

**STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION**

AMEREN ILLINOIS COMPANY)	
d/b/a Ameren Illinois,)	
Petitioner)	
)	Docket No. 12-0244
Smart Grid Advanced Metering)	
Infrastructure Deployment Plan)	

**INITIAL BRIEF OF THE CITIZENS UTILITY BOARD AND
THE ENVIRONMENTAL LAW AND POLICY CENTER**

Kristin Munsch
Orijit Ghoshal
Attorneys for the CITIZENS UTILITY BOARD
309 W. Washington St., Ste. 800
Chicago, IL 60606
(312) 263-4282
kmunsch@citizensutilityboard.org
oghoshal@citizensutilityboard.org

Rob Kelter
Brad Klein
Attorneys for the ENVIRONMENTAL LAW AND
POLICY CENTER
35 E. Wacker Dr., Ste. 1600
Chicago, IL 60601
(312)673-6500
rkelter@elpc.org
bklein@elpc.org

May 3, 2012

TABLE OF CONTENTS

I. INTRODUCTION 1

II. OVERVIEW OF SECTION 16-108.6 OF THE PUBLIC UTILITIES ACT 4

III. AMEREN ILLINOIS AMI PLAN PROPOSAL 8

A. Ameren’s Plan Does Not Meet the Required Elements Under the Law 8

1. Statement of Smart Grid AMI Vision..... 9

2. Statement of Smart Grid AMI Strategy..... 9

3. Deployment Schedule and Plan 13

4. Annual Milestones and Metrics 16

5. Consumer Education Plan..... 21

B. Technical Criteria..... 23

1. NIST Standards for Smart Grid Interoperability 23

2. Cyber Security 24

3. Privacy of Personal Information Protections 24

C. Ameren’s AMI Plan Cannot Be Found Cost-Beneficial for Customers if Implemented As Presented to the Commission 25

IV. STAFF’S PROPOSED MODIFICATIONS TO THE AMI PLAN 31

V. CUB’S PROPOSED WORKSHOPS 31

VI. CONCLUSION 33

**STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION**

AMEREN ILLINOIS COMPANY)	
d/b/a Ameren Illinois,)	
Petitioner)	
)	Docket No. 12-0244
Smart Grid Advanced Metering)	
Infrastructure Deployment Plan)	

**INITIAL BRIEF OF THE CITIZENS UTILITY BOARD AND
THE ENVIRONMENTAL LAW AND POLICY CENTER**

I. INTRODUCTION

Now come the Citizens Utility Board (“CUB”) and the Environmental Law and Policy Center (“ELPC”), pursuant to Rules of Practice of the Illinois Commerce Commission (“ICC” or “the Commission”), 83 Ill. Admin. Code Part 200, and pursuant to the briefing schedule established by the Administrative Law Judges (“ALJs”), to file this Initial Brief in the above captioned proceeding. This proceeding is a review of the proposed Smart Grid Advanced Metering Infrastructure Deployment Plan (“AMI Plan”) filed by the Ameren Illinois Company (“Ameren,” the “Company,” or “AIC”) under Section 16-108.6 of the Public Utilities Act (“PUA”) on March 30, 2012. Under the new Energy Infrastructure Modernization Act (“EIMA”), Public Act 97-616, as modified by Public Act 97-646, Ameren is now obligated to invest \$360,000,000 in transmission modernization, distribution system improvements and “Smart Grid electric system upgrades,” as a result of the company’s election to recover its delivery services rates under a performance-based formula rate tariff. 220 ILCS 5/16-108.5. Ameren’s AMI Plan is the Company’s proposal to guide those multi-million dollar investments.

CUB/ELPC witness Miriam Horn testified that to maximize the consumer and environmental benefits from the deployment of new Smart Grid energy infrastructure, including the deployment of Advanced Metering Infrastructure (“AMI”), much more can be done than the bare outline of implementation presented by Ameren. CUB/ELPC Ex. 1.0 2nd C at 4. Ameren states

that its deployment of AMI will be a “massive undertaking, requiring investments of hundreds of millions of dollars over a decade or more.” Ameren Ex. 3.0R at 2. At this time, Ameren concedes that many of the Plan’s details need to be addressed, though Ameren maintains that “AIC is not asking for approval of these details or decisions.” *Id.* at 3. In Ameren’s mind, the law does not require the Company to “address each and every aspect of deployment in painstaking detail, or provide a ‘roadmap’ of exactly what will happen, where and how during each year of deployment. *Id.* at 5.

As Manager of the Environmental Defense Fund’s (“EDF”) Smart Grid Initiative, Ms. Horn has helped develop a “scorecard” where EDF established three main goals that smart grid deployment should maximize: (1) the realization of quantified economic and environmental benefits; (2) access for customers to data and information regarding their electricity usage and the ability to share that data; and (3) technical and market access and fair value for new clean resources, including renewable distributed generation and demand response. CUB/ELPC Ex. 1.0 2nd C at 6. All of these goals will help ensure that Ameren’s customers receive not only the limited direct benefits identified by Ameren in its current plan, but additional indirect benefits as new technologies and enhanced functionalities are built into the Ameren distribution system.

CUB and ELPC agree that it would not be possible to address every contingency that might arise during a multi-year deployment in one sixty day proceeding. However, unlike Ameren, CUB and ELPC believe that the plan must address an important decision such as “identification of the operating areas in which AMI will be deployed and whether deployment will occur first in the areas in which Automated Meter Reading has not been deployed...” Ameren Ex. 3.0R at 5. Without at least a discussion how deployment plans – and subsequent operational benefits are affected – Ameren’s plan does not address the required statutory elements (*see* Part III *infra*). As Commission Staff explained, the ICC is being asked to make a decision “without knowing information that they may consider to be very important to their decision.” Tr. at 212.

CUB and ELPC agree. Although Ameren's Plan provides a "start in the right direction," Ms. Horn testifies that the Plan lacks the detail necessary for the ICC to find that Ameren's proposed deployment of AMI will benefit its customers. CUB/ELPC Ex. 1.0 2nd C at 6. As presented, there is no way for the Commission to conclude that customer and environmental benefits CUB and ELPC believe are essential to the success of any Smart Grid deployment will actually result from Ameren's AMI Plan. Moreover, as Ms. Horn testified, there are examples of utilities that have had to "rip out the first round" of AMI meters because the meters lacked "sufficient functionality" the first time around. Tr. at 182. It is critical that these functionalities – the very functionalities such as support for new dynamic pricing programs such as a time of use pricing program – be made available to customers at the earliest opportunity. *Id.* Under Ameren's AMI Plan as presented, customers would not have access to their data or any additional pricing system until 2014 or 2015, even as they pay for meters to be installed. *Id.* at 182-183.

As a result, Ms. Horn recommends that the Commission not approve the Plan and instead require Ameren to modify the Plan over a six-month period following entry of the final order in this case. CUB/ELPC Ex. 1.0 2nd C at 5. The Commission should reject Ameren's AMI Plan as presented to the Commission since it lacks enough information for the Commission to determine whether or not implementation of the AMI Plan will be cost-beneficial for Ameren's customers. Instead of accepting Ameren's plan as it currently exists, the Commission should require Ameren to finalize the plan's details through discussions with Commission Staff, the Smart Grid Advisory Council and other stakeholders. These discussions, organized around key topics such as ensuring benefits from energy efficiency and demand response, standardizing access to customer usage data, standardizing procedures for interconnection of distributed generation, ensuring compliance with interoperability standards, and cementing a deployment schedule can be completed before Ameren's own estimated initiation of AMI deployment (mid-2013). Once Ameren has finalized the details of its plan and completed these discussions, the Company should be required to present an updated

AMI Plan to the Commission as part of its annual AMI filing next April. At that time the ICC can then approve or modify Ameren's AMI Plan as needed. Otherwise, the benefits the General Assembly, the ICC, CUB, and ELPC agree are important: operational savings for its customers, new functionalities to help customers manage their energy usage, and achievement of Illinois' environmental policy goals may not realize for Ameren's customers.

