

552 A. No, it is reasonable to me. Without attempting to offer a legal opinion, I do not
553 see how such activities could be construed as evaluation. On the other hand, they are part
554 of the overall EE-DR effort and, thus, should be included in the annual spending limits
555 (i.e., the \$39.4 million, \$81.6 million, and \$126.7 million limits discussed earlier under
556 the section entitled "The estimated spending screens").

557 Q. **Do you have any opposition to the Company's proposal to develop a request-**
558 **for-proposals ("RFP") for evaluation services upon Commission approval of the**
559 **Plan, and selection of the evaluator as soon as possible?**

560 A. No.

561 Q. **Do you have any opposition to the evaluator hired by the Company**
562 **preparing semi-annual evaluation status reports?**

563 A. No.

564 Q. **Do you have any opposition to the Company's proposal that, in calculating**
565 **the ratio of net program savings to gross program savings, the evaluator shall**
566 **consider both free rider and spillover effects?**

567 A. In principal, I would have no opposition to evaluations of program savings taking
568 into account "free rider" and "spillover" effects. These terms of art, by the way, are
569 explained in the next subsection section, below. However, I would also note that
570 estimating "free rider" and "spillover" effects may be easier said than done. I discuss
571 these effects in greater detail later in my testimony. Thus, such estimates should be held
572 up to scrutiny, and any uncertainty concerning their accuracy should be revealed.

573 Q. **Do you have any opposition to the Company's proposal to "deem" certain**
574 **values for use in evaluating ComEd's portfolio performance?**

575 A. Yes, I do have some opposition to this aspect of the Company's measurement and
576 verification proposal. My position concerning deeming is articulated more fully in the
577 next subsection, below.

578 Q. Do you have any opposition to the Company's proposal that changes in
579 deemed values that the evaluator believes are appropriate should only be applied
580 prospectively to subsequent years of ComEd's Plan?

581 A. Yes, I do have some opposition to this aspect of the Company's measurement and
582 verification proposal. My position concerning deeming is articulated more fully in the
583 next subsection, below.

584 Q. The Company describes a "collaborative" process, and proposes that, as part
585 of this collaborative effort, the Company would seek stakeholder participation in
586 the following:

- 587 a. The development of the scope of work included in the solicitation
588 of evaluation services.
- 589 b. The review of evaluation proposals.
- 590 c. The development of evaluation protocols that address the schedule
591 for evaluations, the contents of evaluation reports, and the
592 appropriate methods to be applied to evaluation of different types
593 of program elements.
- 594 d. The review of semi-annual reports prepared by the evaluator.

595 ComEd Ex. 1.0, Part 1, p. 13.

596 Furthermore, ComEd witness Brandt testifies that stakeholders in the
597 proposed collaborative process would be relied upon for advice concerning the
598 firing of evaluation contractors and the hiring of new ones. (ComEd Ex. 2.0, p. 38)

599 Should the Commission approve these aspects of the Company's plan?

600 A. No. Ultimately, I believe that the Company should be responsible for
601 implementing the plan approved by the Commission, including but not limited to
602 providing an "independent evaluation." If the Company wishes to enlist interested
603 parties in that implementation process, that should be left to the Company's discretion,
604 and need not be approved or ordered by the Commission.

605 However, if the Commission, despite my advice, was inclined to order the utility
606 to include a collaborative process as part of its implementation of the plan, then there are
607 several other questions that should be addressed. First, aside from the DCEO, the ICC
608 Staff, and the Attorney General, the Company does not explicitly describe which
609 organizations would be eligible and which would be ineligible to be a part of the
610 collaborative process. Second, the Company does not specify the degree to which the
611 participants in this collaborative will be "decision makers" or merely advisors to the
612 Company. Third, to the extent to which participants would be "decision makers," the
613 Company does not describe how many votes each of the eligible participating
614 stakeholders would be able to cast.

615 In addition, I am also worried that the Company's plan blurs the line between the
616 Act's evaluation provisions—those within subsection 12-103(f)(7) on the one hand and
617 those within subsection 12-103 (i) and (j) on the other. As I noted, above, based on the
618 advice of counsel, it is my understanding that these two sets of provisions are *not*
619 inextricably connected in the sense that the Section 12-103(f)(7) "independent
620 evaluations" arranged by the utilities need not be the basis (or the only basis) upon which
621 the Commission would make findings under Sections 12-103 (i) and (j).

622 Q. **Does the Staff intend on participating in the Company's collaborative**

623 process?

624 A. At this juncture, Staff intends on participating in the Company's collaborative
625 process, but would consider itself to be mostly just an observer. In general, Staff wishes
626 to remain independent. This position could change, however, if the Commission chooses
627 to order the utility to include a collaborative process as part of its implementation of the
628 plan. Specifically, if the Commission grants some form of decision-making powers to
629 non-utility participants in the collaborative process, Staff may be compelled to be more
630 active participants.

