

STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

COMMONWEALTH EDISON COMPANY :
 :
Petition to approve proposed Federal Stimulus : No. 09-
Project and associated tariffs. :

Direct Testimony of

JAMES C. EBER

MANAGER – DEMAND RESPONSE & DYNAMIC PRICING

Commonwealth Edison Company

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1 **I. Executive Summary and Introduction**

2 **A. Witness Identification**

3 Q. Please state your name and business address.

4 A. My name is James C. Eber. My business address is 3 Lincoln Centre, Oakbrook
5 Terrace, Illinois, 60181.

6 Q. Mr. Eber, by whom and in what position are you employed?

7 A. I am employed by ComEd as Manager – Demand Response & Dynamic Pricing.

8 **B. Purpose of Direct Testimony**

9 Q. What is the purpose of your direct testimony?

10 A. The purpose of my direct testimony is to discuss (1) ComEd’s proposal that
11 ComEd’s proposal to deploy approximately 59,000 meters and supporting
12 infrastructure, including up to 50,000 in-home devices (“IHDs”), in two areas of
13 Chicago that are the focus of City-led sustainability initiatives, coupled with the
14 offering of dynamic pricing in those areas; (2) ComEd’s proposal to install 2,000
15 advanced meters in approximately 260 downtown Chicago high rise buildings and
16 (3) ComEd’s proposal to use new AMI-based 2-way communication switches to
17 retrofit the approximately 1200 existing Rider AC customers and to service
18 approximately 17,800 new Rider AC customers in the AMI footprint.

19 **C. Background and Qualifications**

20 Q. What are your current duties and responsibilities?

21 A. As Manager of Demand Response and Dynamic Pricing, I am responsible for
22 managing ComEd’s portfolio of demand response and data services products. I

23 was responsible for the design of ComEd's Voluntary Load Reduction program,
24 which has since become one of the largest programs of its type in the nation. I
25 have supervised the launch of several new demand response products, managed
26 four distinct load management notification and control systems, and have been
27 responsible for the participation of over 4,500 business customer sites and 70,000
28 residential customers' homes. I was responsible for the integration of the ComEd
29 portfolio of demand response resources into the PJM Interconnection, L.L.C.
30 ("PJM") market, and I represent ComEd at the PJM Demand Side Response
31 Working Group, which is responsible for the continuous improvement of the PJM
32 market framework for demand response. In addition, I have been on the
33 Executive Counsel of the Peak Load Management Alliance, the nationally
34 prominent trade association for demand response, for four years, and was in
35 charge of the PECO demand response portfolio for three years, doubling the
36 amount of resources within that portfolio.

37 Q. What is your educational background and professional experience?

38 A. I graduated from Bradley University with a Bachelor of Science in Mechanical
39 Engineering. I have been employed by ComEd since 1988. My professional
40 experience includes twenty years of experience in the design, operation and
41 management of customer-related utility programs. I have been engaged fully in
42 demand response products since 1997, and I have been managing the ComEd
43 portfolio of demand response products since 1999.

44 Q. Mr. Eber, are you currently involved in ComEd's AMI Pilot which is being
45 considered by the Commission in another docket?

46 A. Yes, I am responsible for the development and conduct of the Customer
47 Applications Plan, which is included in ComEd's AMI Pilot Plan currently under
48 consideration in the Commission's Docket No. 09-0263.

49 Q. Please explain the Customer Applications Plan.

50 A. The AMI Workshop collaboration produced the basic design for what we believe
51 is one of the most comprehensive programs of customer behavioral assessments
52 conducted for any utility in the country. Given what the stakeholders agreed to be
53 the potential benefits that would result from certain changes in customers' load
54 profiles (reduced energy usage and lower costs), the group identified the
55 following objectives for these assessments specifically to take advantage of the
56 AMI technology being installed under ComEd's AMI pilot:

- 57 • Test customer response to a variety of rate designs intended to modify the
58 shape and magnitude of customer load.
- 59 • Test the impact of several on-premises devices on the shape and magnitude of
60 customer load. These devices include those that provide real-time information
61 on customer energy use and cost as well those designed to enable control of
62 customer loads by the utility and customer.
- 63 • Understand customer receptivity to and patterns of use of these on-premises
64 devices.
- 65 • Understand the likely uptake of the rate designs and technologies that could be
66 expected under a broader deployment.

- 67 • Identify the combination(s) of pricing and technology options, as well as the
68 methods of customer communication that create the most compelling
69 customer-side offering(s) for an AMI deployment.
- 70 • Estimate the magnitude and value of changes in the shape and magnitude of
71 customer loads as an input into the benefit-cost analysis of the AMI
72 deployment.

73 **D. Summary of Conclusions**

74 Q. Please summarize the conclusions of your testimony.

75 First, ComEd's proposal to deploy approximately 59,000 meters and
76 supporting infrastructure, including up to 50,000 IHDs, in two areas of Chicago
77 coupled with the offering of dynamic pricing in those areas that are the focus of
78 City-led sustainability initiatives is reasonable and should be approved.

