Docket No. 12-0244
ICC Staff Exhibit 3.0

# DIRECT TESTIMONY

**of**

**James Zolnierek, Ph.D.**
**Director**
**Policy Division**
**Illinois Commerce Commission**

**Ameren Illinois Company d/b/a Ameren Illinois**

**Verified Petition for Approval of Smart Grid Advanced Metering Infrastructure Deployment Plan**

**Docket No. 12-0244**

**April 17, 2012**

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## Introduction

**Q. Please state your name and business address**.

**A.** My name is James Zolnierek. My business address is 527 East Capitol Avenue, Springfield, Illinois, 62701.

**Q. By whom are you employed and in what capacity?**

**A.** I am employed by the Illinois Commerce Commission ("Commission" or "ICC") as the Director of the Policy Division within the Public Utilities Bureau.

**Q. Please state your education background and previous job responsibilities.**

A. I earned my Doctor of Philosophy degree in economics from Michigan State University in 1996. Prior to joining the Commission Staff ("Staff"), I was employed by the Federal Communications Commission ("FCC") as an Industry Economist in the Common Carrier Bureau, Industry Analysis Division.

## Purpose and Summary of Testimony

**Q. What is the purpose of your Direct Testimony in this proceeding?**

**A.** The purpose of my direct testimony is to respond to two aspects of the Ameren Illinois Company's ("Ameren") petition for approval of an Advanced Metering Infrastructure Plan ("AMI Plan" or "Plan"). In particular, I look at the consistency between Ameren's Multi-Year Performance Metrics Plan and its AMI Plan, and I

examine Ameren's incorporation (or lack thereof) of its existing 2-way communication network into its AMI Plan.

**Q. Please summarize your Direct Testimony.**

**A.** In my testimony, I review the consistency between Ameren's Multi-Year Performance Metrics Plan and its AMI Plan. I conclude that the two plans are inconsistent. As a result, I recommend that the Commission require Ameren to modify its AMI Plan to make it consistent with its Multi-Year Performance Metrics Plan. I also examine Ameren's incorporation (or the lack thereof) of its existing 2-way communication network into its AMI Plan. I recommend that the Commission require Ameren to modify its AMI Plan to explicitly account for incorporation (or the lack thereof) of this existing communications network.

**AMI Plan and Multi-Year Performance Metrics Plan Consistency**

**Q. Please explain your understanding of the performance goals that Ameren, as a participating utility, is subject to under the Public Utilities Act ("Act")?**

**A.** Pursuant to Section 16-108.5(f) of the Act (220 ILCS 5/16-108.5(f), Ameren must have multi-year metrics designed to achieve improvement over baseline performance values in several defined areas. In particular, among its requirements, Ameren is required to include the following AMI-related improvements over baseline performance values:

- Consumption on inactive meters: 90% improvement for a participating utility other than a combination utility, and 56% improvement for a participating utility that is a combination utility, using a baseline of the average unbilled kilowatthours for the years 2009 and 2010.[1]

- Uncollectible expense: reduce uncollectible expense by at least $30,000,000 for a participating utility other than a combination utility and by at least $3,500,000 for a participating utility that is a combination utility, using a baseline of the average uncollectible expense for the years 2008 through 2010.[2]

Ameren must meet these goals "ratably (i.e., in equal segments) over a 10-year period."[3]

**Q. Has Ameren filed a performance metrics plan pursuant to Section 16-108.5(f) of the Act?**

A. Yes. In Docket No. 12-0089, Ameren filed Multi-Year Performance Metrics pursuant to Section 16-108.5(f) of the Act.

**Q. Within its Multi-Year Performance Metrics filing, what values did Ameren specify for performance metrics aimed at meeting the statutory prescribed goal under the heading "consumption on inactive meters"?**

A. In order to meet its yearly goals for "consumption on inactive meters," Ameren's specified ratable yearly performance goal of consumption on inactive meters for each year of the 10-year period of its plan, in kWh, is:

2013 – 11,423,161 kWh
2014 – 10,745,516 kWh

[1] Section 16-108.5(f)(6) of the Act.
[2] Section 16-108.5(f)(8).
[3] Section 16-108.5(f).

