Docket No. 07-0540
ICC Staff Exhibit 1.0

Direct Testimony

of

Richard J. Zuraski

Senior Economist

Energy Division—Policy Section

Illinois Commerce Commission

**Approval of the Energy Efficiency and Demand-Response Plan
Pursuant to Section 12-103(f) of the Public Utilities Act**

Commonwealth Edison Company

Docket No. 07-0540

December 14, 2007

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I. Witness Qualifications

Q. State your name and business address.

A. Richard J. Zuraski, Illinois Commerce Commission, 527 East Capitol Avenue, Springfield, Illinois, 62701.

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

A. I am employed as a Senior Economist in the Illinois Commerce Commission's ("Commission") Energy Division—Policy Program.

Q. What are your responsibilities within the Energy Division—Policy Program?

A. I provide economic analyses and advise the Commission and other staff members on issues involving the gas and electric utility industries. I review tariff filings and make recommendations to the Commission concerning those filings. I provide testimony in Commission proceedings.

Q. State your educational background.

A. I graduated from the University of Maryland with a Bachelor of Arts degree in Economics. I obtained a Masters of Arts degree in Economics from Washington University in St. Louis. I completed other work toward a doctorate in economics from Washington University, but did not complete all requirements for that degree.

Q. Describe your professional experience.

A. Since December 1997, I have been a Senior Economist in the Policy Program of the Commission's Energy Division. I held the same position from February 1990 to December 1997, in the Commission's Office of Policy and Planning (prior to its incorporation into the Energy Division). Before that, I held positions in the Commission's Least-Cost Planning Program and Conservation Program. While employed by the Commission, I have testified in numerous docketed proceedings before the Commission. Prior to coming to the Commission in November 1987, I was a graduate student at Washington University, where I taught various courses in economics to undergraduate students in the Washington University night school and summer school.

II. Purpose of Testimony

Q. What is the subject matter of your testimony?

A. This case concerns the filing by Commonwealth Edison Company ("ComEd" or "the Company") of a plan (as well as supporting testimony and other exhibits) to implement energy efficiency ("EE") and demand response ("DR") (together "EE-DR") programs, pursuant to Section 12-103 of the Public Utilities Act ("the Act"). I also note that the Company's plan, testimony and other filed exhibits include information pertaining to EE measures and programs that are also included in the plan filed by the Illinois Department of Commerce and Economic Opportunity ("DCEO" or "the Department") and are the subject of ICC Docket 07-0541. In broad terms, my testimony concerns the above-cited filings.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is, first, to determine if the Company's plan (along with the portion of the plan, or measures, to be implemented by the DCEO and DCEO's plan) includes all the elements that it should include. The Act states:

> In submitting proposed energy efficiency and demand-response plans and funding levels to meet the savings goals adopted by this Act the utility shall:
>
> (1) Demonstrate that its proposed energy efficiency and demand-response measures will achieve the requirements that are identified in subsections (b) and (c) of this Section, as modified by subsections (d) and (e).

(2) Present specific proposals to implement new building and appliance standards that have been placed into effect.

(3) Present estimates of the total amount paid for electric service expressed on a per kilowatthour basis associated with the proposed portfolio of measures designed to meet the requirements that are identified in subsections (b) and (c) of this Section, as modified by subsections (d) and (e).

(4) Coordinate with the Department and the Department of Healthcare and Family Services to present a portfolio of energy efficiency measures targeted to households at or below 150% of the poverty level at a level proportionate to those households' share of total annual utility revenues in Illinois.

(5) Demonstrate that its overall portfolio of energy efficiency and demand-response measures, not including programs covered by item (4) of this subsection (f), are cost-effective using the total resource cost test and represent a diverse cross-section of opportunities for customers of all rate classes to participate in the programs.

(6) Include a proposed cost-recovery tariff mechanism to fund the proposed energy efficiency and demand-response measures and to ensure the recovery of the prudently and reasonably incurred costs of Commission-approved programs.

(7) Provide for an annual independent evaluation of the performance of the cost-effectiveness of the utility's portfolio of measures and the Department's portfolio of measures, as well as a full review of the 3-year results of the broader net program impacts and, to the extent practical, for adjustment of the measures on a going-forward basis as a result of the evaluations. The resources dedicated to evaluation shall not exceed 3% of portfolio resources in any given year.