631 **B. The role of "deemed" values in evaluating EE-DR savings**

632 **Q. As previously noted, following the second and third years of the plan,**
633 **Sections 12-103 (i) and (j) of the Act require a determination of whether the**
634 **"electric utility fails to meet the efficiency standard specified in subsection (b)." For**
635 **a subset of the efficiency measures that ComEd has included in its portfolio of**
636 **programs, the Company seeks Commission pre-approval of certain values that**
637 **would be assumed (or "deemed") for purposes of these Sections 12-103 (i) and (j)**
638 **determinations. Have you reviewed the Company's proposed deemed values?**

639 A. Yes. They were identified within the testimony of ComEd witness Jensen,
640 ComEd Ex. 6.0, in Tables 6, 7, and 8, on pages 39-42. The values in Tables 6 and 7 only
641 involve lighting measures, while the values in Table 8 involve all measures and all of the
642 ComEd (and DCEO) efficiency programs.

643 **Q. Have you identified any potential inaccuracies with the deemed values within**
644 **Table 6 (ComEd Ex. 6.0, pp. 39-40)?**

645 A. Yes. With respect to "Table 6: Proposed Deemed Annual kWh Savings Values,"

646 Mr. Jensen explained that the savings values were

647 ... based on a simple calculation that multiplies the difference in wattage
648 between the assumed base technology and the efficient technology and the
649 number of hours of operation. The operating hours used in the calculation
650 are shown in Table 7.

651 ComEd Ex. 6.0, pp. 40-41

652 However, when I performed the simple calculation described by Mr. Jensen, for some of
653 the measures, I got different results than those found in Table 6. In a data request
654 response⁶, the Company suggested that it would be making several modifications to Mr.
655 Jensen's testimony and his Tables 6 and 7 (although at the time of this writing, I have not
656 seen these revisions posted to e-Docket).

657 **Q. What revisions to Mr. Jensen's Table 7 "Operating Hours" did the**
658 **Company's data request response suggest would be appropriate?**

659 A. The original Table 7, which provides input to computations needed to produce
660 Table 6, included one number for the operating hours for "small retail" lighting.
661 According to the data request response, the operating hours for this sector should
662 distinguish between CFL and non-CFL lighting. The revised table would use the
663 previous value of 3,724 for CFL lighting, but would add a new value of 4,004 for non-
664 CFL lighting.

665 **Q. What revisions to Mr. Jensen's Table 6 "Proposed Deemed Annual kWh**
666 **Savings Values" did the Company's data request response suggest would be**
667 **appropriate?**

668 A. The revisions to Table 6 would be to the energy savings shown for non-CFL

⁶ Staff data request EDIV 2.05.

669 lighting measures. The suggested revisions are due to three factors identified by the
670 Company in its response to Staff's data request. First, there is the change in the operating
671 hour assumptions, as described in the immediately preceding question and answer.

672 Second, the original calculations included "interactive effects." The data request
673 response indicates that that these effects are a function of the interaction between lighting
674 and building thermal loads, that such effects can be quite variable, and that, therefore, the
675 revised Table 6 would exclude these effects and would be based solely on the difference
676 in power consumption between the two technologies and hours of operation. In the study
677 conducted by Itron that the Company cites as support for these values, the energy
678 interaction effect for the Retail – Small market sector is 1.11.⁷ In excluding this
679 interaction value of 1.11, ComEd is implicitly including the more "conservative" value of
680 1.00 (i.e., conservatively avoiding overestimating the energy savings).

681 Third, the Company's response indicates that

682 [T]he difference in power consumption between the base and
683 efficient technologies is not simply the difference in bulb wattage
684 between base and efficient technologies. The ballasts themselves
685 draw varying levels of power. Electronic ballasts draw less power
686 than magnetic ballasts, with power consumption based on the
687 "ballast factor," which is lower for more efficient ballasts, higher
688 for less efficient ones.

689 The Company also provided Staff with a table entitled "Calculations for T-8 Measures,"
690 which purportedly takes into account both lamp *and ballast* wattage differences.⁸

691 **Q. What is contained within Table 8 (ComEd Ex. 6.0, p. 42)?**

⁷ 2004-05 Database for Energy Efficient Resources (DEER) Update Study, Final Report (December 2005), Table 3-5, p. 3-9, provided as "ED 1.01_Attach 16.PDF," in response to Staff data request EDiv 1.01 to ComEd.

⁸ "T_n" specifies the diameter of tubular fluorescent bulbs in eighths of an inch. Thus, T8 is equivalent to a 1 inch diameter, while T12 would have a diameter of 12/8ths (or 1.5) inches.

692 A. Table 8 contains the Company's proposed deemed values for "Net-to-Gross"
693 ("NTG") ratios for each of the Company's programs, as well as each of DCEO's
694 programs. As I am about to describe, an NTG ratio is an adjustment to an otherwise valid
695 estimate of the energy savings attributable to the installed efficiency measures under
696 examination. Ideally, an NTG ratio would accurately take into account the following
697 behavioral phenomena:

698 First an NTG ratio would effectively deduct the portion of savings that would
699 have occurred even in the absence of the program that encouraged those measures to be
700 installed, because (a) some of the participants would have installed the same measures at
701 the same time, (b) some of the participants would have installed the same measures but a
702 little later, and (c) some of the participants would have installed measures that were not
703 quite as efficient as those under examination, but would still be greater-than-standard
704 efficiency measures (with some of those being installed at the same time that the
705 measures under examination were installed, and others being installed somewhat later).
706 Some refer to this as "free-rider" effects.

707 Second, an NTG ratio would effectively add savings due to efficiency measures
708 *other* than those under examination, installed either by program participants or non-
709 participants, but that would not have been installed in the absence of the efficiency
710 program. Some refer to this as "spillover effects."