2015 – 10,067,871 kWh
2016 – 9,390,225 kWh
2017 – 8,712,580 kWh
2018 – 8,034,935 kWh
2019 – 7,357,290 kWh
2020 – 6,679,645 kWh
2021 – 6,002,000 kWh
2022 – 5,324,355 kWh[4]

**Q. Is Ameren's AMI Plan consistent with these goals?**

A. It does not appear so. Ameren does not include yearly values for consumption on inactive meters within the document entitled "Ameren Illinois Advanced Metering Infrastructure (AMI) Plan."[5] However, Ameren does include yearly values within the Cost/Benefit analysis. As Ameren acknowledges, "the consumption on inactive meters Kwh amount assumed in the Cost / Benefit Analysis is greater than the consumption on inactive meters Kwh performance goal in each of the 10 years from 2013 – 2022."[6] In particular, Ameren specified consumption on inactive meters for each year beginning and including 2013 through and including 2022, in kWh, of:

2013 – 12,100,806 kWh
2014 – 12,100,806 kWh
2015 – 12,058,453 kWh
2016 – 12,001,982 kWh
2017 – 11,945,512 kWh
2018 – 11,889,041 kWh
2019 – 11,832,571 kWh
2020 – 11,739,135 kWh
2021 – 10,805,389 kWh

[4] Ameren Response to ICC Staff Data Request JZ 2.04, attached to this Exhibit as Attachment 1.
[5] Ameren Exhibit 1.1.
[6] Ameren Response to ICC Staff Data Request JZ 2.06, attached to this Exhibit as Attachment 1.

2022 – 9,867,256 kWh[7]

Thus, Ameren assumes in its cost benefit study that it will fail to meet its Section 16-108.5(f)(6) requirements for each year over the 10-year period of its plan.

**Q. Within its Multi-Year Performance Metrics filing, what values did Ameren specify for performance metrics aimed at meeting the statutory prescribed goal under the heading "uncollectible expense"?**

A. In order to meet its yearly goals for "uncollectible expense" Ameren's specified ratable yearly performance goal of uncollectible expense for each year of the 10-year period of its plan, is:

2013 - $17,423,333
2014 - $17,073,333
2015 - $16,723,333
2016 - $16,373,333
2017 - $16,023,333
2018 - $15,673,333
2019 - $15,323,333
2020 - $14,973,333
2021 - $14,623,333
2022 - $14,273,333[8]

**Q. Is Ameren's AMI Plan consistent with these goals?**

A. It does not appear so. Ameren does not include yearly values for uncollectible expense within the document entitled "Ameren Illinois Advanced Metering

[7] Ameren Response to ICC Staff Data Request JZ 2.05, attached to this Exhibit as Attachment 1.
[8] Ameren Response to ICC Staff Data Request JZ 2.01, attached to this Exhibit as Attachment 1.

Infrastructure (AMI) Plan."[9] However, Ameren does include yearly values within the Cost/Benefit analysis. As Ameren acknowledges, "the electric uncollectible expense $ amount assumed in the Cost / Benefit Analysis is greater than the uncollectible expense performance goal in each of the 9 years from 2013 – 2021."[10] In particular, Ameren specified uncollectible expense for each year beginning and including 2013 through and including 2022 of:

2013 – $17,773,333
2014 – $17,773,333
2015 – $17,479,220
2016 – $16,935,555
2017 – $16,481,015
2018 – $16,026,476
2019 – $15,571,936
2020 – $15,117,397
2021 – $14,662,857
2022 – $14,208,318 [11]

Thus, Ameren assumes in its cost benefit study that it will fail to meet its Section 16-108.5(f)(8) requirements for each year, except year 2022, over the 10-year period of its plan.

**Q. Does Ameren provide any explanation for the shortfall in improvements over baseline performance values that it expects to achieve from its proposed AMI Plan and the improvements that it is required to achieve pursuant to Sections 16-108.5(f)(6) and 16-108.5(f)(8) of the Act?**

[9] Ameren Ex. 1.1.
[10] Ameren Response to ICC Staff Data Request JZ 2.03, attached to this Exhibit as Attachment 1.
[11] Ameren Response to ICC Staff Data Request JZ 2.02, attached to this Exhibit as Attachment 1.