II. OVERVIEW OF SECTION 16-108.6 OF THE PUBLIC UTILITIES ACT

In passing the EIMA, the General Assembly stated it was "the policy of this State that significant investments must be made in the State's electric grid over the next decade to modernize and upgrade transmission and distribution facilities in the State." Public Act 97-0616 at 220 ILCS 5/16-108.5(a). By encouraging these investments, the General Assembly hoped to

ensure that the State's electric utility infrastructure will promote future economic development in the State and that the State's electric utilities will be able to continue to provide quality electric service to their customers, including innovative technological offerings that will enhance customer experience and choice. *Id.*

The Commission must come to two independent conclusions in order to approve Ameren's AMI Plan. First, the Commission must find that the AMI Plan contains the information required under the law, including a description of Ameren's Smart Grid AMI vision which shows consistency with the goal of developing a cost-beneficial Smart grid; a statement of Ameren's Smart Grid AMI strategy; a deployment schedule and plan; annual milestones and metrics to measure the Plan's success; and a consumer education plan. 220 ILCS 5/16-108.6(c).

Second, the Commission must conclude that Ameren's plan, if implemented, would be cost-beneficial for Ameren's customers "consistent with the principles established through the Illinois Smart Grid Collaborative, giving weight to the results of any Commission-approved pilot designed to examine the benefits and costs of AMI deployment." *Id.* "Cost-beneficial" is defined in the law as where the benefits of Ameren's AMI Plan exceed the costs of the AMI Plan as initially filed with the Commission or as subsequently modified by the Commission. 220 ILCS 5/16-108.6(a). Total

costs for the purposes of this test include all utility costs “reasonably associated” with AMI Plan; total benefits include

avoided utility operational costs, avoided consumer power, capacity, and energy costs, and avoided societal costs associated with the production and consumption of electricity, as well as other societal benefits, including the greater integration of renewable and distributed power resources, reductions in the emissions of harmful pollutants and associated avoided health-related costs, other benefits associated with energy efficiency measures, demand-response activities, and the enabling of greater penetration of alternative fuel vehicles. 220 ILCS 5/16-108.6(a).

Customer value, including environmental benefits, should be reflected across all of the elements of Ameren’s plan required by the EIMA. CUB/ELPC Ex. 1.0 2nd C at 8.

In developing its AMI Plan, Ameren was required to consult with the Smart Grid Advisory Council (“Council”) and then to file an AMI Plan with the Commission by April 1, 2012. 220 ILCS 5/16-108.6(c). The Council serves as an advisor to participating utilities “and the recommendations provided by the Council, although non-binding, shall be considered by the utilities.” 220 ILCS 5/16-108.6(b)(1). When asked whether consultation with the Council has occurred, Ameren witness Mr. Hollibaugh simply stated:

“Yes. On March 27, 2012, the Council held its initial meeting. As part of that meeting, AIC presented a draft of the AMI Plan to the Council.” Ameren Ex. 1.0, 3.

Ameren does not provide any changes that were made to its Plan as a result of its meeting with the Council, therefore the Commission should not accept Ameren’s claims that the consultation process with the Council should alleviate any concerns that the Commission has with the AMI Plan in its current form. Instead, the Commission should direct Ameren to continue consultation with the Smart Grid Advisory Council and other stakeholders to ensure customers receive the maximum benefits from Ameren’s implementation of Smart Grid.

ICC Authority Under the New Framework

The ICC has broad authority under the PUA, including the new legislation, to oversee Ameren’s AMI investments and deployment. The General Assembly clearly intended to condition this massive utility investment on providing equally significant benefits to ratepayers, (220 ILCS

5/16-108.5(f)) and just as clearly stated that this “regulatory reform” would not limit the existing ICC authority over regulated public utilities. 220 ILCS 5/16-108.5(c). No change has been made to the ICC’s core responsibility to ensure rates paid by Ameren customers are just and reasonable, and that utility investments are prudently made. 220 ILCS 5/16-108.5(c)(6).

Within this grant of general authority comes an express duty to exercise general supervision over all Illinois public utilities in accordance with the provisions of the PUA. *Sheffler v. Commonwealth Edison Co.* 399 Ill. App. 3d 51, 60 (1st Dist. 2010), *citing* 220 ILCS 5/4–101. The Public Utilities Act specifically provides that the Commission “shall have general supervision of all public utilities” including,

the manner in which their plants, equipment and other property ... are managed, conducted and operated, not only with respect to the adequacy, security and accommodation afforded by their service but also with respect to their compliance with this Act and any other law, with the orders of the Commission and with the charter and franchise requirements.

Sheffler, 399 Ill. App. 3d at 60.

Courts have recognized that within this supervisory framework, the ICC has “broad ratemaking authority” which includes Commission discretion to “formulate reasonable methods of achieving stated legislative objectives.” *Abbott Laboratories, Inc. v. Ill. Commerce Comm’n*, 289 Ill. App. 3d 705, 712 (1st Dist. 1997).

The EIMA gives the Commission express authority to modify Ameren’s Plan. 220 ILCS 5/16-108.5(f-5). When approving or modifying utility proposals, the ICC has authority under the PUA to impose additional obligations on the utility even where those obligations are not enumerated within the statute. *See, e.g.* 220 ILCS 5/16-105 (“approving, or approving as modified” a utility’s delivery services implementation plan). Although EIMA lists specific AMI Plan elements Ameren must address, the EIMA also makes clear that Ameren’s AMI Plan can be approved only if the Commission finds the plans’ implementation will be “cost-beneficial” for Ameren’s customers. 220 ICLS 5/16.108.6(c).

Along with the People of the State of Illinois and the Staff of the Illinois Commerce Commission, CUB/ELPC offered testimony in this case which calls into question whether or not the Commission can make such a finding on the record established in this case. Ameren's AMI Plan neither meets the requirements of paragraphs (2) through (5) but falls well short of establishing that implementation of this plan would be cost-beneficial for Ameren's customers. The ICC has made it clear that as a regulatory agency, it is concerned how such Smart Grid investments can be best deployed to offer benefits for utility customers:

[W]ithout an overall plan for smart grid deployment and without any specific projects being proposed, the Commission does not know the extent of the costs and benefits involved . . . The estimates of costs in the record have varied greatly and the estimates of benefits have been sporadic at best. This lack of cost and benefit information is a problem that is not overcome by the process proposed for Commission pre-approval of specific projects.

ICC Docket No. 07-0566, Final Order at 138 (Sept. 10, 2008).

Noting that it was obliged by federal legislation to open proceedings to consider smart grid ratemaking standards, the Commission nonetheless concluded that instead "a Statewide Smart Grid Collaborative process" should be instituted to "consider the costs and benefits of smart grid implementation and develop a strategic plan for such implementation for presentation – upon completion and in a docketed proceeding – to the Commission." *Id.* at 141.

The Commission should reject Ameren's AMI Plan since it fails to meet the criteria required for approval under the EIMA. As an alternative, CUB and ELPC propose a similar process that will result in a more detailed, strategic implementation plan for Ameren's investments in Smart Grid technologies. Taking the time already provided for by Ameren's initial proposed timeline, the ICC can facilitate additional discussion amongst Ameren, the Smart Grid Advisory Council, ICC Staff and other stakeholders to make sure that the broadest range of benefits can be captured by a thoughtful and strategic deployment.

III. AMEREN ILLINOIS AMI PLAN PROPOSAL

A. Ameren's Plan Does Not Meet the Required Elements Under the Law

The Commission must find that the AMI Plan contains the information required under the law, which is:

- (1) the participating utility's Smart Grid AMI vision statement that is consistent with the goal of developing a cost-beneficial Smart Grid;
- (2) a statement of Smart Grid AMI strategy that includes a description of how the utility evaluates and prioritizes technology choices to create customer value, including a plan to enhance and enable customers' ability to take advantage of Smart Grid functions beginning at the time an account has billed successfully on the AMI network;
- (3) a deployment schedule and plan that includes deployment of AMI to all customers for a participating utility other than a combination utility, and to 62% of all customers for a participating utility that is a combination utility;
- (4) annual milestones and metrics for the purposes of measuring the success of the AMI Plan in enabling Smart Grid functions; and enhancing consumer benefits from Smart Grid AMI; and
- (5) a plan for the consumer education to be implemented by the participating utility. 220 ILCS 5/16-108.5(6)(c).

