



# Energy & Utilities Industry Focus

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# Power Utility – ERP, Customer Care & Billing, EMS, Mobility

## Client Overview:

- A leading power utility's growth through 3 mergers necessitated integration of multiple systems including ERP, customer care & billing, EMS, Mobility, Big Data/Analytics, Cyber Security, Quality Assurance, and Technology Resource Fulfillment

## Challenges / Key Objectives:

- Energy Management System (EMS) - Allow for hardware to be refreshed to mitigate EMS failures. Provide agility to meet ever-changing NERC Reliability standards
- Advance Metering Infrastructure (AMI) – Upgrade to bi-directional Smart Meters
- Meter Data Management (MDM PH1 & PH2) -Maximize the benefits provided by Advanced Metering Infrastructure (AMI) installations
- Improve operational efficiency in various areas including billing, revenue protection, outage management and customer service
- Oracle BI Apps:Enable analytics on the PeopleSoft ERP for Financials Modules as well as SCM Modules
- BI Workforce Management System (WMS):Combining WMS data with financial data for analytical reporting

## Solution / Project Engagement:

- Application Services – ERP, App Dev/Integration and legacy support/migration
- Info Management – BI, analytics, dashboards, MDM and ETL
- IT Infrastructure –DB Admin, Professional Services, App Support
- Process & Governance – CIP, Environment & Go-Live Management, Testing Automation and Change Management

## Technical Environment:

- Oracle ERP & Utilities / PeopleSoft / SCM
- PowerBI/OBIEE
- EMS/AMI/MDMMainframe/UNIX/Oracle (transformation)
- Service Now

## Benefits / Value to Customer:

- Consolidated customer care & billing platform
- Improved customer services & experience
- Enabled streamlined business & IT processes
- Reduced business risk & operations cost

# Multi-state Power Utility – Cyber Security

## Client Overview:

- With the largest portfolio of electricity generation capacity and nationwide reach spanning 47 states, the District of Columbia, and Canada, this leading competitive energy provider is a significant player in the industry

## Challenges / Key Objectives:

- OTSI's selection for developing and establishing a Smart Grid Cyber Security Program (SGCS) demonstrates their commitment to ensuring a secure system environment for their client by mitigating risks, vulnerabilities, and threats to their network

## Solution / Project Engagement:

- System Development - Design, Architecture, Implementation, Integration and Testing
- Application and Hardware Infrastructure -Design, Support, Monitoring, Analysis and Reporting
- Processes -Risk Management/Mitigation and Plan of Action Plans, Policies, Procedures, Governance, Auditing, Situational & Incident Response Reporting
- Documentation -Playbooks, Run Books, Job Aids, Work Breakdown Structure, Integrated Master Plans, Contact List, Escalation Plans, Recall Plans, GOSP Model, Engineering Drawings, Asset & Document Management
- Penetration Testing -Insider and Outside Threats e.g., (AMI –Advanced Metering Infrastructure field network components, and Smart Grid Environment)

## Technical Environment:

- SAS, Microsoft SQL Server, Hortonworks Data Platform

## Benefits / Value to Customer:

- Best practices service delivery
- Risk-Reward SLA Models
- Transition Methodology
- Resources Re-badge
- Cost Savings and Value Management
- Global Locations –Resources Anywhere

# Public Gas & LNP Utility – Advanced Analytics

## Client Overview:

- As a reliable and innovative provider of gas, LNP, and renewable energy in India, this company is helping to drive the country's energy transition

## Challenges / Key Objectives:

- Lack of optimization & forecasting tool
- Lack of a single unified solution for different business units
- Accessing data from different locations
- No optimal product mix and polymer margins – increasing production cost

## Solution / Project Engagement:

- Deployments of Analytics & Optimization solutions for all business segments, initially covering 3 areas of Petrochemical business-Production, Margin, and Price Optimization
- Performed requirement assessment, solution architecture & blueprint documentation
- Installation and configuration of SAS software components for Analytics and Optimization
- Design & execute ETL for existing data sources from SAP modules, analytics, and data visualization

## Technical Environment:

- SAS Data Management with Standard Data Surveyor for SAP
- SAS Visual Analytics(VA), SAS Enterprise Miner with SAS Analytics Pro
- SAS O/R, SAS Access, SAS ETS Add-On

## Benefits / Value to Customer:

- Firm orders are met with minimum possible slippage and cost
- Overall operating cost associated with the grade changeover is minimized by optimizing the transition time and cost, inventory cost, and operating cost
- Plant operation related constraints are minimized

# Municipal Government – Smart Cities Controls

## Client Overview:

- Municipal government needs Smart Cities capability for timely switch on/off and maintenance of the street lights

## Challenges / Key Objectives:

- Switch ON and OFF automatically
- Street light fault detection
- Minimize power consumption
- Street light durability and maintenance
- Street light performance

## Solution / Project Engagement:

- Implemented a controller-based solution to automatically switch on/off all the lights at the prescribed time
- Detect and send the data packets of faulty lights for analysis and maintenance scheduling.
- Implemented a remote monitoring system to analyze and provide the performance of all controllers and their durability

## Technical Environment:

- Data Collection and Management -Microservices, Spring Boot, PostgreSQL, Vert.x, ExtJS
- DLMS or Device Language Message Specification (originally Distribution Line Message Specification)

## Benefits / Value to Customer:

- Helps in energy-saving and management
- Reduce manual effort

# Power Utility – Utility Analytics & BI

## Client Overview:

- As a multi-state power utility, this company is committed to delivering reliable and efficient energy solutions across a wide range of regions

## Challenges / Key Objectives:

- Provide dashboards/reports to multiple utility divisions to monitor data and achieve near real-time analytics from various data sources
- Retrieve data from the TeraByte platform (data warehouse/data marts) in a timely manner while performing calculations, aggregation, and roll-up on the fly

## Solution / Project Engagement:

- Developed around 110 dashboards which include executive and detailed reports
- Near Real-Time Dashboards -POWERBI on cloud
- Publish Once –The server dynamically filters data based on who's viewing
- Embed views in other web apps including SharePoint

## Technical Environment:

- PowerBI/ Cloud
- Microsoft SharePoint

## Benefits / Value to Customer:

- Integrated and cloud-based BI & reporting
- Near-real-time data presentation
- Improved value from the Microsoft application stack

# Municipal Government – Prepaid Energy Metering

## Client Overview:

- Municipal government-owned utility wishes to automate pre-paid billing, payment processing and build an effective power monitoring system

## Challenges / Key Objectives:

- Automated Bill generating system
- Auto disconnection if customer bill remains unpaid
- Power transmission capacity calculation
- Meter tampering/intrusion alerts

## Solution / Project Engagement:

- Implemented a Head-End System with the following features:
- Collect the energy data periodically from all installed Prepaid Energy Meters and present it for billing calculation
- Implemented a solution to send a notification packet from the energy meter to the server when anyone tampers the meter.
- After repeated payment reminders, a command will be sent to the meter to turn off the power until cleared.
- Implemented a remote monitoring system to analyze and provide the performance of all meters and their durability
- Implemented Consumer Mobile Application for recharging and viewing bill and payment history details

## Technical Environment:

- Native app development -Objective-C, Swift for iOS, and Java for Android
- Data Collection and Management -Microservices, Spring Boot, PostgreSQL, Vert. x
- AWS Cloud –EC2, ELB, RDS, SQS
- DLMS or Device Language Message Specification (originally Distribution Line Message Specification)

## Benefits / Value to Customer:

- Real time monitoring and push notifications
- Accurate billing with an integrated payment gateway
- Clearance of overdue bill payment & service restoration



# THANK YOU

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