220 ILCS 5/12-103(f).

Not necessarily in the same order, I provide Staff's fact-based assessment of whether the Company has made the required showings described in items (1) through (7), above, with the exclusion of item (6), which Staff witness Pearce will address. Staff's brief will provide Staff's legal assessment of whether the Company has made the required showings described in items (1) through (7).

Second, the Company states that it is specifically requesting approval of the following features of its Plan:

1. Flexibility to modify program design and budgets and to add or discontinue programs.
2. The ability to "bank" excess energy savings in a given Plan year, and apply that excess to and reduce a subsequent Plan year's goal.
3. The estimated spending screens calculated under Section 12-103(d) of the Act.
4. The ability to seek recovery of prudently and reasonably incurred costs that exceed the spending screen in a given Plan year.
5. Setting a schedule and adopting the proposed process for evaluating whether ComEd achieves its year two and year three goals, beginning after year two of the Plan.
6. The ability to annualize energy savings.
7. Proposed measure energy savings and net-to-gross ratio values, and overall Evaluation, Measurement and Verification ("EM&V") process.
8. Proposed allocation of energy efficiency measures to be implemented by ComEd and DCEO.
9. Rider EDA – Energy Efficiency and Demand Response Adjustment, ComEd's proposed cost-recovery mechanism.

ComEd Ex. 2.0, p. 2.

Without drawing any legal conclusions, I evaluate each of these requested approvals, with the exception of items (4) and (9), which Staff witness Pearce will address. Staff's legal conclusions concerning these items will be addressed in Staff's brief.

Finally, I address certain aspects of DCEO's plan.

III. Coordination with DCEO and the Department of Healthcare and Family Services

Q. Does the Company's plan address how the Company has coordinated with the

DCEO and the Department of Healthcare and Family Services to present a portfolio of energy efficiency measures targeted to households at or below 150% of the poverty level at a level proportionate to those households' share of total annual utility revenues in Illinois?

A. While ComEd clearly worked with the DCEO, I found no indication in their plan or testimony that the Company coordinated with the Department of Healthcare and Family Services. However, DCEO witness Feipel indicates that "DCEO Staff met with DHFS personnel." (DCEO Ex. 1.0, p. 20)

IV. Implementation of new building and appliance standards

Q. Does the Company's plan "present specific proposals to implement new building and appliance standards that have been placed into effect" in accordance with Section 12-103(f)(2) of the Act?

A. No. However, Mr. Brandt indicates that,

> ComEd coordinated with DCEO with respect to the requirement of Section 12-103(f)(2). Programs offered by the Department will address this requirement.

ComEd Ex. 2.0, p. 10.

Q. Does the DCEO plan "present specific proposals to implement new building and appliance standards that have been placed into effect"?

A. Preliminarily, I should indicate that it is not clear what is meant by "implement new … standards that have been placed into effect." For instance, in this context, what constitutes a "new" standard? Would it be one that has been in effect for less than 6 years, 6 months, or 6 days? And what does it mean for a utility company or DCEO to "implement" such standards?

But notwithstanding the uncertainty regarding the meaning of that language, I can confirm that DCEO witness Feipel has noted several ways in which DCEO might be considered, with respect to Section 12-103(f)(2) of the Act, to be implementing new building standards. For example, he states that the agency has had "further discussions with [the Capital Development Board] with respect to achieving any new building standards that have been issued in order to support this provision of the statute." (ICC Docket No. 07-0541, DCEO Ex. 1.0, p. 20). Mr. Feipel also states,

> The [agency's] public sector new construction program was developed as an incentive for these entities to build new buildings to an energy standard beyond the current building code. Furthermore, because the statute refers to support of building standards it is appropriate to base our public sector new construction program on going beyond the building code, especially in light of the new building code recently adopted by CDB this year.