Ameren's AMI Plan offers the Company's "preliminary" views on these topics. ICC Staff Ex. 1.0 at 7. As Ameren witness Nelson put it, "there is no question that many of the details of the plan still need to be addressed, and certain decisions made." Ameren Ex. 4.0 at 3. Some of those decisions include significant deployment issues, which the Company states includes

the selection of the technology and vendors, installation of the Meter Data Management System, integration of the MDMS with all other Ameren business systems, revision of current AIC protocols and processes to accommodate the new capabilities of AMI, installation of the AMI network, installation (deployment) of the AMI meters, training, communication (messaging/engagement) with all stakeholders, confirmation of performance, commissioning, and providing usage and other information to customers – all while managing scope, cost and schedule.

Ameren Ex. 1.0 at 7.

Although Ameren has correctly identified the general categories of costs and benefits related to AMI deployment, the Plan as written falls short of the baseline requirements under the law, specifically, the requirements that the Plan include an explanation of Ameren's technology

prioritization; deployment schedule; annual milestones and metrics; and consumer education. CUB/ELPC Ex. 1.0 2nd C at 5.

As ICC Staff admits, “especially considering the magnitude and duration of the AMI investments, the fact that key deployment decisions have not been made puts the Commission in a difficult position.” ICC Staff Ex. 1.0 at 7. The Commission should order Ameren to engage in a stakeholder process to alleviate some of those difficulties and to ensure that Ameren’s customers actually benefit from smart grid investments made pursuant to Ameren’s AMI Plan.

1. Statement of Smart Grid AMI Vision
2. Statement of Smart Grid AMI Strategy

New provisions of the law require that Ameren’s AMI Plan contain a strategy statement that includes a description of how Ameren evaluates and prioritizes technology choices *to create customer value*, including a plan to enhance and enable customers' ability to take advantage of Smart Grid functions beginning at the time an account has billed successfully on the AMI. Ameren’s AMI Plan falls short of the requirements which will enable the Commission to determine its Smart Grid strategy will deliver benefits to its customers. Smart grid functions should work together to create customer value, which in Ms. Horn’s opinion, means lower bills for Ameren customers as well as reduced emissions that are associated with public health costs. CUB/ELPC Ex. 1.0 2nd C at 9. Functions noted by the B&V Report (such as demand response initiatives, net-metering demands of plug in electric vehicles, distribution system asset monitoring and control, and load control opportunities) are critical to the long-term success of AMI investment. *Id.* at 10. Ameren’s meters should be enabled to maximize interoperability by being upgradable as improved protocols for interoperability, like Smart Energy Profile 2.0, are developed and adopted. *Id.* at 16. Open network principles are important to create new ways for customers to manage energy usage and to create standard procedures for interconnecting devices. *Id.* at 16. These principles are:

- Easy and convenient access by consumers to their energy information;
- Ability of consumers to easily protect and authorize third party access and use of energy information;
- Transparent pricing models for information access charges;
- Adoption of common format for transfer of energy data;
- Transparency and interoperability in data transfer; and
- Consistency in measurement and verification standards. *Id.*

Though Ameren's ultimate data format is unknown, it should be designed with these principles in mind. *Id.* at 16. The reason this is important is that Ameren customers must be able to take advantage, easily, of all the data to be available with the Smart Grid. Clear, enforceable standards are necessary to make sure individual customer usage data are protected. A standardized data format, such as the federally-endorsed Green Button format, will lead to consistency necessary to spur a wave of software application developers and energy services companies. Ameren's Plan should require efficient management of data flow (such as the allowance of e-signatures); discrete and clear third party authorization protocols that are well-defined with respect to scope and duration; and transparent, competitive pricing for third party access.

Ameren's Plan must provide a sufficiently detailed description of chosen technology (ore required parameters of RFPs) such that the Commission can find that Ameren's choices create customer value, including the ability of customers to take advantage of smart grid functions as defined by Section 16 of the PUA. *Id.* at 14 (citing 220 ILCS 5/16-108.6(c)(2)). However, Ameren has not decided on AMI or Meter Data Management System ("MDMS") technology. Ameren Ex. 1.1 at 5-11. The Company has not chosen its AMI technology, vendor, or specific components. Ameren Ex. 1.0 at 6, 7. The very features which would support enhanced customer benefits, such as Volt/Var optimization, distributed generation, home area networking and smart appliance

communication, and enhanced rate options and services, are not included in Ameren's basic functionalities. Ameren Ex. 1.1 at 5-9.

These very functionalities were included in Section 16 of the PUA because they support other stated goals of the General Assembly. For example, the Illinois has a significant interest in the success of its distributed generation procurement requirement, and enhanced renewable portfolio standard adopted by the General Assembly over the past two years. *See e.g.*, 20 ILCS 3855/1-75(c). Included in the EIMA was a requirement to review whether or not additional energy efficiency and demand response products could be procured, *see* 220 ILCS 5/8-103(A), and changes to Illinois' net metering policy, *see* 220 ILCS 5/16-107.5. The Commission must make sure that Ameren's proposed AMI investments are *enhancing* the likelihood of success of these policies by enabling smart grid functions required by the PUA.

In addition to not ensuring the functionalities envisioned by the General Assembly, without sufficiently detailed technology choice information, the Commission is limited in its ability to assess customer value from that technology selection accurately and comprehensively. CUB/ELPC Ex. 1.0 2nd C at 15. For example, Ms. Horn testifies that the specific proportion of customer segment populations, identified by Ameren itself, may differ by operating center – resulting in a different impact on direct customer benefits of demand response, reduction in consumption on inactive meters, and reduction in uncollectibles expenses (which comprise approximately \$200 million of direct customer benefits claimed by Ameren). *Id.* at 15-16.

At the same time, in order to ensure that pursuit of Smart Grid functionalities does not compromise data security, clear, enforceable standards are required to protect customer usage data. *Id.* at 16. Standardized data format, like Green Button, will lead to consistency required to allow software and energy service companies to provide applications to customers. *Id.* at 16-17. The Green Button, though, should act as a floor and not a ceiling to web-based customer access development. *Id.* at 27. Because of the proposed delay in Ameren's deployment plan, Ameren

believes that it has “sufficient time to investigate web portal and data access industry standards.” Ameren Ex. 4.0R, 37. Ameren’s Plan should require efficient management of data flow by allowing e-signatures; discrete and clear third party authorization protocols limited in scope and duration; and transparent pricing for any third party access charges in order to ensure sufficient data security while enabling real customer savings. CUB/ELPC Ex. 1.0 2nd C. at 17.

Ameren claims that it clearly lays out the functionalities that will be required of its AMI meters, network, MDM, and other IT systems to create customer value on the face of the Plan. Ameren Ex. 4.0R, 28. For the Company, the fact that a final decision has not been made is irrelevant because the Plan outlines the plan, process, procedures, and timelines to make these decisions. *Id.*

However, the very functionalities that Ameren considers “potential enhancements,” such as distributed generation which includes the integration of electric vehicles storage; home area networks; and Smart Appliance communication, Ameren Ex. 1.1 at 10, are the functionalities required by the EIMA and the functionalities crucial for customers to be able to respond to price signals. Tr. at 181-182. The Commission should be very concerned, in light of the stated energy policy goals of Illinois to encourage adoption of electric vehicles, promote distributed generation, and encourage energy efficiency programs and demand response in Section 16 of the PUA that Ameren does not view these enhancements as required of Ameren’s AMI investment nor does Ameren anticipate that these enhancements will be enabled for full functionality being envisioned for 2015. *Id.* at 36-37. It is crucial that the Commission require Ameren to incorporate distributed generation as part of its AMI Plan, especially since existing distributed generation in Ameren’s territory varies by operating center. *Id.* at 74. Although the current variance of distributed generation is not indicative of Smart Grid investments, it does indicate that the geographic, climactic, and demographic characteristics of operating centers differ in ways relevant to realizing real consumer benefits. These benefits are valuable to customers and should be explored further, in

a stakeholder setting like Ms. Horn recommends. CUB/ELPC Ex. 1.0 2nd C. at 17. The Commission should order Ameren to modify its AMI Plan to discuss how these “enhanced functionalities” can be brought sooner, rather than later, to Ameren’s customers.