79 Second, ComEd's proposal to replace 2,000 meters with advanced meters
80 to test, jointly with BOMA, the ability of large office buildings to automatically
81 aggregate demand response through a sophisticated metering and control system
82 is reasonable and should be approved.

83 Third, ComEd's proposal to replace existing Rider AC switches in the
84 AMI footprint with new switches, capable of taking advantage of the backbone
85 AMI communications technology, as well as its proposal to install an additional
86 17,800 such switches for customers where none currently exist, is reasonable and
87 should be approved.

88 Fourth, the estimated costs of these proposals are reasonable and ComEd
89 should be able to recover them through Rider AMP.

90 **II. ComEd's Proposal to Work with the City of Chicago with AMI-Enabled**
91 **Customer Applications.**

92 Q. Please describe ComEd's proposal regarding AMI-enabled customer applications
93 in two specific Chicago neighborhoods.

94 A. As detailed by Mr. Jensen in his testimony, the City of Chicago has committed
95 itself to an ambitious climate action plan, requiring a 24% reduction in CO₂
96 emissions by 2020 through 33 detailed strategies. In order to learn how AMI and
97 associated customer applications can advance community climate action and
98 economic development objectives, ComEd proposes to deploy approximately
99 59,000 meters and supporting infrastructure to cover all the customers in two
100 areas of Chicago that are the focus of City-led sustainability initiatives, including
101 up to 50,000 IHDs in the residences in those two neighborhoods. The AMI and
102 customer premises technology installation will be linked to the City-led initiative
103 to integrate all available energy efficiency services and associated environmental
104 initiatives within the two communities. It is my understanding that the City will
105 be using innovative community network models developed with the assistance of
106 anthropologists from the Field Museum in Chicago. ComEd will be working with
107 the City in what is expected to be an intensive effort to influence consumer
108 behavior through the focused application of advanced technology, dynamic
109 pricing, targeted energy efficiency incentives and community-based outreach and
110 education.

111 Q. You mention the IHDs. Can you describe what they will be and under what terms
112 they will be offered to customers?

113 A. The decision as to both the type of IHDs and the terms under which they will be
114 offered will be based in part on information obtained in the context of ComEd's
115 Customer Applications Plan. We fully expect to receive valuable feedback from
116 customers as to the benefits and drawbacks of the different devices being installed
117 and tested in that Plan as well customer-receptiveness to a fee-based offering.
118 That information together with any other performance and pricing information
119 that we have will be used in making decisions concerning IHDs.

120 Q. What type of dynamic pricing does ComEd plan to offer customers in these
121 neighborhoods?

122 A. Again, we fully expect that that decision will be informed by what we learn in the
123 Customer Applications Plan, which has been designed specifically to ascertain an
124 optimum combination of technology, information presentment, dynamic pricing,
125 and customer education for "nudging" customers to behave in a way that
126 maximizes savings and minimizes environmental impact. While the AMI
127 Customer Application Plan contains a series of different time-varying rates, it is
128 anticipated that only one non-extant dynamic rate would be offered. It would be
129 premature to engage in speculation as to what that might be at this time. Once the
130 rate application is determined, and if any tariff changes are necessary, they will be
131 filed with the Commission in advance of the project.

132 Q. Please describe the proposed timeline for this project with the City of Chicago.

133 A. Currently, the schedule for the AMI Customer Applications pilot calls for the
134 dynamic rates to be first applicable with June 2010 bills. ComEd would propose
135 to compile some preliminary results of those applications after the summer 2010

136 period and present the results to the City and stakeholders in the fall of 2010.
137 Soon thereafter, the preferred rate design would be determined that would be
138 offered to the approximately 50,000 residential customers in these two
139 neighborhoods, anticipating initial applicability to customers' bills in the first
140 quarter of 2011. This should allow adequate time for a 45-day tariff filing, should
141 revised tariff provisions be necessary, and also allow enough time to install both
142 the new AMI meters and the appropriate IHDs.

143 Q. Please provide an estimate of the costs of this project.

144 A. I will defer to Mr. Meehan discuss the costs associated with the installation of the
145 59,000 AMI meters. I estimate that the cost of purchasing and installing the
146 IHDs, providing communications and outreach to customers, and the associated
147 cost of rolling out and administering the dynamic price offering to the Chicago
148 project area at \$18 million.

