Quality Data Powers GIS

Leveraging Geospatial Accuracy for Operational Intelligence

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Southern Company

- 4,412,000 Electric Customers
- 120,000 Square Miles in 4 States
- 43,000+ MWs of Generation Capacity (58% Coal, 25% Oil/Gas, 15% Nuclear, 2% Hydro)
- 143,000 Miles Distribution
- 27,000 Miles Transmission
- 4 Operating Companies: APC, GPC, GULF, & MPC
Alabama Power Company

- Serves 1,434,434 customers
- Vertically Integrated Utility
- Over 6,600 Employees
- 10,218 Miles Transmission
- 79,430 Miles Distribution
- 2200 Distribution Circuits
- 44,500 Sq. Mile Service Territory
Smart Grid at APC

• 2,200 feeders automated at breaker

• Over 4,000 automated line devices

• AMI project completed in 2010

• Integrated Distribution Management System (IDMS) partially deployed in 2012

• New Outage Management System being tested

• Numerous Advanced Applications to be included in IDMS

• GIS serves as critical source data for IDMS and OMS
GIS Evolution at Alabama Power Company

- In 2000 APC deployed an ESRI GIS Model
- Old inaccurate distribution data was imported to GIS
- Next decade was devoted to correcting the data
- SGIG Project
- Overhead/Underground Spatial Adjustments
- Customer Linking
Establishment of a Process Flow

• Initial Training
  • APC’s DMC Team
  • Progression of Rolta staff
  • Distribution network policies and requirements
  • Crucial Power Delivery Concepts

• Team-Based Structure
  • Accountability
  • Friendly Competition
  • Attention-to-Detail

• Tech Responsibilities
  • Work grid-by-grid through feeder
  • Post 1 ArcFM session daily
  • Secure CITRIX environment
  • Execute Noted Changes, if any
  • Relocate Features leveraging Bing Maps, Google Maps
• APC continued its partnership with Rolta to spatially adjust ~300 Overhead feeders and ~2900 Underground Subdivisions against new Aerial Imagery

• Spatial Accuracy was achieved by repositioning assets to the real world location using Google and Bing Imagery
APC Source
APC OHSA output
Google Imagery – Street View
Customer Linking

- The objective was to generate and accurately place a customer point and link it to feeding transformer.
- Using CSS database, Rolta created, researched and linked ~1.4M customers to serving transformer.
- GIS Accuracy was obtained thru Geocoding, Reverse Geocoding and extensive research for each customer.
Customer Linking Business Case

- Existing OMS at APC was DOES - Distribution Outage Evaluation System
  - Homegrown DB2 database interfaces with CSS, SCADA, TFCC (automated callbacks)

- Issues with incorporating Smart Grid data with an advanced OMS application:
  - Data quality – incorrect data would prevent OMS from functioning properly
  - New OMS required customers be located spatially and be linked to their serving transformer or service point which is a greater level of detail than previous OMS.

- GIS Accuracy and Data supplied by smart meters, sensors, line devices, etc. provides:
  - More accurate outage location identification, better outage response time
  - Increased efficiency in outage restoration, increased real time knowledge of system condition, gain in information gathered to assist in preventing outages
Customer Linking Interface
Customer Linking Interface
Conclusion

• Rolta was able to efficiently complete the Overhead/Underground Spatial Adjustment projects as well as the Customer Linking Project and minimize new technology implementation and training cost

• Leveraging online imagery enabled Rolta to place facilities at their real world location, and in turn helped APC’s field crew to rely on GIS data for spatial and network accuracy

• Accurate GIS and Customer data enabled APC to implement new Outage Management System (OMS)
Q & A

• For additional information, please contact Shri/Wayne at Rolta booth at 2311