ICC Docket No. 07-0541, DCEO Ex. 1.0, p. 26 (footnote omitted)

Mr. Feipel also discusses DCEO's Efficiency Training Program and describes several types of training that would be pursued, "as funds allow." (DCEO Ex. 1.0, pp. 51-54) Among these are efforts to "train code enforcement officials, architects, designers, engineers, builders, contractors, and other interested parties on current codes, code updates, and potential new codes (i.e. residential energy code) to facilitate and increase code compliance," and efforts to "train commercial designers, builders and contractors to build beyond code." (DCEO Ex. 1.0, p. 52)

On the other hand, while the above DCEO plans appear to include efforts to implement new ***building*** standards, Mr. Feipel does not appear do describe similar efforts to implement new ***appliance*** standards (which are also mentioned in Section 12-103(f)(2)).

V. Opportunities for program participation by diverse cross-section of customers

Q. Does the plan demonstrate that its overall portfolio of energy efficiency and demand-response measures, not including programs covered by item (4) of subsection (f) of Section 12-103 of the Act, represents a diverse cross-section of opportunities for customers of all rate classes to participate in the programs?

A. ComEd witnesses Brandt and Jensen describe how the Company's portfolio provides a diverse cross-section of opportunities for ComEd customers. (ComEd Ex. 2.0, pp. 31-32, ComEd Ex. 6.0, pp. 43-44) The portfolio of energy efficiency and demand response measures appears to comprise a "diverse cross-section of opportunities for customers of all rate classes."

VI. Demonstration of breakthrough equipment and devices

Q. Section 12-103(g) states that "No more than 3% of energy efficiency and demand-response program revenue may be allocated for demonstration of breakthrough equipment and devices." Does the Company's plan address this issue?

A. The Company's plan states that "The ComEd portfolio includes funding for such innovative technologies in the latter years of the Plan." But the very next sentence states that the Company "has not allocated proposed funding to specific projects." (ComEd Ex. 1.0, p. 100) The Company then goes on to describe how it plans "to promote the development of efficiency improvements in consumer electronics" and that "ComEd is committed to investment in emerging technologies that successfully enable demand-response and energy efficiency integration, including smart thermostats and a range of

Zigbee (or other open-source protocols) compatible controllers and smart devices that ultimately can be integrated to more dynamic price signals." (ComEd Ex. 1.0, pp. 100-101, footnote omitted)

Q. **Does this constitute compliance with the Act's prohibition against allocating greater than 3% of energy efficiency and demand-response program revenue for demonstration of breakthrough equipment and devices?**

A. I will not offer a legal opinion, but I am advised by counsel that the phrase, "breakthrough equipment and devices," is not defined in the Act, and could be open to interpretation. This ambiguity, along with the Company's failure to specify how much of its EE-DR budget will be allocated to propagating Zigbees (and to other activities that the Company at least believes constitutes the demonstration of breakthrough equipment and devices), makes it difficult for Staff to factually assess whether or not the plan is consistent with the 3 percent ceiling on such spending. I recommend that the Company pledge in its next round of testimony that it will never spend more than 3 percent of energy efficiency and demand-response program revenues on the types of activities that it describes on pages 100-101 of the Plan. Perhaps that will be of some assistance to the Commission in determining whether the Plan is in compliance with Section 12-103(g).

VII. Flexibility

Q. **Mr. Brandt explains that the Company seeks to retain "flexibility to adjust portfolio and program design based on the real-time information it receives." (ComEd Ex. 2.1, p. 36) He further states that "To ensure that ComEd has the ability to respond to such challenges following approval of the Plan, it must retain sufficient flexibility to reallocate funds across program elements, including the**

ability to modify, discontinue and add program elements within approved programs based on subsequent market research and actual implementation experience." (Id., also see ComEd Ex. 2.1, pp. 37-38) He also proposes that the utility would consult with "stakeholders," before making these decisions. Should the Commission grant the Company permission to retain this flexibility?

A. As a preliminary matter, I want to be clear that I am not offering an opinion on the legal propriety of providing such flexibility. On the pages cited above, Mr. Brandt provides reasonable arguments for requesting this flexibility, and I can appreciate how granting the requested flexibility would aid the Company in cost-effectively achieving the level of energy savings that it projects to be able to save.