3. Deployment Schedule and Plan

As ICC Staff witness Eric Schlaf characterized Ameren’s AMI Plan, “[i]f deployment schedule means that Ameren is only required to list the number of meters it intends to deploy annually to meet the 62% requirement, then the Plan adequately addresses [this requirement].” ICC Staff Ex. 1.0 at 11.

Several witnesses have expressed concern that Ameren’s proposed deployment schedule is not detailed enough for thorough Commission review. As Staff witness Schlaf put it, there is a “lack of specificity in the Plan with respect to deployment.” *Id.* at 5. The reason is that Ameren has not yet made “basic decisions about deployment and technology selection.” *Id.* at 6 (citing Ameren Ex. 1.1, Section 5.3.2); Ameren Ex. 1.0 at 6. Examples of decisions identified by Staff included:

- The timetable and location of deployment; that is, the identification of the operating areas in which AMI will be deployed and whether deployment will occur first in the areas in which AMR has not been deployed or the areas in which AMR has already been deployed;
- Identification of the vendors of the AMI equipment;
- Ownership of the communications system;
- Whether Ameren intends to continue to deploy AMI for electric customers beyond 168 the initial 10-year deployment period; and
- Whether Ameren will deploy AMI for natural gas customers.

ICC Staff Ex. 1.0 at 7.

Ameren has conducted a Request for Information (“RFI”) process with AMI vendors to determine possible costs, and expects to complete review of RFP responses for the AMI and MDMS by “mid-2012.” Ameren Ex. 4.0R at 6. As a result, Ameren will develop a “final deployment schedule by operating center “by the fourth quarter of 2012.” *Id.* at 7. Ameren has considered one

“hypothetical, illustrative” deployment schedule to ensure comparability of vendor submissions,” though the Company admits that this schedule is but “one possible scenario.” *Id.* at 6. Without this finalized information, Mr. Abba states that Ameren cannot finalize a year-by-year operating center-by-operating center deployment schedule. *Id.* at 5-6.

Detailed and reliable schedules and plans are necessary for the Commission to ensure that find customer benefits result from Ameren’s AMI Plan. CUB/ELPC Ex. 1.0 2nd C at 10. The Commission must be able to see enough detail to conclude that the Company’s choices are the most beneficial to its customers. *Id.* at 17. This detail is critical because the actual net present value customers receive from AMI investments depends in part on how those investments are deployed. For example, evaluation of ComEd’s AMI pilot showed that a five instead of ten year deployment would increase the net present value of AMI deployment by \$146 million. *Id.* at 10. This same study showed how the timing and geography of AMI deployment can significantly affect the operational efficiencies gained and customer benefits accrued. *Id.* Ameren’s own witness, Mr. Hollibaugh, admits that operational and customer benefits from AMR differ by operating center. Tr. at 42; CUB Cross Exhibit 4. Furthermore, even for strictly AMI purposes, Mr. Hollibaugh admits that the unique mixture of residential, commercial, and industrial customers can differ by operating center. Tr. at 43. If Ameren deploys to operating centers with relatively fewer proportions of residential customers first, then, logically, fewer benefits will be realized in the first ten years of Ameren’s proposed fifteen year deployment plan.

Ameren’s AMI Plan did provide for two different deployment scenarios: first, a ten-year deployment to 62% of the Company’s electric customers with full deployment to 100% of those customers over fifteen years; and second, simply deploying AMI to 62% of its electric customers with no further deployment. Ameren Ex. 2.1 at § 7.1. Ameren did not model any deployment scenarios where AMI deployment occurred in less than ten years in its Cost/Benefit Analysis. CUB/ELPC Ex. 1.2 at 16. Ameren did not consider whether changing the deployment schedule

might reduce the overall cost of meeting Ameren's incremental goals regarding estimated bills, inactive meters, and uncollectible expense. Tr. at 57-58.

As a result of this lack of detail, the two scenarios Ameren included in its Cost/Benefit Analysis are insufficient for the Commission to determine whether Ameren's planned deployment schedule sufficiently delivers benefits to customers. CUB/ELPC Ex. 1.0 2nd C. at 18. Because the value of customer benefits decreases over time the longer they are deferred, there is a material difference in customer value with different deployment schedules based on operating center. *Id.* Ms. Horn provides the example of utilities that can extract greater value from their AMI by attending to geographically-specific information like a congested neighborhood to avoid investment in new distribution circuits and thus enable reliance on distributed generation and demand response instead. Tr. at 160-161. In fact, Ms. Horn observes that some of the leading utilities in the country have been rural cooperatives who see AMI as a solution to their distinctly rural problems like detecting system faults. Tr. at 162.

Ameren anticipates network deployment to commence near the end of the first quarter of 2013, with deployment of AMI meters to begin by the fourth quarter of 2013. Ameren Ex. 1.0 at 13-14. Ameren claims that the benefits included in the Cost/Benefit Analysis assumed the "most likely and intended deployment scenario." Ameren Ex. 4.0R at 29. Ameren claims that there is little, if any, difference in anticipated benefits based on specific operating centers – the only distinction in Ameren's view being where Automated Meter Reading ("AMR") has already been deployed versus where it has not. *Id.* Although the Company acknowledges that the number of network devices required, the range of meter modules, data throughput of the system, and proposed network performance across various terrain affect the service areas where AMI will be deployed, Ameren Ex. 1.2 at 11, Ameren's Plan does not provide the specific service areas where AMI is to be deployed in any year. CUB/ELPC Ex. 1.0 2nd C. at 18.

In Ms. Horn's expert opinion, "it's a mistake to not take geography into account." Tr. at 160. She went on to note that "other utilities that [EDF has] worked with, have, in fact, discovered ways to extract much greater value from their AMI by attending to geographic conditions like a congested neighborhood." *Id.* at 150-151. Ameren admits that it needs to understand its population to know how to market pricing programs effectively. CUB/ELPC Ex. 1.0 2nd C. at 18. The Commission should require no less information about specific locations and demographics to accurately forecast customer benefits before it approves Ameren's AMI Plan. *Id.* It is unlikely that each operating center has the same customer segment populations who respond to dynamic pricing, so which operating centers are deployed to first directly affect how much demand response benefit can be forecasted from the Plan. *Id.* at 18-19. Because Ameren's Plan does not have timelines with specific quantitative goals, the Commission cannot assess whether the proposed deployment schedule is reasonable at this time. *Id.* at 17. The Commission should ask Ameren to modify its AMI Plan and present alternative scenarios for comparison regarding why Ameren's chosen time period is sufficient. *Id.* at 13. The Commission should also require Ameren to modify its AMI Plan to present a year by year, operating center by operating center deployment schedule.

4. Annual Milestones and Metrics

Ameren's AMI Plan does not contain adequate milestones and metrics to allow the Commission to determine that implementation of the AMI Plan as presented will be cost-beneficial for Ameren's customers. Milestones and metrics should measure how the Smart Grid functionalities are delivered to Ameren consumers as required by Section 16-108.5 of the PUA, in addition to any Smart Grid metrics approved by the Commission in the Ameren performance metrics docket. *Id.* at 11; ICC Docket 12-0089.