A. The deployment plan modeled in the Ameren cost benefit study does not appear to be designed to meet Ameren's 16-108.5(f)(6) and 16-108.5(f)(8) requirements. In particular, Ameren notes that realization of benefits from both reduced consumption on inactive meters and reduced electric uncollectible expenses attributable to AMI deployment do not even begin until 2015 under its plan. If Ameren deploys AMI consistent with the deployment plan modeled in its cost benefit analysis, it will be required to find some other way to meet its 16-108.5(f)(6) and 16-108.5(f)(8) requirements. In particular, within the document entitled "Ameren Illinois Advanced Metering Infrastructure (AMI) Plan," Ameren states "until the AMI infrastructure is deployed and commissioned, and processes are implemented, manual methods may be required to achieve the yearly incremental metric goals."[12]

**Q. Does Ameren demonstrate in its AMI Plan that its AMI deployment will allow it to meet its Sections 16-108.5(f)(6) and 16-108.5(f)(8)?**

A. No. While Ameren references other manual methods that it may need to rely on to meet its performance requirements, it does not demonstrate that its AMI Plan will provide the requisite incremental improvement over those manual methods necessary to ensure compliance with its obligations under Sections 16-108.5(f)(6) and 16-108.5(f)(8) of the Act. Furthermore, the assumptions it makes in Cost/Benefit Analysis assume that these performance goals are not met.

[12] Ameren Ex. 1.1, p. 19.

**Q. Do you recommend that the Commission require Ameren to amend its plan to address this deficiency?**

A. Yes, I recommend that the Commission require Ameren to amend its plan to either: (1) explain is manual methods for making improvements in its "consumption on inactive meters" and "uncollectible expense", explain the expected improvement in performance from such manual methods, identify and explain the costs that Ameren will incur to implement the manual methods, and demonstrate that its AMI deployment will function to supplement improvements from the manual methods employed in such a way as to allow Ameren to comply with its yearly requirements under Sections 16-108.5(f)(6) and 16-108.5(f)(8) of the Act; or (2) if Ameren is unable to indentify such manual methods and the expected effect of these manual methods on performance, amend its deployment plan in such a way that its AMI deployment will allow it to meet the requirements of Sections 16-108.5(f)(6) and 16-108.5(f)(8) of the Act.

**AMI Plan Communications Network**

**Q. Does Ameren currently make use of a communications network capable of 2-way communications?**

A. Yes. Ameren currently relies upon an advanced frequency radio frequency ("RF") network in several of its service areas.[13]

**Q. Does Ameren plan to make use of this network within its AMI deployment?**

[13] Ameren Ex. 1.1, p. 4 and Ameren Response to ICC Staff Data Request JZ 1.01, attached to this Exhibit as Attachment 1.

A. Ameren does not specify this in its AMI Plan. The "AMI Communication Network" portion of Ameren's AMI Plan is comprised of two sentences that indicate that Ameren is primarily considering RF technology, but may consider other technologies.[14] Staff sent a data request to Ameren asking for more information on the changes that would be necessary for Ameren to incorporate the existing RF network that it relies upon today into its AMI deployment. In its response Ameren states:

> If Landis & Gyr chooses to respond to the RFP, it must identify and explain any changes that Ameren must make to the advanced frequency RF network installed by Landis + Gyr in order to comport the network with the RF network being considered by Ameren for its AMI system (which is referenced at Page 12 of the AMI Plan).

Based upon this response, it does not appear that Ameren has any concrete plans to use its existing RF network. In fact, it appears that Ameren will consider use of the existing RF network only if Landis & Gyr, by their own choice, respond to the Ameren AMI RFP.[15]

**Q. In your opinion, is this an AMI Plan deficiency?**

A. Yes. Section 16-108.6(c) of the Act specifically states "Nothing in this subsection (c) is intended to limit the Commission's ability to review the reasonableness of the costs incurred under the AMI Plan." Thus, the Commission is tasked with ensuring that Ameren deploys AMI in a manner that does not result in unreasonable cost expenditures. In my opinion, failing to fully consider and plan

[14] Ameren Ex. 1.1, p. 12.
[15] ICC Staff Data Request JZ 1.01, attached to this Exhibit as Attachment 1.

for how best to leverage its existing RF network could well lead Ameren to incur unreasonable costs.