However, I have one potential concern about the Company's request that the Commission might wish to consider. In this docket, if the Commission approves the Company's plan, presumably the Commission will have made a finding that the portfolio includes a "diverse cross-section of opportunities for customers of all rate classes." But if the Company is to later modify and/or discontinue program elements, it is at least conceivable that these modifications and discontinuations will reduce the opportunities available to some rate classes. If the Commission is especially concerned about that particular criterion of the Act, then it may not feel comfortable effectively delegating its responsibility to make this "diverse cross-section" finding to the utility (even if the utility consults with a group of "stakeholders").

Q. In discussing the flexibility to adjust portfolio and program design, Mr. Brandt also indicates that ComEd would consult with a group of stakeholders before "Dismissing ComEd's evaluation contractor under the terms of the contracts

signed with that contractor, and the hiring of a new contractor." (ComEd Ex. 2.0, p. 38) Do you have any comments with respect to this aspect of the plan?

A. I believe this topic of dismissing and rehiring new evaluation contractors resides under a separate set of issues, which I shall discuss elsewhere in this testimony under the heading of "Measurement and Verification."

VIII. The estimated spending screens

Q. Does the plan "present estimates of the total amount paid for electric service expressed on a per kilowatthour basis associated with the proposed portfolio of measures designed to meet the requirements that are identified in subsections (b) and (c)" of Section 12-103 of the Act?

A. Yes. ComEd witness Crumrine presents these numbers on page 12 of his testimony (ComEd Ex. 5.0): "8.430, 8.739 and 9.263 cents per kWh for the three twelve-month periods ending on May 31st of 2007, 2008 and 2009, respectively." ComEd Ex. 5.1 and 5.2 show some of the computations performed by ComEd to arrive at these values. As noted in ComEd Exhibits 5.1 and 5.2, there are numerous projections and assumptions underlying these computations.

Q. Does ComEd present the EE-DR spending limits apparently prescribed by Section 12-103(d)(1) – (3)?

A. Yes. ComEd witness Crumrine presents these numbers on page 16 of his testimony (ComEd Ex. 5.0): $39.4 million, $81.6 million, and $126.7 million, respectively, or a total of $247.6 million for the three Plan years. They are also shown in ComEd Ex. 1.0, in Tables 4, 5, and 6 on pages 16, 17, and 18, respectively. Some of the calculations to arrive at these values are shown in ComEd Ex. 5.3. As noted in ComEd

Ex. 5.3, there are numerous projections and assumptions underlying these computations. I cannot vouch for these underlying projections and assumptions.

Q. Do the computations in ComEd Exhibits 5.1, 5.2, and 5.3 appear to be correct?

A. Yes. The computations appear to be correct. That is, given the underlying projections and assumptions alluded to, above, Mr. Crumrine's computed spending limits accurately represent the level of spending at which the amounts paid by retail customers in connection with electric service due to the cost of the plan's energy efficiency and demand reduction measures would increase:

- in 2008, no more than 0.5% of the amount paid per kilowatthour by those customers during the year ending May 31, 2007;
- in 2009, the greater of an additional 0.5% of the amount paid per kilowatthour by those customers during the year ending May 31, 2008 or 1% of the amount paid per kilowatthour by those customers during the year ending May 31, 2007;
- in 2010, the greater of an additional 0.5% of the amount paid per kilowatthour by those customers during the year ending May 31, 2009 or 1.5% of the amount paid per kilowatthour by those customers during the year ending May 31, 2007.

Q. According to ComEd witness Brandt, the Company does not plan on updating the EE-DR spending limits of $39.4 million, $81.6 million, and $126.7 million, at any point during or after the three-year planning period. (See ComEd Ex. 2.0, p. 50) Should these values be updated?

A. There are legitimate reasons for updating the spending limits at various points during the life of the three-year plan. As previously indicated, these spending limits are based on projections of future usage and future costs, which are both subject to uncertainty. Future power supply costs and/or normalized usage could drop significantly, both or either of which could be excellent reasons to reduce the rate of spending on EE-DR programs. Conversely, future power supply costs and/or normalized usage could increase significantly, both or either of which would be excellent reasons to increase the rate of spending on EE-DR programs.