In Ameren's opinion, metrics should "provide a meaningful way for the Commission to measure either the success of the implementation of the AMI Plan or consumer benefits." Ameren Ex. 4.0R at 32. Ameren criticizes Ms. Horn's proposed metrics because they lack a baseline value

for how to measure the metrics. *Id.* at 30. Ameren witness Abba does offer a few suggestions on how, for example, Ms. Horn's power flow metric could be implemented, such as evaluating how much money is spent or how much usage was saved in comparison to a baseline period. *Id.* Similarly, for Ms. Horn's proposed distributed generation metric, Ameren suggests that the number of connections, timeframe for getting connected, amount of paperwork needed to connect, type of equipment needed could all measure Ameren's progress under that metric. *Id.* at 31. Finally, Ameren criticizes Ms. Horn's metrics because they fail to provide an impact for failure to meet the metric. *Id.*

CUB/ELPC agrees with Ameren that performance metrics must be relevant to measuring the success of Smart Grid deployment, should include baseline values for comparison, and should provide an impact for failure to meet the metric. That is why CUB/ELPC witness Ms. Horn's testimony addresses how Ameren's AMI Plan can use additional milestones and metrics to enable Smart Grid functions which deliver consumer benefits and why Ameren's proposed list of metrics falls short of Ameren's own standard. CUB/ELPC Ex. 1.0 2nd C. at 19.

Ms. Horn is Director of EDF's Smart Grid Initiative, where she works with stakeholders to set specific environmental performance criteria for smart grid deployment. *Id.* at 3. Given her experience evaluating Smart Grid deployment plans nationwide, Ms. Horn testifies that a lack of clearly defined metrics risks overemphasizing expenditure amounts and underemphasizing performance outcomes. *Id.* at 11. EDF has developed a scorecard for evaluation of AMI deployment plans, which concluded that metrics must provide reasonable measurement and reporting methods in addition to enabling stakeholders to evaluate future effectiveness of smart grid deployment. *Id.* at 20 (citing Herter, O'Connor, Navarro, *Evaluation Framework for Smart Grid Deployment Plans: A Systematic Approach for Assessing Plans to Benefit Customers and the Environment* (June 2011)). EDF utilized this method to craft consensus metrics in California. *Id.* at 20.

Ms. Horn testified that EDF engaged in a process in cooperation with utilities, and at the request of the California Public Utilities Commission, to develop a set of metrics to track utility progress in smart grid deployment. Tr. at 189. After the first phase of that process, EDF consulted with the utilities to create a set of metrics around the goals where consensus was reached. *See* CUB/ELPC Ex. 1.4. Although the list of consensus metrics has not been finalized by the California Public Utilities Commission, the objection of utilities are relatively technical and minor and only illustrate the need for such a collaborative stakeholder process here in Illinois. For example, San Diego Gas and Electric Company comments that the consensus metrics should be changed to reflect new electric vehicle-specific dynamic pricing rates offered by the utility. *See* Comments of San Diego Gas & Electric Co. on Proposed Decision at Appendix B, Public Utilities Comm’n of the State of California Rulemaking 08-12-0009 (Apr. 9, 2012). Another utility, Pacific Gas and Electric, explicitly “supports adoption of the consensus metrics,” but requests clarification that they are different than performance metrics similar to those under consideration in ICC Docket 12-0089. *See* Opening Comments of Pacific Gas and Electric Co. On Proposed Decision Adopting Smart Grid Metrics at 1, Public Utilities Comm’n of the State of California Rulemaking 08-12-009 (Apr. 9, 2012). Finally, the utility Southern California Edison “generally supports the Proposed Decision’s adoption, with certain modifications, of the nineteen consensus metrics proposed in the “Report on Consensus and Non-Consensus Smart Grid Metrics.” *See* Southern California Edison Co.’s Comments on Proposed Decision Adopting Metrics to Measure the Smart Grid Deployments of Pacific Gas and Electric Co., Southern California Edison Co. and San Diego Gas & Electric Co. at 1, Public Utilities Comm’n of the State of California Rulemaking 08-12-009 (Apr. 9, 2012).

In contrast, Ms. Horn notes that Ameren provides a “few bare phrases” which Ms. Horn agrees should be measured. CUB/ELPC Ex. 1.0 2nd C. at 19 (citing Ameren Ex. 1.1 at 19). Ameren’s bare phrases, however, fail its own standard for metrics by failing to include baseline values and failing to include consequences for failure to achieve any specific metric. In addition,

Ameren misses some key metrics, like data access metrics to ensure that customers can properly utilize the tools that would allow them to directly benefit from Ameren's AMI investments. *Id.* at 27. Ms. Horn recommends the Commission order Ameren to modify its AMI Plan to include the following metrics:

- Measures of third party access to the Smart Grid applications and technologies in Illinois;
- Measures of the ease of connection of distributed generation and net metering;
- Milestones for how wholesale market access for distributed generation, energy efficiency, and demand response can be maximized;
- Measures of the load impact from smart grid-enabled, Ameren administered demand response;
- How many customers understand ways to lower their bills, how to consumer electricity more efficiently, how their bills are computed;
- Demand response program size, in total megawatts and customer class enrollment;
- System load factor and load factor by customer class;
- Measures of the use of capital assets such that power flows are optimized and energy waste in minimized; and
- Measures of the emissions impact of demand side management and integration of clean renewable resources, storage and electric vehicles enabled by Ameren smart grid investments. *Id.* at 21.

Indeed, the Commission has already made clear that utilities opting to recover their costs through a performance-based formula rate must include milestones and performance metrics beyond those expressly named in the EIMA. For example, in the ICC Docket evaluating potential performance metrics for AMI deployment made by Commonwealth Edison Company, the Commission suggested that "to the extent [CUB's] proposed metrics related to the deployment of AMI meters ... parties consider those metrics in the forthcoming proceeding on ComEd's AMI deployment plan." ICC Docket 11-0772, Final Order at 29 (Apr. 4, 2012).

ICC Docket 11-0772 addressed ComEd's Multi-Year Performance Metrics Plan filed pursuant to Section 16-108.5(f) of the EIMA. CUB offered testimony addressing the need for

metrics similar to those discussed here for ComEd’s proposed AMI deployment in order to ensure that ComEd’s customers would benefit from the investments prescribed under the EIMA. ICC Docket 11-0772, CUB Ex. 1.0. The Commission’s considerations in that docket were substantially similar to those of the instant case, and the Commission concluded that Mr. Thomas’ testimony contained “good ideas concerning important additional metrics.” ICC Docket 11-0772, Final Order at 29 (Apr. 4, 2012). Though the ICC concluded that the EIMA’s scope and the limited time period available in the case made inclusion of additional requirements not feasible, the Commission expressed particular concern about how the EIMA framework would impact its ability to adequately review a utility’s performance. Taking note of the disjointed nature of the many separate filings a utility must make under Public Acts 97-0616 and 97-0646, the Commission expressed concern “there is no natural home for the overlapping big-picture issues that CUB/City has raised.” *Id.* Even though the ICC concluded that Docket No. 11-0772 was not the appropriate docket for addressing those issues, the Commission encouraged all parties to work together to ensure maximum customer benefits, including consideration of applicable metrics in the upcoming AMI docket for ComEd. *Id.* The Commission held that at the conclusion of the AMI docket, the Commission shall request a “Staff Report to review the metrics approved in both that docket and in the AMI deployment docket,” and stated that “[b]ased on that Report, the Commission may initiate an investigation to consider any appropriate actions to ensure the full realization of the consumer, environmental, and societal benefits of the grid modernization programs.” *Id.*¹

¹ In the docket reviewing the proposed performance metrics of the Ameren Illinois Company, the Administrative Law Judges proposed similar language:

To the extent CUB's proposed metrics relate to any of AIC's pending or upcoming dockets stemming from the EIMA, the Commission expects parties to consider those metrics (as time and the record permit in any pending dockets). Subsequently, the Commission will request a Staff Report to review the metrics approved in this docket and any of AIC's other EIMA dockets. Based upon that Report, the Commission will consider initiating an investigation to consider any appropriate actions to take in order to ensure the full realization of the consumer, environmental, and societal benefits of the aforementioned grid modernization programs.

The Commission should continue to guide utility Smart Grid investments by requiring Ameren to modify its AMI Plan to include additional performance metrics in consultation with the Smart Grid Advisory Council, ICC Staff and other stakeholders. In addition to requiring an evaluation plan, the Commission should adopt standards for customer data access, should modify Ameren's AMI Plan to include the list of metrics propose in this section, and should require that Ameren's AMI Plan interface with current and future customer technology such as customers' mobile telecommunication devices. CUB/ELPC Ex. 1.0 2nd C. at 27.