**Q. Do you recommend that the Commission require Ameren to amend its plan to address this deficiency?**

I believe the Commission should require Ameren to amend its initial AMI Plan to ensure that its deployment will reasonably ensure that, if possible, it leverages the existing RF network that it relies upon to ensure the reasonableness of the costs of its AMI deployment. Thus, I recommend that the Commission require Ameren to amend its plan to either: (1) explain how it will independently and, where necessary, through cooperation with Landis & Gyr incorporate its current RF network into its AMI communications network deployment; or (2) explain why it will not incorporate its current RF network into its AMI communications network deployment. Ameren should further explain how both its expected costs to deploy AMI and its cost benefit analysis are affected by the choice it makes with respect to this issue.

**Q. Does this conclude your direct testimony?**

**A.** Yes, it does.

**Ameren Illinois Company's**
**Response to ICC Staff Data Requests**
**Docket No. 12-0244**
**AIC's Advanced Metering Infrastructure Plan**
**Data Request Response Date: 4/9/2012**

JZ 1.01

Page 4 of the Ameren Illinois Advanced Metering Infrastructure ("AMI") Plan states "During the Ameren Illinois automation project, an advanced radio frequency (RF) network, capable of 1-way and 2-way communications, was installed by Ameren Illinois' service provider, Landis + Gyr, to interface with these meters."

A. Please provide an overview of the advanced frequency RF network installed by Landis + Gyr including, but not necessary limited to, descriptions of the technologies used in the end user and backhaul portions of the network.

B. Please identify and explain any differences between the advanced frequency RF network installed by Landis + Gyr and the RF network being considered by Ameren Illinois for its AMI system (which is referenced at Page 12 of the AMI Plan).

C. Please identify the specific service areas where the advanced frequency RF network installed by Landis + Gyr is currently deployed.

D. Please identify and explain any changes that Ameren must make to the advanced frequency RF network installed by Landis + Gyr in order to comport the network with the RF network being considered by Ameren for its AMI system (which is referenced at Page 12 of the AMI Plan).

**RESPONSE**

**Prepared By: J. Bruce Hollibaugh**
**Title: Manager, IL Metering & Projects**
**Phone Number: (217) 424-6945**

A. The RF network installed by Landis & Gyr for automated metering at Ameren Illinois consists of: radio modules within or attached to electric and gas meters, collectors mounted on poles that collect the data from the radio modules, and Take Out Points (TOPs) that gather data from the Collectors. All communications is via Radio Frequency until the data from the TOPs is sent via phone line to the Landis & Gyr data collection center.

There are some portions of the Landis & Gyr network in the Metro East area (Granite City, Alton, Riverbend, and E. St Louis) that are configured slightly different since these networks were mostly in place before the main expansion of automated metering in Illinois began in 2006.

B. The Landis & Gyr network serving Ameren Illinois' automated meters is currently operated as a 1-way communications network. Landis & Gyr purports that the portions of the network with advanced equipment can also operate as a 2-way communications network with all of the required security and interoperability requirements needed for AMI and being considered by Ameren Illinois for its AMI system.

C. The specific service areas (Ameren Illinois Operating Centers) where the advanced frequency RF network (defined as a network capable of both 1-way and 2-way communications) installed by Landis & Gyr is currently deployed are shown below.

| |
|---|
| Champaign |
| Danville |
| Decatur |
| Bloomington |
| Maryville |
| Belleville |
| Carbondale |
| Peoria |
| Pekin |
| Eastern |
| Mattoon |
| |

D. If Landis & Gyr chooses to respond to the RFP, it must identify and explain any changes that Ameren must make to the advanced frequency RF network installed by Landis + Gyr in order to comport the network with the RF network being considered by Ameren for its AMI system (which is referenced at Page 12 of the AMI Plan).