IX. The energy and demand reduction requirements of Section 12-103, Subsections (b) and (c) of the Act

Q. What are the energy efficiency requirements identified in subsection (b) of Section 12-103 of the Act, as they pertain to this initial plan filed by ComEd?

A. The requirements for this initial three-year plan are to "implement cost-effective energy efficiency measures to meet the following incremental annual energy savings goals: (1) 0.2% of energy delivered in the year commencing June 1, 2008; (2) 0.4% of energy delivered in the year commencing June 1, 2009; [and] (3) 0.6% of energy delivered in the year commencing June 1, 2010 . . . ." 220 ILCS 5/12-103(b). Consistent with ComEd's plan, I assume that "energy delivered" refers to both bundled and unbundled sales of electricity delivered to the utility's retail customers. In Megawatt-Hours ("MWH"), ComEd reports that this translates into the following values: (1) 188,729, (2) 393,691, and (3) 584,077 for each of the three 12-month planning periods beginning June 1.

Q. Are these values (188,729, 393,691, and 584,077 MWH) reasonable for purposes of the plan?

A. These values are derived through a straightforward computation. However, the reasonableness of the resulting values of this computation depends on the reasonableness of the underlying forecast of energy consumption for the three year period. Staff has not performed a thorough review of this underlying forecast.

Q. What are the demand response requirements identified in subsection (c) of Section 12-103 of the Act, as they pertain to this initial plan filed by ComEd?

A. The Act's demand response goal is to reduce peak demand of "eligible customers" by 0.1% of the previous year's peak demand. "Eligible retail customers" are defined in Section 16-111.5 of the Act as "those retail customers that purchase power and energy from the electric utility under fixed-price bundled service tariffs, other than those retail customers whose service is declared or deemed competitive under Section 16-113 and those other customer groups specified in this Section, including self-generating customers, customers electing hourly pricing, or those customers who are otherwise ineligible for fixed-price bundled tariff service." In Megawatts (MW), ComEd reports that the 0.1% requirement translates into the following values: (1) 11.7, (2) 11.1, and (3) 10.0 MW for each of the three 12-month planning periods beginning June 1. (ComEd Ex. 1.0, p. 16) I am assuming that ComEd intends for these figures to represent "incremental" reductions, so that the cumulative reductions for 2009 and 2010 would be 22.8 and 32.8 MW, respectively.

Q. Are these values (11.7, 11.1, and 10.0 MW) reasonable for purposes of the plan?

A. These values are derived through a straightforward computation. However, the reasonableness of the resulting values of this computation depends on the reasonableness of the underlying peak demand estimate (for the first year) and forecast (for the last two years) for "eligible customers." Staff has not performed a thorough review of these underlying estimates and forecasts.

Q. **Does the plan demonstrate that its proposed energy efficiency and demand-response measures will reduce energy and demand consumption by the amounts identified above?**

A. ComEd claims that it expects to meet the goals stated above. However, ComEd's assessment is dependent on whether or not savings may be "annualized" and on the validity of the inputs and methods used to create those energy savings projections. These topics are addressed by me in the two sub-sections below.

A. <u>Annualizing energy savings</u>

Q. **ComEd seeks permission from the Commission to "annualize" any energy savings that are initiated during the planning year. According to ComEd witness Brandt, "This means that no matter when a measure is installed during the year, its savings are calculated as if the measure had been in place for the full year." (ComEd Ex. 2.0, p. 48) What are the implications of this proposal to annual energy savings?**

A. The implication of the Company's annualization proposal is that expected energy savings during the three years of the plan will be less than 0.2%, 0.4%, and 0.6%. For example, consider a portfolio of one measure installed ratably over the course of the first year of the plan in order to achieve the annualized goal of 0.2%. Ignoring seasonal differences in how the efficiency measure generates savings (which would be significant for weather-sensitive measures), the ratable installation assumption implies that the energy savings generated during the plan year would be approximately half (50% of)

ComEd's annualized savings goal.[1] This is simply because measures that are installed later in the planning year contribute less than measures that are installed earlier in the planning year.