5. Consumer Education Plan

Ameren's AMI Plan does recognize that, as ICC witness Schlaf put it, "consumer education efforts will be integral to customer acceptance and the realization of potential benefits of AMI." ICC Staff Ex. 1.0 at 12. Educating customers and notifying them of events can lead to usage reductions during event hours, independent of rate structures and enabling technologies. CUB/ELPC Ex. 1.5 at 5-4. A properly designed consumer education plan is essential, given that many customers are not even aware under which delivery service rate they receive services. CUB/ELPC Ex. 1.0 2nd C at 11. The Illinois Smart Grid Collaborative ("ISGC") recommended that consumer education plans achieve the following:

- Consumers should understand the nature of the program, including technologies used, options available, rate structure changes, and the role of the utility and third parties.
- Consumers should understand the goals of the program.
- Consumers should understand the implications of their participation as it relates to benefits, costs, and risks to the consumer. *Id.* at 12 (citing ISGC Final Report at 24).

Part of Ameren's stated goal for its consumer education plan is to achieve 30% dynamic program participation by 2031. CUB/ELPC Ex. 1.2 at 13. Dynamic pricing is an essential tool for Ameren's customers to lower their electric bills, improve system congestion, and improve asset life. CUB/ELPC Ex. 1.0 2nd C. at 23. Having a full menu of pricing options is "key to different

customer segments being able to maximize the benefits of Smart Grid investment through customer education.” *Id.* at 24. The problem is that Ameren has not yet begun to determine the anticipated number of customers who will sign up for any of the identified rate structures. CUB/ELPC Ex. 1.2 at 20-22. While Ameren does not commit to providing support functionality for other rate structures, such as critical peak pricing, the Company claims that its AMI systems will be fully capable to capture, store, and use billing hourly usage data for endless flexibility to accommodate other dynamic pricing programs. CUB/ELPC Ex. 1.0 2nd C. at 23; Ameren Ex. 4.0R at 34. Indeed, Ameren has not even considered implementation of other potential new dynamic rate options besides the peak-time rebate expressly named in the EIMA. CUB/ELPC Ex. 1.2 at 7.

Ameren believes it is premature and irrelevant to determine the number of customers who may sign up for a specific rate option. Ameren Ex. 4.0R at 33. Because Ameren’s deployment plan lacks a detailed geographic and demographic description, the Commission cannot determine which audience segments receive AMI first and in what amounts. CUB/ELPC Ex. 1.0 2nd C. at 22-23. Thus, the Commission cannot find, with confidence, that Ameren’s forecasted benefits from dynamic pricing will result from the Plan. *Id.* at 23.

Ameren acknowledges the need to understand particular audience segments within the deployment population to tailor its messaging to maximize consumer benefits. Ameren Ex. 1.1 at 21. Ameren points out that since no AMI meters will be installed until the fourth quarter of 2013, there is “ample time for Ameren Illinois to further refine the plan and add more details,” coordinate communication efforts with the Illinois Science and Energy Innovation Trust, and to leverage Trust dollars. Ameren Ex. 4.0R at 32-33. Mr. Abba explains that the consumer education budget was calculated based on the five media markets which Ameren’s service territory covers, research and evaluation efforts, and development and distribution of general notification materials. *Id.* at 9. Most importantly, Ameren acknowledges that, among other things, the *unique demographics* of its service territory make comparison with other utilities’ consumer education budgets a difficult exercise. *Id.*

at 10. As a result, the Company admits that it has not developed a comprehensive final communications evaluation plan. CUB/ELPC Ex. 1.2 at 18.

Although Ameren believes it has time in the future to supplement its education plan, the Commission must nevertheless review the AMI Plan as proposed. In the AMI Plan, Ameren fails to sufficiently detail investments that will be made and messages that will be developed so that the Commission can find that Ameren's Plan enables Smart Grid functions and enhances consumer benefits. 220 ILCS 5/16-108.6(c)(5). Given Ameren's own admission that its service territory contains unique and differing demographic proportions, which may or may not differ by operating center, the Commission should require Ameren to modify its AMI Plan to include a more specific customer education plan which takes into account the type of audiences and provides baseline values for evaluation of progress in consultation with the Smart Grid Advisory Council, ICC Staff and other stakeholders.

B. Technical Criteria

1. NIST Standards for Smart Grid Interoperability

Under the law, Ameren's AMI Plan shall be fully consistent with the standards of the National Institute of Standard and Technology ("NIST") for Smart Grid interoperability that are in effect at the time Ameren filed its AMI Plan, shall include open standards and internet protocol to the maximum extent possible consistent with cyber security, and shall maximize, to the extent possible, a flexible smart meter platform that can accept remote device upgrades and contain sufficient internal memory capacity for additional storage capabilities, functions and services without the need for physical access to the meter. 220 ILCS 5/16-108(6)(c).

In Ms. Horn's opinion, adherence to NIST standards should be required. CUB/ELPC Ex. 1.0 2nd C. at 27. Ameren believes that "some of the vendors' solutions may still have functions that are so compelling that losing interoperability in one area could be outweighed by a benefit in

another.” CUB/ELPC Ex. 1.2 at 6; Ameren Ex. 4.0R at 36-37. Ameren does not provide any further detail on which functionalities might be weighed against each other. Tr. at 79-80. As Ms. Horn put it in testimony, this speaks to the “general opacity” that Ameren will discuss the functionalities that they will provide but there is no transparent process for ensuring that those functionalities do indeed end up in the meters the Company chooses, and that the Company provides itself options for foregoing some of the core functionalities in case of other compelling, unexplained compelling drivers. Tr. at 181.

As a result, the Commission cannot even evaluate what NIST standards Ameren’s deployment will be consistent with. The Commission should require Ameren to modify its AMI Plan to address the final functionalities and NIST standards selected by Ameren, after discussion with the Smart Grid Advisory Council, ICC Staff, and other stakeholders.

2. Cyber Security

3. Privacy of Personal Information Protections

Ameren’s AMI Plan must secure the privacy of personal information and establish the right of consumers to consent to the disclosure of personal energy information to third parties through electronic, web-based, and other means in accordance with State and federal law and regulations regarding consumer privacy and protection of consumer data. 220 ILCS 5/16-108(6)(c). "Personal information" for this purpose consists of the customer's name, address, telephone number, and other personally identifying information, as well as information about the customer's electric usage. 220 ILCS 5/16-108(6)(d). Electric utilities, their contractors or agents, and any third party who comes into possession of such personal information by virtue of working on Smart Grid technology shall not disclose such personal information to be used in mailing lists or to be used for other commercial purposes not reasonably related to the conduct of the utility's business.

Fair Information Practice Principles (“FIPPs”) should be followed in allowing access to any customer specific data by any vendors contracted by Ameren or any other third parties. CUB/ELPC Ex. 1.0 2nd C. at 27. The Commission should make clear that each electric delivery

service customer owns data that is not used by the utility for operational functions. *Id.* Ameren's AMI Plan should be modified to include such statements.

C. Ameren's AMI Plan Cannot Be Found Cost-Beneficial for Customers if Implemented As Presented to the Commission

In order to approve Ameren's AMI Plan, the Commission must find implementation of the Plan will be cost-beneficial consistent with the principles established through the Illinois Smart Grid Collaborative, giving weight to the results of any Commission-approved pilot designed to examine the benefits and costs of AMI deployment. 220 ILCS 5/16-108(6)(c). "Cost-beneficial" is defined in the law as

a determination that the benefits of a participating utility's Smart Grid AMI Deployment Plan exceed the costs of the Smart Grid AMI Deployment Plan as initially filed with the Commission or as subsequently modified by the Commission. This standard is met if the present value of the total benefits of the Smart Grid AMI Deployment Plan exceeds the present value of the total costs of the Smart Grid AMI Deployment Plan. The total cost shall include all utility costs reasonably associated with the Smart Grid AMI Deployment Plan. The total benefits shall include the sum of avoided electricity costs, including avoided utility operational costs, avoided consumer power, capacity, and energy costs, and avoided societal costs associated with the production and consumption of electricity, as well as other societal benefits, including the greater integration of renewable and distributed power resources, reductions in the emissions of harmful pollutants and associated avoided health-related costs, other benefits associated with energy efficiency measures, demand-response activities, and the enabling of greater penetration of alternative fuel vehicles. 220 ILCS 5/16-108(6)(a).

