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# **Ameren Illinois 3rd Quarter 2014 Smart Grid Test Bed Report**

November 14, 2014

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## Executive Summary

Ameren Illinois Company (Ameren Illinois) submits the following Smart Grid Test Bed Quarterly Report in accordance with the Energy Infrastructure Modernization Act, (EIMA) 220 ILCS 5/16-108.5 et seq. . This report provides updates on the steps Ameren Illinois has taken to implement its test bed plan during the third quarter of 2014. The report includes information on activities Ameren Illinois has undertaken to further develop its “primary” test bed location, discussions with potential test bed customers, and on the testing application process.

## Current Test Bed Projects

- During the week of August 5, Ameren Illinois attended the DOE Cybersecurity for Energy Delivery Systems Peer Review (CEDS) workshop to assist in the reporting to the DOE on the Software Defined Network (SDN), Secure Policy-Based Configurations Framework (PBCONF), along with attending the Breakout Sessions on how to better continue the DOE efforts for the CEDS.
- Ameren Illinois’ participation in the CEDS workshop led to a contact with Industry Leader ABB who approached Ameren Illinois to assist them in a new research effort for the DOE funded project called “Collaborative Defense of Transmission and Distribution Protection and Control Devices Against Cyber Attacks” (CODEF). This project will advance the state of the art for cyber defense methods for transmission and distribution grid protection and control devices by developing and demonstrating a distributed security domain layer that enables transmission and protection devices to collaboratively defend against cyber-attacks in an IEC 61850 environment. Ameren Illinois agreed to partner on this research effort and will receive partial reimbursement of test bed resources through the funding. The collaborative defense system will be incorporated into the firmware of enhanced relays in a utility setting.
- Continued work on the internal Ameren Illinois project for testing wireless communication systems with new Voltage Regulator controls and radios on the TAC circuit 372 distribution regulators as outlined in 2nd quarter report. Satellite radio testing has been completed. The final testing for proof-of-concept utilizing satellite radios as part of this project was a success and is currently being reviewed within Ameren. Data collection for other wireless communications continues.
- Per the 2<sup>nd</sup> quarter report, Ameren Illinois has continued to evaluate new LED lighting technology by measuring and collection of data via our AMI metering matrix. The data being collected will be analyzed for energy consumption to determine if the Roadway LED’s are recommended for Ameren Illinois future offerings.

- Home Area Network (HAN) and AMI testing has been initiated to determine the functionality and operability of how end use devices interface with Ameren’s AMI meters.

### Test Bed Applications

- An application was received from a solar panel manufacturer desiring to test its new Concentrated Photovoltaic solar panel. Ameren Illinois continues to work with the client to define the scope of the requested testing services. Further more detailed discussion is necessary due to a panel design change.

### Test Bed Tours

- On July 31, 2014 two members of the Illinois Commerce Commission, (Chairman Doug Scott & Commissioner Anne McCabe) along with other ICC staff members, participated in a tour of the Technology Applications Center.
- On August 13, 2014 a large group from the Midwest Electric Distribution Exchange (MEDE) participated in a TAC tour. This group included the following companies:

Alliant Energy Corp.	Indianapolis Power & Light	Vectren Energy
Ameren	LG&E and KU Energy	We Energies
ComEd	Kansas City Power & Light	Westar Energy
DTE Energy	LG&E and KU Energy	Wisconsin Public Service Corp.
Empire District Electric Co.	MidAmerican Energy Co.	Xcel Energy

### Additional Activities

- TAC staff continues to refine its plans for identifying and implementing a self-contained 69KV switching device to support AIC’s continued automation of its 69KV systems. During the 3<sup>rd</sup> quarter 2014, AIC was informed that one of the vendors it was working with has decided to delay development of its solution. AIC continues to work with other vendors to implement a solution for this application.

### Smart Grid Test Bed Plan Success

Ameren Illinois' commitment to the successful implementation of its Smart Grid Test Bed plan is strong. However, as set forth above, Ameren Illinois reserves the right to modify, amend or alter this plan, as necessary and consistent with the law, to meet the

requirements and objectives of the EIMA and other related provisions. Additionally, Ameren Illinois reserves its right to terminate this plan.