

Exhibit A

**ICC Dkt. No. 12-0298, pages 1-1 to 1-3 of Cost and Benefit Analysis
of Commonwealth Edison Smart Grid Advanced Metering
Infrastructure Deployment Plan (AMI Plan), ComEd Exh. 6.02.**

COST AND BENEFIT ANALYSIS OF COMMONWEALTH EDISON (ComEd) SMART GRID ADVANCED METERING INFRASTRUCTURE DEPLOYMENT PLAN (AMI PLAN)

PREPARED FOR

Commonwealth Edison Company (ComEd)

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1.0 Executive Summary

This report presents the cost and benefit analysis performed by Black & Veatch of Commonwealth Edison Company's (ComEd's) Smart Grid Advanced Metering Infrastructure Deployment Plan (AMI Plan). The analysis focuses on the costs and benefits associated with the AMI Plan "operational" impacts. Other costs and benefits associated with the AMI Plan's customer and outreach education efforts and customer-oriented applications are briefly summarized herein, but details about these elements are described and supported elsewhere in the AMI Plan. The AMI Plan operational element corresponds to ComEd's Chapter 2 of its Smart Grid AMI Plan. The term "operational element" as used herein includes all utility operational costs reasonably associated with the Smart Grid AMI Plan. It includes the sum of avoided electricity costs, including avoided utility operational costs, and avoided consumer power and energy costs. Quantifiable societal benefits associated with the operational element are described as well.

In conducting the analysis, Black & Veatch worked closely with ComEd representatives to gather and develop AMI Plan information, which served as inputs to the analysis. Black & Veatch developed a spreadsheet computer model to analyze the resulting impacts to costs and benefits of the AMI Plan, the goal of which is to determine the resulting value of the planned AMI operational element investment.¹ This document describes the model methodology and assumptions used and provides background about how the data were developed. The document is intended to serve as an appendix in support of ComEd's Smart Grid AMI Deployment Plan. The AMI operational analysis is a 20 year cost and benefit evaluation of ComEd's 10 year AMI deployment scenario, starting with a base year of 2012. All dollar amounts presented in the report are nominal dollars unless otherwise stated. Net present values (NPVs) presented in the report are based on 20 year nominal dollars discounted at 3.087 percent unless stated otherwise.

The cost and benefit analysis presented herein describes ComEd's operational element of its Smart Grid AMI Plan. The term "operational" is intended to delimit the costs and benefits to those associated with AMI-driven operational changes within the utility, such as meter reading and outage management. Also included are various "pass-through" benefits driven by operational activities. The term "operational" is also intended to exclude the benefits associated with ComEd's customer application programs, such as the peak time rebate (PTR) pricing program. The costs and benefits of the customer applications area are described briefly in this report, as are customer outreach and education costs.

Additional information is presented in the report about other benefits that are identifiable and reasonably expected to occur, but are not readily quantifiable at this time. Examples include the societal benefits that result when fewer units of electrical energy are consumed, thereby reducing power plant emissions.

Table 1-1 summarizes the scope of costs and benefits of ComEd's Smart Grid AMI Plan and their relationship to the AMI Plan described in this document and supported in the spreadsheet model accompanying this report.

¹ The supporting spreadsheet model includes the costs and benefits of the AMI operational element and the costs of the outreach and education effort. The model excludes the benefits of outreach and the benefits of ComEd's demand response and other customer applications.

Table 1-1 ComEd 10 Year AMI Plan, Operational Element -- Document and Model Scope

ELEMENT	DOCUMENT	MODEL
AMI Operational Costs and Benefits	Included	Included
(Societal) AMI Operational Costs and Benefits	Included	Not Included
Outreach and Education Program Costs	Included at Summary Level of Detail	Included
Customer Applications-Related Costs and Benefits	Included at Summary Level of Detail	Not Included

1.1 AMI OPERATIONAL ELEMENT

The AMI operational element analysis is a 20 year cost and benefit evaluation of ComEd's 10 year AMI deployment scenario, starting with a base year of 2012. The analysis includes all AMI operational costs and benefits for ComEd's electric service territory and all of its approximately 4.2 million meters. To ensure completeness, costs associated with the implementation and operation of the ComEd AMI Pilot (the Pilot) conducted during 2009 to 2011 are included in the analysis. Benefits are described for all of ComEd's AMI deployed meters, regardless of whether the meter was deployed as part of the Pilot or otherwise.²

1.1.1 Customer-Oriented View

The analysis described herein reflects a cash basis customer perspective. ComEd assumes that all costs incurred and necessary to build and maintain the AMI system are recovered from customers at the time of their occurrence. Second, and similarly, ComEd assumes that the AMI-driven benefits – including changes to revenues – are able to flow through to customers at the time of their occurrence. This flow-through of costs and benefits at the time of their occurrence establishes a transparent framework where the net effects of the AMI Plan can be revealed and evaluated without the encumbrances that are associated with the real-world challenges of designing rate mechanisms.