711 Thus, an NTG ratio could be derived as:

712 100%
713 - a percentage capturing free rider effects
714 + a percentage capturing spillover effects.

715 Q. Did you identify any potential inaccuracies with the deemed values within

716 **Table 8 (ComEd Ex. 6.0, p. 42)?**

717 A. Yes. What initially struck me when I first saw Table 8 in Mr. Jensen's testimony
718 is that for 24 of the 26 programs listed the proposed value is the same—0.8. This seemed
719 suspicious to me. It certainly suggests that this particular deemed value is much more of
720 a guesstimate than the result of years of empirical study, as suggested by ComEd witness
721 Brandt when he states,

722 These values have been evaluated numerous times over several years, and
723 projections of the NTG ratio from these other analyses will provide
724 ComEd with reasonable projections of their expected results. There is no
725 reason to use limited evaluation dollars to conduct new analyses of this
726 data.

727 **Q. Have you attempted to learn the basis for this 0.8, which the Company seeks**
728 **to have deemed for 24 of its 26 programs?**

729 A. Yes. In response to Staff data request EDiv 2.04, the Company indicates that this
730 value of 0.8 is in use by the California Public Utilities Commission ("CPUC"). Further
731 investigation revealed that 0.8 is considered by the CPUC to be a "default value." For
732 instance, Chapter 4 of the CPUC's "Energy Efficiency Policy Manual" states, in part,

733 Applicants should refer to the SPM to determine the appropriate
734 manner in which to use NTGRs in submitting program cost-
735 effectiveness information. Program proposals should use the
736 applicable NTGRs listed below. If a program is not listed below, or if
737 a proposed program design deviates substantially from past design of
738 related programs, program proposals may utilize a default NTGR of
739 0.8 until such time as a new, more appropriate, value is determined in
740 the course of program evaluation. All existing programs not listed
741 below shall also use a default value of 0.8.

Table 4.2. Net-to-Gross Ratios

Program Area/Program	Net-to-Gross Ratio
Residential	
Appliance early retirement and replacement	0.80
California Home Energy Efficiency Rating System (CHEERS)	0.72
Residential Audits	0.72
Refrigerator Recycling/Freezer Recycling	0.53/0.57 ¹⁰
Residential Contractor Program	0.89
Emerging Technologies	0.83
All other residential programs	0.80
Nonresidential	
Advanced water heating systems	1.00
Agricultural and Dairy Incentives	0.75
Coin Laundry and Dry Cleaner Education	0.70
Commercial and agricultural information, tools, or design assistance services	0.83
Comprehensive Space Conditioning	1.00
Lodging Education	0.70
Express Efficiency (rebates)	0.96
Energy Management Services, including audits (for small and medium customers)	0.83
Food Services Equipment Retrofit	1.00
Industrial Information and Services	0.74
Large Standard Performance Contract	0.70 ¹¹
All other nonresidential programs	0.80
New Construction	
Industrial and Agricultural Process	0.94
Industrial new construction incentives	0.62
Savings by Design	0.82 ¹²
All other new construction programs	0.80

742

743

CPUC, "Energy Efficiency Policy Manual," Version 2, August 2003, pp. 18-19.⁹

744

Of course, this alone does not explain the basis for the 0.8 value, and such an

745

explanation is not to be found in the entire CPUC document. However, in response to

746

another data request, Company witnesses Jensen and Hall indicate that

747

(i) The 0.8 default NTG ratio value is not a program-specific

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calculated value, but is a value that can be expected at the individual

749

program level via the program's implementation efforts. If the program

750

is well designed, managed and operated, Mr. Hall would expect the 0.8

⁹ Although this manual is "Prepared by the Energy Division," it purportedly "contains the California Public Utilities Commission's (Commission) policy rules in the development and evaluation of energy efficiency programs in California." The reference to SPM is to the "California Standard Practices Manual."

751 NTG ratio value to be a good starting place from which the specific
752 conditions associated with the program delivery would influence the
753 direction and intensity of the difference between the initial NTG ratio
754 and the *expost* evaluation NTG ratio values. If the evaluations show
755 higher NTG ratio values, then the net savings will reflect the higher
756 savings, indicating effective operational strategies. If the evaluations
757 demonstrate lower NTG ratio values, then the program would be
758 expected to take action to increase the NTG ratio value, if needed. The
759 0.8 default is based on the knowledge that this represents a reasonable
760 expected value for a wide range of programs.

761 (ii) The NTG ratio value was set at 0.8 for many different types of
762 programs because, based on Mr. Hall's experience, it is a reasonable
763 value that he would expect to see from the evaluation efforts. The
764 value can be adjusted over time if the program evaluations indicate a
765 change to the initial NTG ratio value is needed, and such new value
766 would apply prospectively in the next plan year.

767 Response to Staff data request EDiv 2.04.

768 Thus, Company witness Hall appears to base 0.8 on his personal experience.

769 Furthermore, he endorses it as "a good starting place ... for many different types of
770 programs," which "can be adjusted over time if the program evaluations indicate a
771 change to the initial NTG ratio value is needed, and such new value would apply
772 prospectively in the next plan year." (*Ibid.*) As far as I can determine, no specific study
773 forms the basis for 0.8.