149 **III. ComEd's Proposal to Replace 2,000 Meters in Large Office Buildings With**
150 **Advanced Meters.**

151 Q. Please describe ComEd's proposal to install advanced meters in large office
152 buildings.

153 A. ComEd proposes, with the support of BOMA and the City, to install up to 2000
154 advanced meters in approximately 260 large office buildings in the downtown
155 Chicago business district. ComEd intends to investigate the adequacy of these
156 advanced meters for meeting its own needs while at the same time looking at the
157 ability of these advanced meters to effect the kinds of measurements and control
158 functions necessary to facilitate customers' working with Curtailment Service

159 Providers (“CSPs”) to aggregate their usage and utilize their ability to provide
160 demand response in order to participate in the PJM ancillary services markets.
161 Facilitating demand response measures will reduce peak demand and the need for
162 the associated investment in capacity. The introduction of these resources into the
163 various markets will have the overall effect of a reduction in capacity, energy, and
164 ancillary service costs for all customers. It should be noted that all of the large
165 office buildings involved would be “competitively declared” customers – i.e.,
166 they would only be eligible for ComEd electric supply at the hourly rate.

167 Q. What costs are associated with this effort?

168 A. The approximate costs for the purchase and installation of these meters is \$8.8
169 million.

170 Q. What is the timeline for this project?

171 A. It is anticipated that we would begin to install these meters beginning in the
172 second quarter of 2010.

173 **IV. ComEd’s Proposal to Use New AMI-Compatible Rider AC Cycling Switches.**

174 Q. Please describe ComEd’s proposal concerning Rider AC cycling switches.

175 A. Rider AC is ComEd’s current service offering whereby ComEd compensates
176 residential customers for allowing ComEd to temporarily cycle off their central
177 air conditioners during times of peak summer load. ComEd installs a switch on
178 the customer’s air conditioner that is operated by paging technology. This
179 technology allows only one-way communication (from ComEd) with the
180 customer premise. In other words, we can send a signal to cycle a customer’s air

181 conditioner, but we cannot know if that switch actually activated or what the load
182 drop was. ComEd's ARRA Application discusses the installation of 19,000 AMI-
183 compatible, switches. These switches and AMI enable two-way communication
184 allowing ComEd to remotely determine if the switch is working and to monitor in
185 near real-time the load drop when a switch is activated.

186 Approximately, 17,800 of these meters would be involved in an expansion
187 of Rider AC to customers in the AMI footprint area resulting in the availability of
188 approximately 20 MW of additional demand response. Because this is an
189 expansion of Rider AC, this effort will come under the umbrella of ComEd's
190 Energy Efficiency/Demand Response Plan, the associated costs of the new
191 switches will be addressed through Rider EDA, and any associated federal
192 stimulus funds will not affect Rider AMP cost recovery.

193 However, ComEd seeks permission here to recover, through Rider AMP,
194 the cost to retrofit the AC switches of the approximately 1,200 Rider AC
195 customers in the total AMI footprint area to AMI-compatible two-way
196 technology. This technology conversion will allow the use of the AMI network in
197 the application of Rider AC.

198 Q. What other benefits are provided by the installation of these AC switches in the
199 footprint?

200 A. This relatively small conversion of the existing paging technology with two-way
201 technology will provide a product test for the technology within the footprint and
202 leverage the experience for any eventual full-scale roll out of AMI technologies

203 and related switch conversions and new participants in the future. Installing these
204 switches is expected to provide additional data to ComEd to better understand the
205 health of the installed switches and real-time diagnostics for the communications,
206 status, and operating conditions. Knowing the condition of the switch may
207 provide for additional load responsiveness, potentially allowing more value to the
208 PJM demand response market. These new switches may also provide greater
209 reliability of data transmissions while setting the stage for additional future
210 upgrades.

211 Q. What will happen to the switches removed as a part of this effort?

212 A. Any old switches that are removed will be available for re-dispatch in other
213 locations outside of the AMI footprint.

214 Q. What costs would be associated with this project?

215 A. The procurement and installation costs for this retrofit is estimated at \$1.4 million.

216 Q. What is the timeline for this project?

217 A. The installation of the new switches would begin in the third quarter of 2010.

218 **V. Conclusions.**

219 Q. What are the conclusions of your testimony?

220 A. First, ComEd's proposal to deploy approximately 59,000 meters and
221 supporting infrastructure, including up to 50,000 IHDs, in two areas of Chicago
222 coupled with the offering of dynamic pricing in those areas that are the focus of
223 City-led sustainability initiatives is reasonable and should be approved.

224 Second, ComEd’s proposal to replace 2,000 meters with advanced meters
225 to test, jointly with BOMA, the ability of large office buildings to automatically
226 aggregate demand response through a sophisticated metering and control system
227 is reasonable and should be approved.

228 Third, ComEd’s proposal to replace existing Rider AC switches in the
229 AMI footprint with new switches capable of taking advantage of the backbone
230 AMI communications technology, as well as its proposal to install an additional
231 17,800 such switches for customers where none currently exist, is reasonable and
232 should be approved.

233 Fourth, the estimated costs of these proposals are reasonable and ComEd
234 should be able to recover them through Rider AMP.

235 Q. Does that conclude your direct testimony?

236 A. Yes, it does.