In contrast, but by the same logic, if projected savings are ***not*** annualized, then strictly meeting the savings goal in the year of implementation would lead to exceeding the goal in any ***full*** twelve-month period over the life of the measure. For example, under the same ratable installation assumption, over the life of the measure (not just within the year of implementation), within any full twelve-month period, energy savings would average twice (200% of) ComEd's annualized savings goal.[2]

Q. Should the Commission adopt ComEd's proposal to annualize savings?

A. I will not offer a legal opinion about whether it is permissible under the Act, but I will offer some "policy" considerations that Staff considers relevant.

First, from my perspective, the best public policy rationale for percentage savings goals is that they provide a relatively straightforward means of assessing utility performance. When combined with the Act's threatened penalties for failing to meet these standards, they form the basis for a weak form of performance-based regulation. From that standpoint, the percentage goals are only useful if they are neither too easy nor too difficult to meet. For instance, if the goals are simply impossible to meet, then they

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[1] By "ratable installation," I mean that we are assuming 1/365ths of the total installations are completed each day of the planning year. As I understand the Company's annualization proposal, the 1/365th of installations that are completed on the first day will count toward the year's energy savings the same as the 1/365th of installations completed on the 100th and 300th days; they will all count as contributing 365/365 or 100% of their expected annualized rate of savings. However, we know that all but the first measures to be installed will be in effect too briefly to contribute a full 100% during the planning period. On average, only about **50%** of the ComEd-annualized level of savings can be expected to actually accrue during the planning year.

[2] That is, the reciprocal of the value derived in footnote 1.

will not change utility behavior. It would be like telling me I will be fined $1000 if I fail to run a marathon in under an hour. I may as well give up, forget about training, and start saving my money now, because I know I will never be able to avoid the fine. Unfortunately, at this time, I do not have a firm grasp on whether the percentage goals in the Act are either too easy or too difficult to meet; I do not know if they are realistic either with or without annualizing savings.

Second, assume for a moment that the goals are realistic, but not guaranteed, particularly without allowing annualized savings. Under such circumstances, not allowing annualized savings could induce the utility to choose less cost-effective programs and measures, specifically avoiding programs and measures that present greater savings opportunities but require relatively more time for marketing, preparation, or implementation. In this regard, I note that the Act may already create a bias in favor of short-run savings opportunities. Under the Act, the utility is only credited with a maximum of one year of savings (annualized or not), whether the measure has an expected useful life of 6 months, 6 years, or 25 years. That is, the requirements are in terms of reducing annual energy demand and peak demand in individual years. At the same time, the utility's costs for subsidizing/encouraging measures are liable to be incurred up-front (during the year of installation). This imbalance between the recognition of benefits and costs may tempt the utility to take a short-run view rather than a long-run view of energy savings opportunities. Allowing partial-year savings to be annualized, as proposed by ComEd, at least does not exacerbate the Act's built-in bias for measures and programs that promise instant gratification.

Q. ComEd witness Hall argues that "Adopting an annualized savings approach

saves significant amounts of money in evaluation, program planning, and projection of cost-effectiveness efforts." (ComEd Ex. 7.0, pp. 10-11) Should this influence the Commission's decision to adopt the annualized savings approach?

A. No. In describing the alternative, Mr. Hall creates a dubious straw man of unnecessary complexity. In essence, the Company proposes to <u>estimate</u> the annual rate of energy savings. The alternative does not have to be the no-holds-barred, full-blown attempt to collect massive amounts of data and pinpoint the precise moments when the effective demand for kilowatt-hours shrinks. The alternative can be another relatively modest attempt at estimation. If worst came to worst, even my simple ratable installation assumption could be used, although I am sure that we can do better than that without breaking the bank.

Mr. Hall's discussion, however, does allude to another broader set of issues: that of "measurement and verification." That is, there is first the ***planned*** level of energy savings (which I have been discussing above), and then there is the ***after-the-fact*** level of energy saving that we actually think the Company was able to save. I address this latter, broader set of "measurement and verification" issues later in this testimony.

B. <u>The Company's projections</u>

Q. Have you examined the work papers supporting the Company's projections of annualized energy savings?

A. In response to Staff data request EDiv 1.01, the Company provided voluminous work papers. I have reviewed a portion of these work papers.

Q. Have you specifically examined the Excel workbook that the Company labeled, "ED 1.01_Attach 104_(CONFIDENTIAL_in_Native_format).xls"?

