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National Grid's Approach to the Smart Energy Solutions Program Resource Training



**Grid of the Future Symposium
October 21st, 2013**

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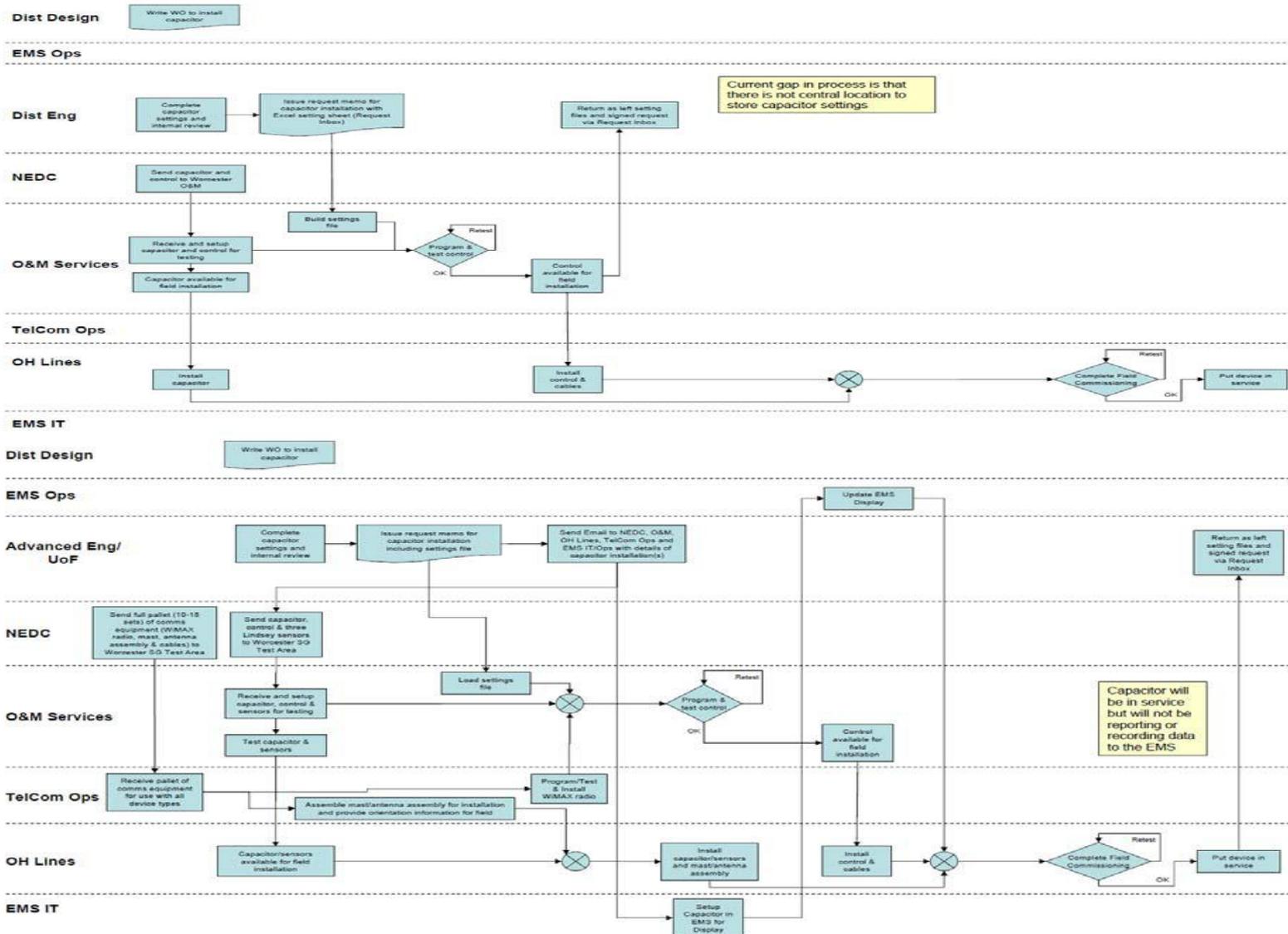




- “Smart Grid” or “Advanced Infrastructure” have tendency to mean different things to different organizations and stakeholders
 - At National Grid, the Worcester, MA Smart Energy Solutions Program is comprised of an entire suite of advanced utility technologies ranging from automated substation equipment, autonomous distribution equipment and control systems, an advanced smart metering architecture (AMI), in-home energy management technologies, as well as fully integrated back-office systems and data warehouses to support this new intelligent electrical infrastructure
 - When considering such a paradigm shift to the manner in which a power delivery utility plans, designs, builds, and maintains such an asset base, the importance of a comprehensive workforce training program becomes evident
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- **Safety**
 - Develop procedures and policies to which prevent incidents
 - Also protect people and environment from effects of accidents
 - **Education**
 - Educate the public how to use energy safely and respond to risky situations
 - Train and define procedures on working safely around live energy and equipment
 - **Complexity**
 - Comprehensive Smart Energy Solutions Program
 - Thorough technical evaluation, system level testing, and a comprehensive rollout training program was necessary
 - Ensure that all workforce personnel were provided with the appropriate knowledge and understanding of new equipment and technologies
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Process Flow



- Training documents were created by SMEs and then reviewed and refined by colleagues of the Learning and Development organization at National Grid.
- Use of conceptual process flow diagrams to determine which documents needed to be created
- Identified Departments
 - Overhead & Underground Line Operations
 - Substation Operations & Maintenance
 - Protection and Telecommunications Operations
 - System Control Center
- Identify Existing Material
 - While new technologies were to be implemented, consistency was needed with existing training material
- Identify New Material
 - Requirements for new training modules were identified and addressed accordingly
- In all cases, training material development carefully coordinated the interest of safety, reliability, and process efficiency



Mock-up Installation Construction Phase



Completed Mock-up Installation



CAD of training area

- In General, Learning & Development is responsible for providing all training at National Grid
 - Made it important for that organization to help review and approve the material
 - After performing dry-run activities to deliver training material and construct each of the various devices in a controlled training center environment, additional review sessions were held to discuss the end-to-end process and to identify additional areas for further product enhancement
 - We found that further fine-tuning of the process flows were needed and training material was revised
 - Part of the ongoing support requires the SMEs to be in the field when needed by the line workers or their Supervisors
 - Currently a small scale “Pilot” but the methods used for training will allow for larger scale deployment using new material created
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- Extremely beneficial workforce engagement and training
- Also for communication to various internal and external stakeholders who may be looking for additional information on what the overall program architecture will offer
- Internally, we were able to give the presentations to our Central Distribution Center personnel, Customer and Business Strategy group, Operations group and Network Strategy group by taking them to the training center showing them the material, and the mock-up installations indoors and outdoors.
- The training material and site demonstration efforts have been invaluable for educating external stakeholders on what National Grid's Smart Energy Solutions Program is delivering to our valued Customers in Worcester, MA



Thank you

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