Ameren's own analysis shows the ten-year deployment plan the Company proposes is not cost-effective. CUB/ELPC Ex. 1.0 2nd C. at 24; ICC Staff Ex. 2.0 at 2. Though Ameren models additional deployment scenarios which might be cost-effective², Ameren has placed the condition that it would require "a clear path to full and complete cost recovery" before considering any of the

² The three scenarios include i) deploying AMI meters to 100% 32 of electric customers with 62% of electric customers receiving meters within ten years and the remaining customers receiving AMI meters within fifteen years; ii) deploying AMI meters to 100% of electric customers in the manner described in part i) and automating the meters of gas customers that overlap the AMI deployment; and iii) deploying AMI meters to 62% of electric customers over ten years and automating the gas meters in areas that overlap the AMI deployment. ICC Staff Ex. 2.0 at 2. Staff does note that Ameren has analyzed the potential costs and benefits of each of these scenarios only for its electric customers, and as a result, it is unclear if any of these potential scenarios is cost beneficial to both gas and 39 electric customers. *Id.*

alternatives. *Id.* Ameren's cost-benefit analysis is flawed both in its calculation and in its failure to consider more potential customer benefits.

1. Ameren's Cost-Benefit Analysis is Inadequate

If any one of the assumptions in Ameren's Cost-Benefit Analysis fails to materialize, Ameren's own analysis demonstrates that their Plan will no longer be cost-beneficial. For example, Ameren's Cost/Benefit Analysis does not analyze an increase due to AMI investment in residential delivery rates by year or rate zone. Tr. at 72-73. However, Mr. Abba admits that the timing of benefits does affect the present value of Ameren's Cost/Benefit Analysis. *Id.* at 68. Ameren admits also that local distribution system capabilities differ by operating center. *Id.* at 71. However, Ameren does not address how these differences, which should form the basis for its proposed deployment plan, could ultimately impact the overall costs and benefits delivered by the AMI Plan.

Dr. Brightwell testified about the importance of the discount rate to the calculation of the cost benefit analysis. The discount rate impacts the magnitude of any potential benefits in various deployment scenarios, such as whether or not site visits are required for disconnection of service or gas meters are indeed automated. *See generally* ICC Staff Ex. 2.0. As a result of his analysis, Dr. Brightwell concluded that the "minimum plan required by the [EIMA] where AMI meters are installed to 62% of Ameren's electric customers only over a ten-year period is not cost-effective." *Id.* at 8.

The cost benefit analysis should consider the impact of the deployment schedule. Ameren only modeled the impact of deployment to 62% of its customers, and did not even consider the impact of deployment to 100% of its customers. CUB/ELPC Ex. 1.0 2nd C. at 25. The Commission should regard Ameren's proposed ten-year deployment to 62% of its electric customers as a minimum deployment scenario, not a maximum investment commitment. *Id.* at 24. As Ms. Horn testified, it is preferable to deliver AMI to all customers in Ameren's service territory as soon as practicable. *Id.* Increasing meters installed maximizes consumer benefits such as demand response,

distributed generation, consumption on inactive meters, and estimated bills. *Id.* Customers who are in the 38% of the service territory not receiving AMI in 10 years will be delayed benefits, if they receive them at all, even though they will not be excused from paying for these investments through formula rates. *Id.* To that extent, Ameren should examine how a delay in full functionality (expected in Mid-2015) impacts its customers' options with respect to dynamic pricing programs. *Id.* at 13-14. Ameren admits that its costs might change with different deployment schedules than the one it proposed in its plan, for example, a scenario where it installed AMI meters for all of its electric customers. Tr. at 66. Because Ameren did not model the difference in Ameren's costs for deployment schedules shorter than the one proposed in their Plan, Tr. at 66, the Commission should direct Ameren to update its AMI Plan to model different scenarios discussed with the Smart Grid Advisory Council, ICC Staff and other stakeholders.

2. Ameren's Failure to Consider Additional Customer Benefits

In addition to Staff's concern regarding the overall cost-effectiveness of Ameren's AMI Plan, Ms. Horn testified that Ameren's Plan mentions little regarding benefits required to be included in a Cost-Benefit Analysis by Section 16-108.6(a) of the PUA. These benefits flow from Smart Grid functionalities such as meter integration with a Home Area Network, Programmable Communicating Thermostats; and personal computer USB devices. CUB/ELPC Ex. 1.0 2nd C. at 25. Ameren only commits to "staying abreast" of interface technology, standards, industry practice and performance to test out customer interface technologies, but does not commit to including these functions as a requirement for AMI meters nor does Ameren analyze benefits flowing from these functions. *Id.* at 26.

Ameren claims that the Plan shows its intent to purchase meters with HAN interfaces through a conservative, phased approach towards automated demand response programs. Ameren Ex. 4.0R, 36. However, the Commission must review the Plan as it was submitted to the ICC, which does not include current functionality for Critical Peak Pricing, Time of Use pricing, and A/C

Cycling. CUB/ELPC Ex. 1.0 2nd C. at 25. Direct customer benefits are already delayed since no customers are eligible for peak time rebate tariffs until 2015, the Commission should not allow Ameren to further delay benefits that could flow from these other functionalities. CUB/ELPC Ex. 1.2 at 19. Ameren believes that the details of the PTR tariff must only be considered in the docket opened 60 days after the Commission approves a Plan. Ameren Ex. 4.0R at 41. Furthermore, Ameren claims that it is not aware of specific and detailed information regarding the long-term annual uptake of dynamic pricing rates by residential customers with AMI meters, but overlooks existing literature such as Dr. Ahmad Faruqui's study entitled *The Tao of the Smart Grid*. CUB/ELPC Ex. 1.2 at 14; CUB/ELPC Ex. 1.0 2nd C. at 26. Ameren claims that demand response benefit projections were based on Ameren's service territory demographics and general assessments of demand response potential, but that the change in load shape resulting from demand response was not a part of their projection since that relies on specific tariff characteristics. Ameren Ex. 4.0R, 40.

Operational benefits from smart grid investments depend on the geographic deployment schedule and vendors of AMI and MDMS technologies, neither of which have been detailed by Ameren's Plan. CUB/ELPC Ex. 1.0 2nd C. at 28. Ameren claims that for Ameren's service territory, there is little if any difference in anticipated benefits based on specific operating center. Ameren Ex. 4.0R, 38. The problem is that, as Ms. Horn testified, the value of AMI investments can vary based upon geographic, demographic, and climactic differences by operating center. Tr. at 160. For example, the value of AMI deployed in a congested neighborhood can have the added value of avoiding the cost of investing in new distribution circuits into that neighborhood through reliance on demand response and distributed generation. *Id.* at 161. Claimed customer benefits will require transparent and accessible current and historical interval usage, pricing, and accuracy information. CUB/ELPC Ex. 1.0 2nd C. at 28.

Demand response is financially and environmentally valuable because it reduces peak load. *Id.* at 25. In the Midwest Independent Transmission System Operator (“MISO”), demand response resources can be bid-in in a cost-effective manner. *Id.* As an alternative to more electricity generation, demand response provides environmental benefits such as cleaner air from fewer peaking plants dispatched. *Id.* In addition to the monetary benefit from avoided peak load electricity costs, an additional savings derives from the fact that power purchased from peak generation sources is generally less cost-effective than off-peak generation. *Id.* Indeed, in almost every case, Ms. Horn testifies, relying on reducing demand instead of peak power is cost-beneficial to ratepayers. Tr. at 186.