774 **Q. Do you recommend that, in this docket, the Commission "deem" the values**
775 **presented in Mr. Jensen's Tables 6, 7, and 8 (ComEd Ex. 6.0, pp. 39-42)?**

776 **A.** No. Even if I believed that "deeming" was a good idea in general (which I
777 discuss in a later question and answer), based on the various concerns expressed above
778 about potential inaccuracies in Tables 6, 7, and 8, I would recommend against the
779 Commission approving these values for purposes of Sections 12-103 (i) and (j) of the
780 Act. Further analysis may reveal my concerns with specific Table 6, 7, and 8 values to

781 be unwarranted, but, at this time, I cannot endorse these particular values.

782 **Q. Does the DCEO seek Commission approval of deemed values?**

783 **A.** Yes. DCEO witness Feipel states,

784 DCEO's energy efficiency programs and implementation plan are
785 currently based on kWh savings values related to individual efficiency
786 measures, net-to-gross ratios, and realization rates based on
787 nationwide efficiency data supplied to DCEO and the utilities by ICF
788 International, Inc. DCEO requests that these kWh savings, net-to-
789 gross, and realization rate values be approved by the Commission for
790 use in the first three year planning period. If approved, these values
791 would apply unless and until the results of the Measurement and
792 Evaluation process determined that they should be modified based on
793 information collected in Illinois. To the extent that the evaluator and
794 the Advisory Group described below should propose different values
795 than those approved in the plans, those new values, if accepted by the
796 Commission, would apply on a going forward basis.

797 DCEO Ex. 1.0, p. 54.

798 **Q. Specifically, what values does DCEO seek to have deemed by the**
799 **Commission?**

800 **A.** In Staff data request EDiv 2.01(a), Staff sought clarification from DCEO of the
801 specific values the agency seeks to have deemed. The Department's initial response was
802 as follows:

803 *(a) Please provide tables listing all values for kWh savings, net-to-gross ratios,*
804 *realization rates, and all other categories for which DCEO seeks approval by*
805 *the Commission for use in the first three year planning period.*

806 **RESPONSE:**

807 *a) The information requested is contained in DCEO Exhibit 1.01.*

808 DCEO initial response to EDiv 2.01(a)

809 To Staff, the Department's initial response to this data request implied that it
810 sought every number included in DCEO Ex. 1.01 to be deemed. From inspection of
811 DCEO Ex. 1.01, that meant that the Department seemed to be requesting, among other

812 things, that the total level of planned kWh savings would be deemed. Since, among other
813 things, that would obviate the need for any future Commission review of realized energy
814 savings, Staff sought additional clarification from DCEO. A document entitled,
815 "Clarification to ... EDiv 2.01(a)," was received by Staff on December 13, 2007. It is
816 reproduced below:

EDiv 2.01 On page 54 of DCEO Ex. 1.0, DCEO witness Mr. Feipel states,

DCEO's energy efficiency programs and implementation plan are currently based on kWh savings values related to individual efficiency measures, net-to-gross ratios, and realization rates based on nationwide efficiency data supplied to DCEO and the utilities by ICF International, Inc. DCEO requests that these kWh savings, net-to-gross, and realization rate values be approved by the Commission for use in the first three year planning period. If approved, these values would apply unless and until the results of the Measurement and Evaluation process determined that they should be modified based on information collected in Illinois. To the extent that the evaluator and the Advisory Group described below should propose different values than those approved in the plans, those new values, if accepted by the Commission, would apply on a going forward basis.

- (a) Please provide tables listing all values for kWh savings, net-to-gross ratios, realization rates, and all other categories for which DCEO seeks approval by the Commission for use in the first three year planning period.

RESPONSE:

- a) After further discussion with Commission staff, it appears that a list of measure-level kWh savings, net-to-gross ratios, and realization rates is being requested. This information is contained in the following exhibits:

817

DCEO Exhibit 1.01 contains the assumed net-to-gross ratios and realization rates for all of DCEO's programs. These were provided to DCEO by ICF, Inc.

Appendix B of ComEd Exhibit 1.0 Docket No. 07-0540 (also Appendix B of Ameren Exhibit 2.1 Docket No. 07-0539) contains the kWh savings for specific measures included in the Public Sector Prescriptive Program. These were provided by ICF, Inc. from the DEER database.

DCEO Exhibits 1.08, 1.09, 1.10, and 1.11 contain kWh savings for specific measures included in the Low Income New Construction and Gut Rehab, Low Income Moderate Rehab, Low Income Energy Efficient Single-family Remodeling, and Low Income Energy Efficiency Direct Install programs. These values were provided by DomusPlus based on the Energy Star calculators.

Table 6 in ComEd Exhibit 6.0 Docket No. 07-0540 (also Table 7 in Ameren Exhibit 4.0 Docket No. 07-0539) contains residential lighting kWh savings.

The attached table contains the lighting kWh savings values for Public Sector buildings. These values were provided to DCEO by ICF, Inc.

