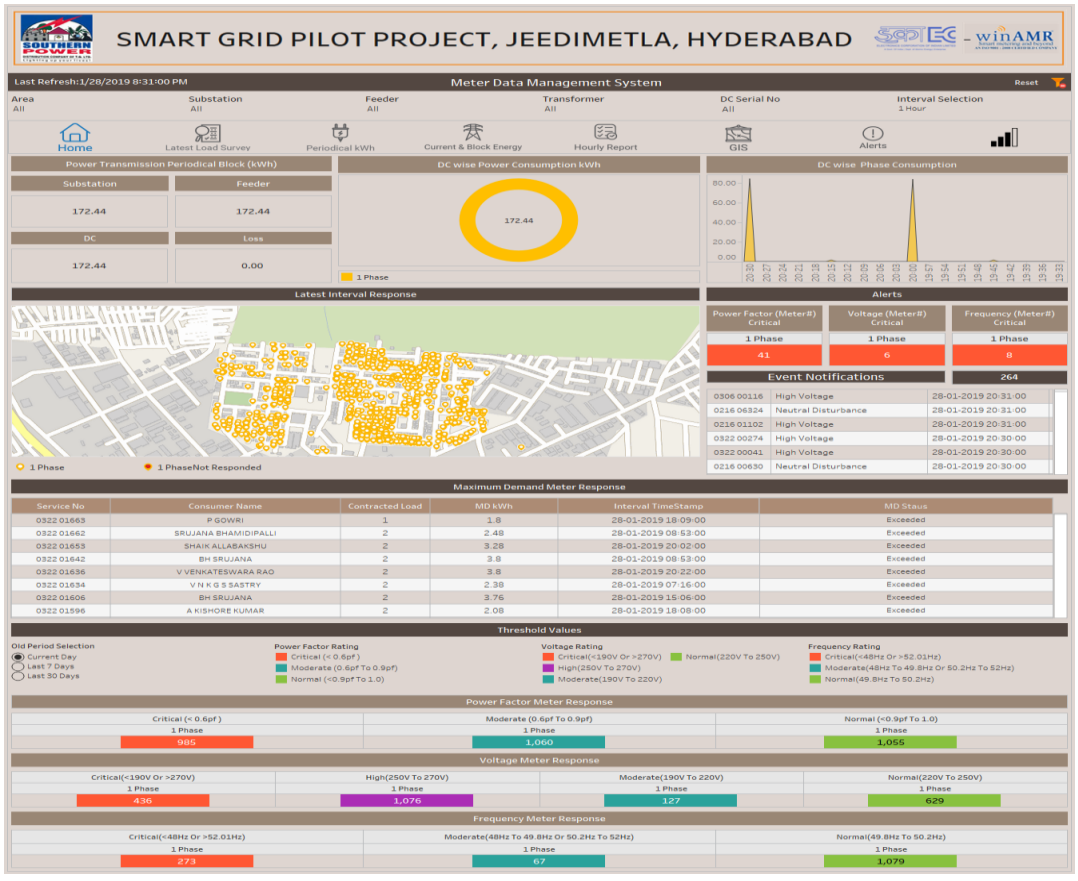
Scope & Dashboards

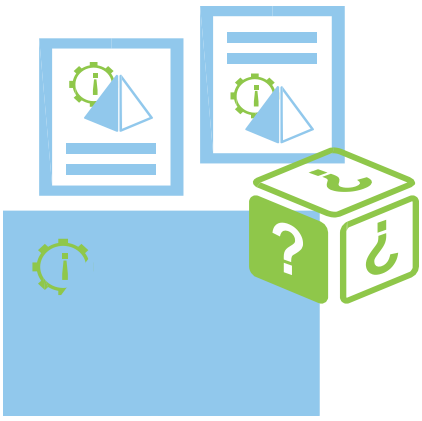
Modules
Meter Data Management System
Energy Auditing
Power Quality Management System
Outage Management System
Peak Load Management System
JMSG GIS Monitoring
Billing Report
Consumer Portal