1.1.2 Summary of Analysis

The cost and benefit analysis results are decisively positive, indicating that the benefit value of the AMI Plan exceeds the costs on a cumulative nominal dollar and an NPV basis. On the cost side, ComEd will incur new costs for AMI meters, the expansion of the wireless radio frequency (RF) communications network, information technology (IT) systems, implementation services, and ongoing operational expenses. Over the 20 year evaluation period (2012 through 2031), assuming a 10 year meter deployment scenario, ComEd would expect to invest \$1,039 million in new capital and incur \$968 million of operational costs to run the system. Cumulative benefits from operational efficiencies and pass-through customer benefits related to changes to unaccounted for energy (UFE), consumption on inactive meters (CIM), and bad debt over the same 20 year evaluation period, however, exceed cumulative costs by a factor of 2.3. Customers benefit from improved operational efficiencies (\$1,761 million), reduced power purchase costs (\$649 million), reduction in bad debt expenses (\$695 million), new energy revenues (\$963 million), and new delivery service revenues (\$542 million). A large portion of these benefits is driven by reductions in theft and

² Any avoided costs (e.g., benefit) associated with operating the Pilot meters prior to the start of full AMI deployment have been ignored for purposes of the analysis. This treatment adds conservatism to the analysis.

tamper conditions³ and reductions in consumption on inactive accounts.⁴ The values cited in this paragraph are simple sums of nominal values with a base year of 2012=1.0.

Taking into account all costs and quantitative benefits, and assuming adjustments to customer energy service and distribution service rates, the NPV of the costs and benefit streams computed at a 3.087 percent discount rate is \$1,271 million over the 20 year evaluation term.⁵ This NPV result takes into account the effects of depreciation, tax, and recovery on investment. This is the value of the AMI operational program element to the ComEd distribution services customer, assuming customer rates adjust. This result is independent of ComEd's customer applications programs, or plans, which are described separately in the AMI Plan.

Table 1-2 summarizes the cost and benefit analysis results over the 20 year evaluation period. Section 6.1 discusses the analysis results in detail.

Energy use reductions are assumed in the UFE benefits summarized in Table 1-2. Energy reductions due to UFE result in an estimated conservation equivalent of 375,000 megawatt-hour (MWh)/year.⁶ Additionally, because of this UFE impact, and making very simple assumptions, it is estimated that ComEd's capacity requirements will be reduced by 43 megawatt (MW). Black & Veatch does not view the energy and capacity reductions as large enough to influence wholesale market prices. The MWh/year reductions are equivalent to the emissions generated by the operation of one modestly sized power plant during 10 percent of its operating hours. The values presented in Table 1-2 reflect a bundled "all-in" energy price, which embeds ComEd's costs of providing distribution and energy services associated with the 375,000 MWh/year of electrical energy use. This includes ancillary, transmission, and other wholesale market fees and tariffs that ComEd pays. It reflects all of ComEd's delivery service customers regardless of their choice about retail energy provision.

³ The analysis includes a benefit related to UFE. UFE includes losses from theft and meter tamper conditions. The analysis estimates that theft and tamper conditions will be reduced with AMI, and UFE will decline. Note that UFE also includes other forms of distribution system losses that are unaffected by AMI. In this analysis, however, UFE is used narrowly (and interchangeably) to refer to the reduction in energy lost through theft, meter tamper, and other customer behaviors affected by AMI business process changes.

⁴ The evaluation includes a benefit related to CIM. Under current operations (prior to AMI), there are instances of metered consumption at a premises without an active customer account on record. These occurrences are usually the result of limited fieldwork capacity to physically disconnect electricity at a premise after finalizing an account. As a result, energy service continues, and someone new at the premises takes advantage of the energized service.

⁵ The Illinois State Smart Grid Collaborative (ISSGC) recommends that a discount rate is used for the NPV calculation that reflects a customer and not a corporate perspective. "For certain tests, the rate of return on utility investments could be a reasonable choice for a discount rate. However, the use of a different discount rate may be appropriate for other tests because customers may have a different assumed cost of capital. (The discount rates used in the analyses are not intended to affect the rate of return that the Commission may set for future cost recovery on the investment.)" ISSGC report, page 237. By selecting a customer-facing discount rate, the report adheres to the ISSGC guidance.

⁶ This is the approximate value of reduced usage in year 11, the first full "steady state" year of the AMI program.