**Ameren Illinois Company's**
**Response to ICC Staff Data Requests**
**Docket No. 12-0244**
**AIC's Advanced Metering Infrastructure Plan**
**Data Request Response Date: 4/12/2012**

JZ 2.01

For each year beginning and including 2013 through and including 2022, please provide the performance goal for uncollectible electric expense as included in the Company's Exhibit 1.1 entitled "Ameren Illinois Company d/b/a Ameren Illinois MODERNIZATION ACTION PLAN Multi-Year Performance Metrics 2013 – 2022," filed February 2, 2012 in Docket No. 12-0089.

**RESPONSE**

**Prepared By: Michael S. Abba**
**Title: Manager, Smart Grid Integration & System Improvement**
**Phone Number: (618) 993-4633**

For each year beginning and including 2013 through and including 2022, the performance goal for uncollectible electric expense as included in the Company' Exhibit 1.1 entitled "Ameren Illinois Company d/b/a Ameren Illinois MODERNIZATION ACTION PLAN Multi-Year Performance Metrics 2013 – 2022," is as follows:

2013 - $17,423,333
2014 - $17,073,333
2015 - $16,723,333
2016 - $16,373,333
2017 - $16,023,333
2018 - $15,673,333
2019 - $15,323,333
2020 - $14,973,333
2021 - $14,623,333
2022 - $14,273,333

**Ameren Illinois Company's**
**Response to ICC Staff Data Requests**
**Docket No. 12-0244**
**AIC's Advanced Metering Infrastructure Plan**
**Data Request Response Date: 4/12/2012**

JZ 2.02

For each year beginning and including 2013 through and including 2022, please provide the uncollectible electric expense assumed to occur each year for purposes of the Company's Cost/Benefit Analysis in the instant docket.

**RESPONSE**

**Prepared By: Michael S. Abba**
**Title: Manager, Smart Grid Integration & System Improvement**
**Phone Number: (618) 993-4633**

Per Ameren Illinois' response to JZ 1.24, in the AMI Cost / Benefit Analysis, Ameren Illinois has assumed the following dollar amounts for electric uncollectible expenses by year-end for each year beginning and including 2013 through and including 2022:

2013 – $17,773,333
2014 – $17,773,333
2015 – $17,479,220
2016 – $16,935,555
2017 – $16,481,015
2018 – $16,026,476
2019 – $15,571,936
2020 – $15,117,397
2021 – $14,662,857
2022 – $14,208,318

**Ameren Illinois Company's**
**Response to ICC Staff Data Requests**
**Docket No. 12-0244**
**AIC's Advanced Metering Infrastructure Plan**
**Data Request Response Date: 4/12/2012**

JZ 2.03

For any year beginning and including 2013 through and including 2022, is the uncollectible electric expense value assumed for the purposes of the Company's Cost/Benefit Analysis greater than the performance goal for uncollectible electric expense as included in the Company's Exhibit 1.1 entitled "Ameren Illinois Company d/b/a Ameren Illinois MODERNIZATION ACTION PLAN Multi-Year Performance Metrics 2013 – 2022," filed February 2, 2012 in Docket No. 12-0089? If so, identify the year and explain why the cost benefit analysis incorporates uncollectible electric expense values that do not meet the performance goals for uncollectible electric expense proposed by the Company in Docket No. 12-0089.

**RESPONSE**

**Prepared By: Michael S. Abba**
**Title: Manager, Smart Grid Integration & System Improvement**
**Phone Number: (618) 993-4633**

Yes, the electric uncollectible expense $ amount assumed in the Cost / Benefit Analysis is greater than the uncollectible expense performance goal in each of the 9 years from 2013 – 2021. The uncollectible expense yearly $ amounts assumed in the Cost / Benefit Analysis are based solely on the estimated timing of benefits from the assumed AMI deployment plan in the Cost / Benefit Analysis, while the yearly performance goals are calculated from the baseline as proscribed by the law. For the Cost / Benefit Analysis, the realization of benefits from reduced electric uncollectible expense attributable to AMI deployment is assumed to begin in 2015 when the remote switch functionality is activated.