Target market	Base Technology	Efficient Technology	Efficient Technology Definition	Annual kWh savings
Public Buildings	2 4' T12 34 watt lamps with magnetic ballast	1 4' T8 32 watt lamps with electronic ballast & reflector	1 4' T* 32 watt lamps	136.4
Public Buildings	2 8' T12 60 watt lamps with magnetic ballast	1 8' T8 59 watt lamps with electronic ballast & reflector	1 8' T* 59 watt lamps	192.3
Public Buildings	40W Incandescent	13 Watt Modular CFL	13 Watt < 800 Lumens - pin based	87.7
Public Buildings	40W Incandescent	13 Watt Integral CFL	13 Watt < 800 Lumens - screw-in	87.7
Public Buildings	60W Incandescent	13 Watt Modular CFL	13 Watt < 800 Lumens - pin based	152.8
Public Buildings	60W Incandescent	13 Watt Integral CFL	13 Watt < 800 Lumens - screw-in	152.8
Public Buildings	60W Incandescent	14 Watt Modular CFL	14 Watt - pin based	149.6
Public Buildings	60W Incandescent	14 Watt Integral CFL	14 Watt - screw-in	149.6
Public Buildings	60W Incandescent	15 Watt Modular CFL	15 Watt - pin based	146.3
Public Buildings	60W Incandescent	15 Watt Integral CFL	15 Watt - screw-in	146.3
Public Buildings	80W Incandescent	16 Watt Modular CFL	16 Watt - pin based	143.1
Public Buildings	80W Incandescent	16 Watt Integral CFL	16 Watt - screw-in	143.1
Public Buildings	80W Incandescent	18 Watt Modular CFL	18 Watt < 1,100 Lumens - pin based	136.6
Public Buildings	80W Incandescent	18 Watt Integral CFL	18 Watt < 1,100 Lumens - screw-in	136.6
Public Buildings	75W Incandescent	18 Watt Modular CFL	18 Watt >= 1,100 Lumens - pin based	185.4
Public Buildings	75W Incandescent	18 Watt Integral CFL	18 Watt >= 1,100 Lumens - screw-in	185.4
Public Buildings	75W Incandescent	19 Watt Modular CFL	19 Watt >= 1,100 Lumens - pin based	182.1
Public Buildings	75W Incandescent	19 Watt Integral CFL	19 Watt >= 1,100 Lumens - screw-in	182.1
Public Buildings	2 4' T12 34 watt lamps with magnetic ballast	2 4' Super T8 28 watt lamps with electronic ballast	2 4' Super T8 28 watt lamps	83.9

Public Buildings	2 4' T12 34 watt lamps with magnetic ballast	2 4' T8 32 watt lamps with electronic ballast	2 4' T8 32 watt lamps	48.0
Public Buildings	2 8' T12 80 watt lamps with magnetic ballast	2 8' Super T8 59 watt lamps with electronic ballast	2 8' Super T8 59 watt lamps	87.4
Public Buildings	2 8' T12 80 watt lamps with magnetic ballast	2 8' T8 59 watt lamps with electronic ballast	2 8' T8 59 watt lamps	49.0
Public Buildings	75W Incandescent	20 Watt Modular CFL	20 Watt - pin based	178.8
Public Buildings	75W Incandescent	20 Watt Integral CFL	20 Watt - screw-in	178.8
Public Buildings	100W Incandescent	23 Watt Modular CFL	23 Watt - pin based	250.3
Public Buildings	100W Incandescent	23 Watt Integral CFL	23 Watt - screw-in	250.3
Public Buildings	75W Incandescent	25 Watt Modular CFL	25 Watt <1,600 Lumens - pin based	162.6
Public Buildings	75W Incandescent	25 Watt Integral CFL	25 Watt <1,600 Lumens - screw-in	162.6
Public Buildings	100W Incandescent	25 Watt Modular CFL	25 Watt >=1,600 Lumens - pin based	243.9
Public Buildings	100W Incandescent	25 Watt Integral CFL	25 Watt >=1,600 Lumens - screw-in	243.9
Public Buildings	75W Incandescent	26 Watt Modular CFL	26 Watt <1,600 Lumens - pin based	159.3
Public Buildings	75W Incandescent	26 Watt Integral CFL	26 Watt <1,600 Lumens - screw-in	159.3
Public Buildings	100W Incandescent	26 Watt Modular CFL	26 Watt >=1,600 Lumens - pin based	240.8
Public Buildings	100W Incandescent	26 Watt Integral CFL	26 Watt >=1,600 Lumens - screw-in	240.8
Public Buildings	100W Incandescent	28 Watt Modular CFL	28 Watt - pin based	234.1
Public Buildings	100W Incandescent	28 Watt Integral CFL	28 Watt - screw-in	234.1
Public Buildings	120W Incandescent	30 Watt Modular CFL	30 Watt - pin based	292.6
Public Buildings	100W Incandescent	30 Watt Integral CFL	30 Watt - screw-in	227.6
Public Buildings	150W Incandescent	38 Watt Integral CFL	38 Watt - screw-in	370.8
Public Buildings	120W Incandescent	40 Watt Modular CFL	40 Watt - pin based	260.1
Public Buildings	150W Incandescent	40 Watt Integral CFL	40 Watt - screw-in	357.6
Public Buildings	200W Incandescent	55 Watt Modular CFL	55 Watt - pin based	471.4
Public Buildings	200W Incandescent	65 Watt Integral CFL	65 Watt - pin based	438.9