A. Yes. This is an 18 megabyte file, containing the assumptions and computations that appear to have led to the plan's projections of energy savings. It also includes the assumptions and computations for the "total resource cost" test required under the Act, which is discussed later in this testimony. The file includes computations associated with 1325 efficiency measures.

Q. Have you discovered any errors in the energy savings computations contained in "ED 1.01_Attach 104_(CONFIDENTIAL_in_Native_format).xls"?

A. Yes. One small set of the 1325 efficiency measures involves "Energy Star Transformers." The Company's workbook contains a flaw that assigns a zero value for the avoided costs associated with these measures. The workbook's flaw would actually affect any measure with an assumed useful life greater than 21 years. However, since the "Energy Star Transformers" (with useful lives of 25 years) were the only measures in the file with assumed useful lives greater than 21, the flaw affected only the computations for this one relatively small set of measures. Perhaps this is why it went undetected by the Company.

Q. What is the significance of the above-cited error?

A. If anything, this particular error contributes a degree of conservativeness to the Company's projected energy savings.

Q. Have you discovered any other potential flaws or anomalies from your review of other Company work papers that relate to the projection of energy savings?

A. Yes. As discussed in a later section of this testimony in the context of "deemed" values, some questions remain about some of the computations performed by the

Company associated with certain lighting measures, as well as with the Company's assumptions of so-called Net-to-Gross ratios. It is unknown to me if these other potential flaws and anomalies bias the Company's projections upward, downward, or not at all.

Q. Do you have an opinion about the validity of the Company's energy savings projections?

A. At this time, I do not feel that I am in a position to provide a confident assessment of the Company's energy savings projections. In the limited time available to me, I have tried to delve as much as I could into the Company's projections. On the one hand, the basic approach taken by the Company appears valid to me; and, aside from the small and potential flaws and anomalies described above, I have not uncovered any computational errors. On the other hand, the Company's computations involve massive amounts of inputs derived from numerous sources. Some of the inputs are the results of studies performed years ago in distant locations. There has not been enough time to analyze a significant portion of the inputs and independently assess the validity of the source studies.

X. Cost effectiveness of portfolio of measures

Q. Does the plan demonstrate that its overall portfolio of energy efficiency and demand-response measures, not including programs covered by item (4) of subsection (f) of Section 12-103 of the Act, are cost-effective using the total resource cost test?

A. The Company reports "The portfolio as a whole is cost-effective with a Total

Resource Cost ("TRC") test benefit-cost ratio of 1.43."[3] The Company also reports that, aside from low-income programs, each of the individual programs that comprise the portfolio and each of the EE-DR measures that comprise these programs are expected to be cost effective.[4] These assertions are supported by the testimony of ComEd witness Jensen (ComEd Ex. 6.0), who reports on how the Company's EE-DR portfolio was developed. Staff has been informed by DCEO that the agency relied "completely" on ICF International (the Company's consultant) for computations of or related to the TRC test and the projected cost effectiveness of DCEO's proposed programs.[5]

I have been able to determine that, given all the assumptions used by the Company, the TRC test was correctly computed. However, as input to the TRC test, Mr. Jensen reports relying on a number of databases and models. Some potential problems and anomalies with these databases and models were discussed in the previous section, but, due to the time constraints of this docket, my review of these databases and models has been necessarily cursory. Hence, I cannot vouch for the resulting estimates of program benefits and costs.

XI. <u>Measurement and verification</u>

Q. What are the issues that you have identified under the heading, "measurement and verification"?

A. Section 12-103(f)(7) of the Act states that the utility's plan must

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[3] ComEd Ex. 1.0, p. 3.

[4] ComEd Ex. 1.0, pp. 9-10 and 24-25.

[5] DCEO response to Staff data request EDiv 2.02.

> Provide for an annual independent evaluation of the performance of the cost-effectiveness of the utility's portfolio of measures and the Department's portfolio of measures, as well as a full review of the 3-year results of the broader net program impacts and, to the extent practical, for adjustment of the measures on a going-forward basis as a result of the evaluations. The resources dedicated to evaluation shall not exceed 3% of portfolio resources in any given year.