**Ameren Illinois Company's**
**Response to ICC Staff Data Requests**
**Docket No. 12-0244**
**AIC's Advanced Metering Infrastructure Plan**
**Data Request Response Date: 4/12/2012**

JZ 2.04

For each year beginning and including 2013 through and including 2022, please provide the performance goal for consumption on inactive meters as included in the Company's Exhibit 1.1 entitled "Ameren Illinois Company d/b/a Ameren Illinois MODERNIZATION ACTION PLAN Multi-Year Performance Metrics 2013 – 2022," filed February 2, 2012 in Docket No. 12-0089.

**RESPONSE**

**Prepared By: Michael S. Abba**
**Title: Manager, Smart Grid Integration & System Improvement**
**Phone Number: (618) 993-4633**

For each year beginning and including 2013 through and including 2022, the performance goal for consumption on inactive meters in Kwh as included in the Company' Exhibit 1.1 entitled "Ameren Illinois Company d/b/a Ameren Illinois MODERNIZATION ACTION PLAN Multi-Year Performance Metrics 2013 – 2022," is as follows:

2013 – 11,423,161
2014 – 10,745,516
2015 – 10,067,871
2016 – 9,390,225
2017 – 8,712,580
2018 – 8,034,935
2019 – 7,357,290
2020 – 6,679,645
2021 – 6,002,000
2022 – 5,324,355

**Ameren Illinois Company's**
**Response to ICC Staff Data Requests**
**Docket No. 12-0244**
**AIC's Advanced Metering Infrastructure Plan**
**Data Request Response Date: 4/12/2012**

JZ 2.05

For each year beginning and including 2013 through and including 2022, please provide the consumption on inactive meters value assumed to occur each year for purposes of the Company's Cost/Benefit Analysis in the instant docket.

**RESPONSE**

**Prepared By: Michael S. Abba**
**Title: Manager, Smart Grid Integration & System Improvement**
**Phone Number: (618) 993-4633**

Per the Company's response to Staff data request JZ 1.22 (dated April 9), in the AMI Cost / Benefit Analysis, Ameren Illinois has assumed the following KWh consumption on inactive meters by year-end for each year beginning and including 2013 through and including 2022.

2013 – 12,100,806
2014 – 12,100,806
2015 – 12,058,453
2016 – 12,001,982
2017 – 11,945,512
2018 – 11,889,041
2019 – 11,832,571
2020 – 11,739,135
2021 – 10,805,389
2022 – 9,867,256

**Ameren Illinois Company's**
**Response to ICC Staff Data Requests**
**Docket No. 12-0244**
**AIC's Advanced Metering Infrastructure Plan**
**Data Request Response Date: 4/12/2012**

JZ 2.06

For any year beginning and including 2013 through and including 2022, is the consumption on inactive meters value assumed for the purposes of the Company's Cost/Benefit Analysis greater than the performance goal for consumption on inactive meters value as included in the Company's Exhibit 1.1 entitled "Ameren Illinois Company d/b/a Ameren Illinois MODERNIZATION ACTION PLAN Multi-Year Performance Metrics 2013 – 2022," filed February 2, 2012 in Docket No. 12-0089? If so, identify the year and explain why the cost benefit analysis incorporates consumption on inactive meters values that do not meet the performance goals for consumption on inactive meters proposed by the Company in Docket No. 12-0089.

**RESPONSE**

**Prepared By: Michael S. Abba**
**Title: Manager, Smart Grid Integration & System Improvement**
**Phone Number: (618) 993-4633**

Yes, the consumption on inactive meters Kwh amount assumed in the Cost / Benefit Analysis is greater than the consumption on inactive meters Kwh performance goal in each of the 10 years from 2013 – 2022. The consumption on inactive meters Kwh yearly amounts assumed in the Cost / Benefit Analysis are based solely on the estimated timing of benefits from the assumed AMI deployment plan in the Cost / Benefit Analysis, while the yearly performance goals are calculated from the baseline as proscribed by the law. For the Cost / Benefit Analysis, the realization of benefits from reduced consumption on inactive meter Kwh attributable to AMI deployment is assumed to begin in 2015 when the remote switch functionality is activated. Further, the majority of the existing consumption on inactive meters Kwh amount is believed to be in the existing AMR areas, which are assumed to be converted to AMI after the non-AMR areas in the Cost / Benefit Analysis.