820

821 Q. Does the Department's clarification to Staff data request EDiv 2.01(a),

822 reproduced above, resolve your uncertainty with the respect to what the

823 Department seeks to have deemed?

824 A. No.

825 Q. What uncertainty persists, in your view?

826 A. First, the "Clarification to ... EDiv 2.01(a)" suggests that DCEO seeks for
827 "realization rates" to be deemed. I would note that Mr. Jensen (from ICF International,
828 which DCEO cites as being responsible for providing these numbers) states in response
829 to another Staff data request (EDiv 3.01 to ComEd) that realization rates should not be
830 deemed, explaining:

"Realization rate" is defined in the Plan as "[t]he ratio of *ex post* program savings to *ex ante*
estimates of savings." (ComEd Ex. 1.0, at 121 (Glossary of Terms).) The realization rate is
used in the analysis of programs to account for uncertainty around *program* performance. The
rate used in the Plan is used primarily as a parameter in the uncertainty analysis. The value of
0.95 is based on a subjective assessment of the likelihood that *ex ante* savings will equal *ex post*
savings.

831
832

(e) ComEd does not intend for realization rates to be deemed. Realization rates will emerge
from evaluations as the evaluator determines *ex post* net savings. ComEd likely will use that
information to inform its planning process.

833

834 Second, the "Clarification to ... EDiv 2.01(a)" suggests that it wants to have
835 deemed all the numbers for kWh savings associated with the Public Sector Prescriptive
836 Program measures that are found in Appendix B of the ComEd's plan and Appendix B of
837 the Ameren plans. ComEd's Appendix B is 70 pages; Ameren's Appendix B is 85 pages.
838 Only portions of those appendices are associated with the Public Sector Prescriptive
839 Program measures, though. Specifically, there are 140 Public Sector Prescriptive
840 Program measures for ComEd and 51 for Ameren. Some of these are measures that are
841 also included in the utilities' programs, except that the utilities are not seeking to have
842 the kWh values deemed; these include the following efficient technologies (e.g., Chiller
843 Efficiency, Packaged Unit Efficiency, and VAV). I am not certain if DCEO seeks to
844 have deemed the kWh savings of this particular subset of measures. Furthermore, these
845 Appendices list a considerable amount of information for each measure. I suspect, but
846 am not certain, that DCEO seeks just the per installation values (in the front part of these

847 tables) to be deemed, and not the projected total kWh savings (shown further down, next
848 to what looks like projected installation levels).

849 Third, while DCEO cites DCEO Exhibits 1.08 through 1.11, from the agency's
850 description, I believe it intended to refer to Exhibits 1.07 through 1.10. Furthermore,
851 these exhibits include two types of kWh savings values: (A) per installation and (B)
852 total. From my calculations, the latter are equal to (i) the per-installation values times (ii)
853 an assumed or projected number of installations times (iii) an assumed realization rate
854 times (iv) an assumed net-to-gross ratio. Thus, if DCEO seeks to have the *total* kWh
855 savings values deemed, it would essentially be asking for the deeming of all four sets of
856 numbers (i-iv). However, DCEO may only be asking for the per-installation kWh
857 savings values to be deemed. In that case, it is asking for deeming only the following
858 values:

859 From DCEO Ex. 1.7:

Energy Star Refrigerator ¹	79
6 interior FL fixtures & 2 exterior FL fixtures ¹	782
SEER 14 central air conditioner w/ programmable thermostat ¹	366
Reduce required tonnage as a result of thermal envelope improvements ²	432
Energy Star dishwasher ¹	62
Energy Star rated bathroom exhaust fan ³	89
90% AFUE furnace with efficient air handler ⁴	400

860

861

From DCEO Ex. 1.8:

1. Energy Star Refrigerator¹	79
2. Six interior FL fixtures & two exterior FL fixtures¹	782
3. Energy Star rated bathroom exhaust fan²	89
4. Energy Star dishwasher¹	62
5. SEER 16 central air conditioner w/ programmable thermostat³	528
6. Energy Star rated room air conditioners⁴	176
7. Reduce required tonnage as a result of thermal envelope improvements⁵	216
8. 90% AFUE furnace with efficient air handler⁶	400

862

863

From DCEO 1.9:

1. Energy Star Refrigerator¹	79
2. ENERGY STAR Advanced Lighting Package ²	663
3. Energy Star rated bathroom exhaust fan³	89
4. Energy Star dishwasher¹	62
5. SEER 16 central air conditioner w/ programmable thermostat⁴	528
6. Energy Star rated room air conditioners ^{4,5}	176
7. Reduce required tonnage as a result of thermal envelope improvements⁶	216
8. 90% AFUE furnace with efficient air handler⁷	400

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From DCEO 1.10:

1. Energy Star Refrigerator ¹	554
2. CFL installation ²	594
3. Energy Star rated bathroom exhaust fan ³	89
4. SEER 16 central air conditioner w/ programmable thermostat ⁴	1643
5. Energy Star rated room air conditioner ⁵	283
6. 90% AFUE furnace with efficient air handler ⁶	400

866

867 Q. Have you had an opportunity to thoroughly examine the bases for the
868 various values that DCEO seeks to have deemed?

869 A. No.

870 Q. In general, do you recommend that, in this or any other *planning* docket, the
871 Commission "deem" values related to the computation of energy savings for
872 purposes of Sections 12-103 (i) and (j) of the Act?