In addition, Sections 12-103 (i) and (j) of the Act seem to require **someone** to make periodic determinations of whether the "electric utility fails to meet the efficiency standard specified in subsection (b)," and impose penalties on the utility and other potential remedies for such failures. I am informed by Staff counsel that that someone is most likely intended to be the Commission.

I am also informed by counsel that the two sets of Section 12-103 provisions cited above--12-103(f)(7) on the one hand and 12-103 (i) and (j) on the other--are ***not*** inextricably connected in the sense that the Section 12-103(f)(7) "independent evaluations" need not be the only basis upon which the Commission would make findings under Sections 12-103 (i) and (j). Indeed, according to counsel, it is an open question whether Section 12-103(f)(7) "independent" evaluator(s) shall form any part of anticipated Section 12-103 (i) and (j) proceedings.

In light of these legal issues, I first discuss the "collaborative process" that the Company proposes as part of its plan for annually providing independent evaluations.

Second, I evaluate the Company's proposed "deemed" values and the Company's proposed role for such values in future "measurement and verification" proceedings.

Third, I evaluate whether percentage savings should be based on ***actual*** usage or previously forecast usage, in future "measurement and verification" proceedings.

Fourth, I evaluate ComEd's proposal to "bank" excess energy savings and apply that excess to the following Plan year.

A. Section 12-103(f)(7) independent evaluations and future proceedings pursuant to Sections 12-103 (i) and (j)

Q. Does the plan provide for an annual independent evaluation of the performance of the cost-effectiveness of the utility's portfolio of measures and the Department's portfolio of measures, as well as a full review of the 3-year results of the broader net program impacts and, to the extent practical, for adjustment of the measures on a going-forward basis as a result of the evaluations?

A. It provides for an "evaluation process," but I am not certain of its independence, as I will discuss below.

Q. Does the plan provide for limiting the resources dedicated to evaluation to a level no greater than 3% of portfolio resources in any given year?

A. Not explicitly, but this legal limit, from 12-103(f) of the Act, is acknowledged by the Company (see, for example, ComEd Ex. 2.0, p. 42). Explicitly, taking 3% of the annual spending limits expressed in ComEd Ex. 5.3, the budget for evaluation would be limited to the following levels:

Year	Evaluation Spending Limit
2008	$1,181,094
2009	$2,447,916
2010	$3,799,736
3-yr total	$7,428,746

Q. How does the Company describe its proposed "evaluation process"?

A. The plan lists the following 7 components of the Company's proposed process:

1. Development of a request-for-proposals ("RFP") for evaluation services upon Commission approval of the Plan, and selection of the evaluator as soon as possible.

2. Certain measure savings values for common measures and NTG ratio values are "deemed" appropriate by the Commission for use in evaluating ComEd's portfolio performance.

3. Any changes in the deemed values that the evaluator believes are appropriate should only be applied prospectively to subsequent years of ComEd's Plan. For example, if the evaluator determines that the NTG ratio for a program should be changed, that change should be applied only to savings booked in subsequent Plan years and not to adjust savings booked to that point or otherwise booked in the current year.

4. In calculating the ratio of net program savings to gross program savings, the evaluator shall consider both free rider and spillover effects.

5. Preparation of semi-annual evaluation status reports by the evaluator.

6. Within the broader collaborative effort ComEd proposes, stakeholder participation in the following:

    a. The development of the scope of work included in the solicitation of evaluation services.

    b. The review of evaluation proposals.

    c. The development of evaluation protocols that address the schedule for evaluations, the contents of evaluation reports, and the appropriate methods to be applied to evaluation of different types of program elements.

    d. The review of semi-annual reports prepared by the evaluator.

7. Funds spent on market assessment studies to better understand baseline market conditions, consumer preferences, market effects of programs, and market actor behavior (e.g., training practices of HVAC contractors) are not considered evaluation funds for purposes of the 3% evaluation cap.

Q. Do you have any opposition to the Company's proposal that funds spent on market assessment studies to better understand baseline market conditions, consumer preferences, market effects of programs, and market actor behavior (e.g., training practices of HVAC contractors) would not be considered "evaluation funds" for purposes of the 3% evaluation cap?