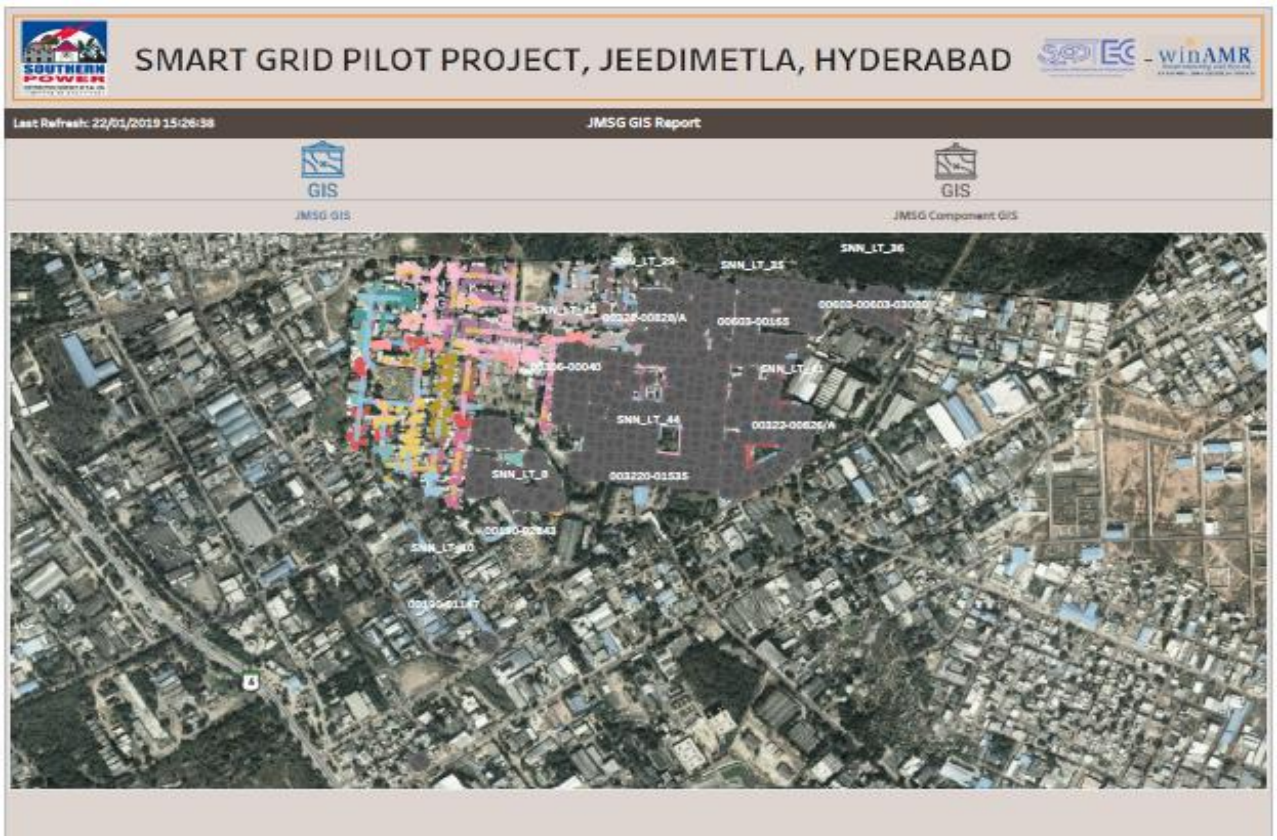
Key Metrices Built

- Maximum KWh demand recorded at the meter level
- Power Factor, Voltage & Frequency recorded with the exception / alert dashboards
- Power failure / disconnection alerts monitoring
- Power consumption details at meter / consumer level
- Bulk energy consumption across various levels of power distribution hierarchy i.e. Area, Substation, Feeder, Transformer, DC serial no, meter level (1 phase, 3 phase & DTR meters)

Sample Dashboards







Business Benefits

Triniti guided the whole Tableau implementation, which minimized the gap between customer expectations and actual development.
As a result, winAMR gained the following business benefits:

- Expedited decision making.
- Improved Data Quality and Data Governance methods.
- Minimized complexity through the use of flexible and agile dashboards.