873 A. No. I recommend against deeming in this, or any other *planning* docket; but
874 allow me to clarify this position. Under the sole rubric of "deemed values," the Company
875 and DCEO actually have raised two issues:

876 (1) the partial reliance on values derived NOT from evaluation of the Company's
877 programs, i.e., NOT by collecting data on the Company's customers and their usage of
878 energy, but from external databases and studies performed in other places and at other
879 times;

880 (2) the *pre-approval* of those values *now*, in *this* docket, as opposed to later, in

881 future proceedings, when the Commission must make findings pursuant to Sections 12-
882 103 (i) and (j) of the Act.

883 My most significant concern is with (2) rather than (1). Indeed, there are some
884 sound and practical reasons for partially relying on values derived NOT from evaluation
885 of the Company's programs (i.e., NOT by independently collecting unique data on the
886 Company's customers and their usage of energy), but from external databases and studies
887 performed in other places and at other times. Simply put, there may very well already be
888 available a wealth of useful data and sound expert analysis that can be tapped into and
889 that can help in the process of estimating energy savings in Illinois. Indeed, for the
890 planning purposes of this docket, the Company has relied upon such databases and
891 studies, and Staff has not objected to that extent.

892 But that same wealth of useful data and sound expert analysis will still exist one
893 year from now, two years from now, three years from now, etc. In fact, there may be
894 even more of such data and studies available. In addition, there will have been
895 significantly more time for Staff and interveners (in preparation of future Sections 12-103
896 (i) and (j) proceedings) to have reviewed this wealth of data and studies and to have
897 determined if some of it is *less* than useful or *less* than sound. Staff may even hire
898 additional personnel or consultants, specializing in energy efficiency program evaluation,
899 to cobble together Staff's version of the most reasonable and accurate energy efficiency
900 databases. On the other hand, while reliance on such databases *may* be reasonable and
901 even preferable for some programs, measures, and/or variables, such reliance may be
902 unreasonable in other instances. In either event, the decision to rely on such databases,
903 like the decision to use one set of values versus another, need not and should not be made

904 at this time, in this docket, or for that matter, in any planning docket.

905 **Q. ComEd witnesses Brandt, Jensen, and Hall all argue that the Commission**
906 **should deem the values in Mr. Jenson's Tables 6 through 8 in order to mitigate the**
907 **Company's risk. Is that a valid argument for the Company's proposal?**

908 **A.** No. It is true that the law establishes standards that the Company must meet and
909 penalties for failure to meet these standards. Based on the advice of counsel, it is my
910 understanding that the Commission's job is to assess whether the standards have been
911 met and, if warranted, impose the penalties. Certainly, the Commission could make that
912 job easier simply by deeming values. However, in my view, getting the numbers *right* is
913 more important than getting them right away. In my view, making a judgment now, with
914 a bare minimum of review, is not amenable to getting the numbers right.

915 Furthermore, the degree of risk to which the Company is exposed is negligible.
916 For ComEd, the monetary penalty mentioned in the Act for failure to meet the standards
917 cannot exceed a total of \$1,330,000 (\$665,000 if, after 2 years, ComEd fails to meet the
918 efficiency standard, plus another \$665,000 if, after 3 years, ComEd fails to meet the
919 efficiency standard). When compared to the Company's annual distribution rate
920 revenues (at current rates), \$665,000 would amount to a not-very-impressive penalty of
921 less than 0.04% (That is *not* 4 percent, but 4 *hundredths* of 1 percent!).¹⁰

922 **C. Basing percent savings on actual usage versus previously forecast usage**

923 **Q. Following the second and third years of the plan, Sections 12-103 (i) and (j)**
924 **of the Act seem to require determination of whether the "electric utility fails to meet**

¹⁰ Computations based on rates and quantities listed in ComEd Ex. 5.1 and 5.2.

925 **the efficiency standard specified in subsection (b).” For this determination, should**
926 **the efficiency standard be “0.4% of [the actual quantity of] energy delivered in the**
927 **year commencing June 1, 2009” and “0.6% of [the actual quantity of] energy**
928 **delivered in the year commencing June 1, 2010” or should it be “0.4% of [the**
929 **previously forecast quantity of] energy delivered in the year commencing June 1,**
930 **2009” and “0.6% of [the previously forecast quantity of] energy delivered in the**
931 **year commencing June 1, 2010”?**

932 A. To the extent to which this calls for a legal opinion or interpretation of the Act, I
933 offer no opinion or interpretation. However, from my own “policy” perspective, the most
934 appropriate method would depend on (1) on the make-up of the portfolio under
935 evaluation (particularly on the portfolio’s share of weather-sensitive versus non-weather
936 sensitive measures) and (2) on how energy savings are determined in these future
937 proceedings. After explaining these considerations, I will offer my policy
938 recommendation.

939 **Q. What is the significance of the make-up of the portfolio under evaluation?**

940 A. Notwithstanding the influence of energy efficiency programs, the difference
941 between forecast and actual levels of consumption are due largely to difference between
942 “normal” and actual weather. For instance, a hotter-than-average summer is apt to
943 induce a higher-than-average consumption of electricity as air-conditioners work
944 overtime to keep us comfortable. Similarly, a portfolio of energy efficiency measures
945 directed mostly to weather sensitive energy uses (e.g., air conditioning/cooling) will have
946 a differential impact depending on actual weather. But a portfolio of energy efficiency
947 measures directed mostly to non-weather sensitive energy uses (e.g., lighting usage is apt

948 to be relatively insensitive to weather) will produce about the same level of savings
949 regardless of weather. Thus, for weather-sensitive measures, perhaps a more meaningful
950 assessment of the utility's performance in obtaining energy savings would compare
951 savings to actual usage. But for weather insensitive measures, perhaps a more
952 meaningful assessment of performance would compare savings to a weather-normalize
953 level of usage.