Automated demand response provides an even greater opportunity to maximize consumer and environmental benefits from smart grid deployment. CUB/ELPC Ex. 1.0 2nd C. at 26. In order to realize benefits from demand response, Ameren should require that AMI vendors provide peak/off-peak price differential data analytics. *Id.* at 26. Ameren claims that the functionality schedule has been considered when determining the timing of benefits in the AMI Cost/Benefit Analysis. Ameren Ex. 4.0R, 41. However, Ameren acknowledges that the sooner AMI capability is deployed to its customers, the sooner benefits can be realized. Tr. at 59.

Ameren has not analyzed any benefits associated with energy efficiency, Tr. at 65, renewable and distributed power sources, Tr. at 64, or alternative fuel vehicles, Tr. at 65. The Company has also not analyzed benefits associated with enabling technology or direct load control. *Id.* at 107. The Company admits, though, that “there are a whole host of benefits that may be derived from AMI now and in the future that we have no knowledge of and we have analyzed but we would certainly take a look at when the appropriate time comes.” *Id.* at 65.

This is the appropriate time for the Commission to ask Ameren about how its proposed AMI Plan makes the realization of these benefits more likely than not. The Commission should investigate what details of the statutorily required peak-time rebate rate structure will be necessary to

know in order to properly evaluate customer benefits from Ameren's investments. CUB/ELPC Ex. 1.0 2nd C at 14. Load shape change should be calculated here since demand response (changes in load shape) is projected to be the largest single direct customer benefit. *Id.* at 13. Ameren acknowledges that its current residential real-time pricing rate, Power Smart Pricing, is "but a single dynamic pricing option that may or may not appeal to a specific set of customers." Ameren Ex. 4.0R at 17. Indeed, Ameren believes that different dynamic pricing structures "may appeal to yet different sets of customers." *Id.* at 18. Yet, Mr. Abba states that Ameren has not analyzed what difference in benefits under the Cost/Benefits Analysis might result from adoption of one rate option over another. Tr. at 75-76.

Although Ameren's AMI Plan attempts to address the benefits discussed immediately above, Ameren flatly refuses to discuss energy efficiency. Energy efficiency programs deliver customer benefits by maintaining or increasing productivity while reducing electricity usage. CUB/ELPC Ex. 1.0 2nd C. at 28. Energy efficiency can lower health costs of consumers by lowering overall emission related to electricity generation. *Id.* at 29. Ameren's Plan fails to acknowledge or integrate energy efficiency benefits from AMI deployment with existing energy efficiency portfolio standards ("EEPS"). *Id.* Ameren admits that it did not include any direct energy efficiency benefits in its Cost/Benefit Analysis, but believes that there is no legal requirement for AMI to provide energy efficiency benefits. Ameren Ex. 4.0R, 39.

In addition, Ameren's Cost/Benefit Analysis accompanying its AMI Plan fails to analyze benefits from renewable and distributed power sources; reductions in harmful pollutants; and alternative fuel vehicles – all benefits required to be analyzed under Section 16-108.6(a) of the PUA. Tr. at 64. Moreover, Ameren's Cost/Benefit Analysis does not analyze an increase due to AMI investment in residential delivery rates by year or rate zone, as recommended by the ISGC. *Id.* at 72-73; ISGC Report at 234, 236. Notably, however, Mr. Abba admits that the timing of benefits does affect the present value of Ameren's Cost/Benefit Analysis. Tr. at 68. Furthermore, Ameren

admits that local distribution system capabilities differ by operating center, explaining that the “distribution system capabilities of each operating center have been constructed to meet the demands and the requirements of those local operating centers.” *Id.* at 71. Nevertheless, Ameren does not address how these differences, which should form the basis for its proposed deployment plan, could ultimately impact the overall costs and benefits delivered by the AMI Plan.

For the above reasons, the Commission should direct Ameren to examine how usage and consumption data can simplify the evaluation, measurement and verification protocols of Ameren’s EEPS. CUB/ELPC Ex. 1.0 2nd C. at 29. Smart grid energy efficiency investments may also facilitate the entry of energy efficient appliances like those used in utility energy efficiency programs. *Id.* The Commission should require Ameren to examine how different deployment scenarios affect the cost-benefit analysis with specific accounting of the different dynamic pricing rate structures and geographically or demographically specific deployment schedules.

IV. STAFF’S PROPOSED MODIFICATIONS TO THE AMI PLAN

V. CUB'S PROPOSED WORKSHOPS

Ms. Horn believes that the Commission cannot approve the Plan as presented by Ameren. CUB/ELPC Ex. 1.0 2nd C. at 29. The Plan does not contain enough evidence that Ameren’s proposed investments will deliver the claimed consumer and environmental benefits. *Id.* Ameren does not yet have enough information on what technology will be deployed, how that technology will be deployed, and how customers will be able to take advantage of the technology to realize customer benefits. *Id.* Ms. Horn recommends that the Commission conditionally reject the Plan as premature and lacking enough detail to ensure that deployment pursuant to the Plan will meet the EIMA goals and objectives. *Id.*

Ameren believes that the Smart Grid Advisory Council is the proper statutory stakeholder process through which Ameren will receive advice and provide progress reports. Ameren Ex. 4.0R at 42. Ameren also claims that the ICC has the power to enter into an investigation of Plan progress if, in one of the April filings, the Commission believes such an investigation is necessary. *Id.* at 42-43. As noted above, however, Ameren has provided no evidence of any changes made to its AMI Plan as a result of consultation with the Council and the Commission's ability to investigate Ameren's progress will be compromised if the initial plan presented in this docket lacks the detail necessary against which to evaluate Ameren's future performance.

The ICC should order Ameren to discuss with stakeholders over six months to solidify the selection of technologies, integration of automated gas meters, actual deployment plans and schedules, and consumer education. CUB/ELPC Ex. 1.0 2nd C. at 30. The goal of the stakeholder process should be to ensure that Ameren's actual deployment does not slow the accrual of benefits to consumers. *Id.* Since Ameren does not propose deploying any meters until late 2013, and full functionality will not occur until 2015, the ICC has some time on this front end to ensure the greatest consumer and environmental benefits from Ameren's Plan. *Id.* at 31. With references to best-in-class practices from other jurisdictions, such a process should include discussions on:

- How to ensure realization of EE/DR, specifically plans to lower overall energy consumption and peak load;
- How to standardize access to customer usage data for both individual Ameren customers and third-parties;
- How to standardize procedures for the interconnection of distributed generation, and how to ensure that investors in distributed generation are properly compensated;
- How to ensure that the final technology selected by Ameren is consistent with NIST guidelines for interoperability among smart grid devices; and
- A final review and discussion of the final deployment plan, including replacement of existing AMR operations and availability of AMI functions as well as customer education and outreach.

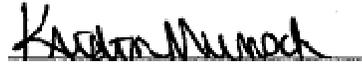
Id. at 30-31.

Dr. Schlaf agrees that “additional time would have been helpful for everybody” and the stakeholder process recommended by Ms. Horn is something that “would probably happen.” Tr. at 217; 219. After this six month process, the ICC should require Ameren to revisit its metrics and milestones every April. CUB/ELPC Ex. 1.0 2nd C. at 30.

VI. CONCLUSION

The Commission should reject Ameren’s AMI Plan as presented because it lacks sufficient detail for the Commission to conclude that implementation pursuant to Ameren’s Plan will be cost-beneficial for Ameren’s customers. The Commission should also reject Ameren’s AMI Plan as presented because it lacks sufficient detail for the Commission to conclude that the Plan contains the information required by the EIMA. Therefore, the Commission should order Ameren to modify its AMI Plan as discussed above.

Respectfully submitted,



Kristin Munsch
Orijit Ghoshal
Attorneys for the CITIZENS UTILITY BOARD
309 W. Washington St., Ste. 800
Chicago, IL 60606
(312) 263-4282
kmunsch@citizensutilityboard.org
oghoshal@citizensutilityboard.org



Rob Kelter
Brad Klein
Attorneys for the ENVIRONMENTAL LAW AND
POLICY CENTER
35 E. Wacker Dr., Ste. 1600
Chicago, IL 60601
(312)673-6500
rkelter@elpc.org
bklein@elpc.org

May 3, 2012