954 **Q. What is the significance of how energy savings are determined?**

955 A. For purposes of the plan, I would anticipate that the Company would estimate
956 future energy savings from weather-sensitive efficiency measures under an assumption of
957 normal weather. Except as part of a sensitivity analysis, it would be inappropriate to
958 assume extremely cold or extremely warm conditions. However, the after-the-fact
959 energy savings from these weather-sensitive efficiency measures over any given period
960 (such as June 2009 to May 2010) could be determined either in light of the weather
961 conditions that prevailed that year (as implicitly assumed in the previous Q&A), or they
962 could again be determined under an assumption of normal weather. If after-the-fact
963 energy savings from weather-sensitive efficiency measures are determined in light of
964 prevailing weather conditions, then, as previously stated, perhaps a more meaningful
965 assessment of the utility's performance in obtaining energy savings would compare those
966 savings to actual usage. On the other hand, if after-the-fact energy savings from weather-
967 sensitive efficiency measures are determined under an assumption of normal weather,
968 then perhaps a more meaningful assessment of performance would compare those
969 weather-normalized savings to a weather-normalized level of usage.

970 **Q. What is your recommendation with regard to whether after-the-fact savings**

971 **should be based on actual or normalized weather conditions and whether the**
972 **attainment of percentage savings goals should be based on actual or previously**
973 **determined total consumption?**

974 A. If it is permissible under the Act, then I would recommend using previously
975 determined total consumption (that is, determined in this proceeding as weather-
976 normalized, expected usage), and that after-the-fact energy savings determinations be
977 adjusted if necessary to reflect an assumption of normal weather, as well.

978 **D. The ability to “bank” excess energy savings in a given Plan year, and apply that**
979 **excess to and reduce a subsequent Plan year’s goal.**

980 **Q. Are you familiar with ComEd witness Brandt’s testimony concerning the**
981 **“banking” of excess energy savings?**

982 A. Yes. Mr. Brandt states that the Company is seeking from the Commission
983 permission to ‘bank’ excess energy savings in a given Plan year, and apply that excess to
984 reduce a subsequent Plan year’s goal (ComEd Ex. 2.0, p. 2), explaining further that

985 In such a circumstance, forecast costs for the subsequent year of the
986 Plan would be adjusted downward to reflect the need to achieve a
987 lower kWh reduction in that year. In such case, not only would the
988 goal be reduced in the subsequent year, but the projected costs input in
989 Rider EDA would also be reduced for the subsequent year. This is
990 explained in additional detail in Mr. Crumrine’s direct testimony. (See
991 ComEd Ex. 5.0.) This “banking” concept is very important to the
992 overall management of ComEd’s portfolio.

993 ComEd Ex. 2.0, p. 40.

994 **Q. Should ComEd be authorized to “bank” excess energy savings in a given**
995 **Plan year, and apply that excess to reduce a subsequent Plan year’s goal?**

996 A. If it is legally permissible, then I would recommend that the Commission
997 authorize such banking. Although I will not provide a legal opinion, I do offer the

998 following "policy" consideration. In the absence of banking, in any one plan year, there
999 is little reason for the Company to pursue savings above the goals set forth in the Act (or
1000 at a rate any faster than required by the Act). In fact, achieving greater energy savings
1001 (or achieving energy savings at a faster rate) in one year, may make it more difficult to
1002 achieve the Act's goals in the following year, as the market for efficiency products and
1003 services becomes more saturated. Thus, the lack of banking privileges may actually
1004 constitute a disincentive to achieving greater energy savings (or achieving energy savings
1005 at a faster rate). Furthermore, since there some uncertainty about future participation
1006 levels and future savings cannot be forecast precisely, this disincentive to achieving
1007 greater energy savings (or achieving energy savings at a faster rate) may actually
1008 decrease the ultimate attainment of the Act's percentage savings goals.

1009 **Q. Does this conclude your prepared direct testimony?**

1010 **A. Yes.**

STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

Commonwealth Edison Company)
)
Petition for Approval of the Energy)
Efficiency and Demand Response Plan)
pursuant to Section 12-103(f) of the)
Public Utilities Act.))

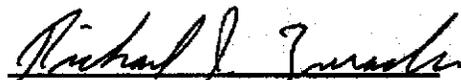
Docket No. 07-0540

AFFIDAVIT OF RICHARD J. ZURASKI

State of Illinois)
)
County of Sangamon)

I, Richard J. Zuraski, being first duly sworn on oath, depose and state that I am the same Richard J. Zuraski identified in the Direct Testimony; that I have caused the following Direct Testimony; the following statements are true and correct to the best of my knowledge and belief as of the date of this Affidavit.

Further affiant sayeth naught.


Richard J. Zuraski

Subscribed and sworn to before me

this 14 day of December 2007



Notary Public

