

**Illinois Commerce Commission**

**Docket No. 13-0499**

**Direct Testimony of Chris Neme**

**Submitted on behalf of the Natural Resources Defense Council**

1     **I.           INTRODUCTIONS AND QUALIFICATIONS**

2     **Q: Please state your name, employer and business address.**

3     A: My name is Chris Neme. I am a co-founder and Principal of Energy Futures Group, a  
4     consulting firm that provides specialized expertise on energy efficiency markets, programs and  
5     policies. My business address is P.O. Box 587, Hinesburg, VT 05461.

6     **Q: Please describe your educational background.**

7     A: I received a Master of Public Policy (MPP) degree from the University of Michigan (Ann  
8     Arbor) in 1986. That is a two-year, multi-disciplinary degree focused on applied economics,  
9     statistics and policy development. I also received a Bachelor's degree in Political Science from  
10    the University of Michigan (Ann Arbor) in 1985. My first year of graduate school counted  
11    towards both my Masters' and Bachelor's degrees.

12    **Q: Please summarize your business and professional experience.**

13    A: As a Principal in Energy Futures Group, I play major roles in a variety of energy efficiency  
14    consulting projects. Recent examples include:

- 15       • helping the Michigan Public Service Commission staff to assess the relative merits of  
16       alternative approaches to defining savings goals for utility efficiency programs (focusing  
17       on lifetime rather than just first year savings);

- 18 • supporting the redesign of a portfolio of efficiency programs for a southern utility;
- 19 • helping develop a Technical Reference Manual of deemed savings assumptions for Ohio  
20 and the Mid-Atlantic states;
- 21 • representing NRDC in consultations with utilities and other parties in both Illinois and  
22 Michigan;
- 23 • serving as an elected stakeholder representative on an Ontario gas utility's annual Audit  
24 Committee as well as a province-wide Technical Evaluation Committee;
- 25 • serving as co-chair of the Research and Evaluation Committee of the Northeast Energy  
26 Efficiency Partnership's (NEEP's) regional Evaluation, Measurement and Verification  
27 forum; and
- 28 • providing guidance to key stakeholders in Germany, the United Kingdom and other  
29 European countries on the design of efficiency policies and programs (on behalf of the  
30 Regulatory Assistance Project).

31 Prior to co-founding Energy Futures Group in 2010 I worked for 17 years for the Vermont  
32 Energy Investment Corporation (VEIC), the last 10 as Director of its Consulting Division  
33 managing a group of 30 professionals with offices in three states. Most of our consulting work  
34 involved critically reviewing, developing and/or supporting the implementation of electric, gas,  
35 and multi-fuel energy efficiency programs for clients across North America and beyond. As a  
36 member of VEIC's Senior Management Team, I also helped launch Efficiency Vermont in 2000

37 – a then new statewide “efficiency utility” VEIC was selected to operate – and became  
38 intimately familiar with a myriad of issues associated with the day-to-day delivery of energy  
39 efficiency programs. I also helped shape the New England ISO’s rules for inclusion of demand  
40 resources in its Forward Capacity Market and led the development of VEIC’s first bids of peak  
41 savings from efficiency programs into that market.

42 All told, during my career in energy efficiency I have played major roles in developing energy  
43 efficiency potential studies in five states and provinces, served as a technical advisor to utility-  
44 stakeholder “collaboratives” in ten states, negotiated or supported development of efficiency  
45 program performance incentive mechanisms in six different jurisdictions and reviewed or  
46 developed efficiency programs for clients in more than 20 states and provinces as well as parts of  
47 Europe. I have also led courses on efficiency program design, published widely on a range of  
48 efficiency topics and served on numerous national and regional efficiency committees, working  
49 groups and forums. A copy of my curriculum vitae is attached as NRDC Ex. 1.1.

50 **Q: Are you an active participant in the Illinois Stakeholder Advisory Group (SAG)**  
51 **deliberations on the Illinois utilities’ and DCEO’s programs and related regulatory**  
52 **policies?**

53 A: Yes. I have represented NRDC in SAG meetings and processes for the past three years.  
54 During that time I have attended most of the monthly SAG meetings as well as numerous  
55 additional conference calls regarding the state’s Technical Reference Manual and other matters.

56 **Q: Have you previously filed expert witness testimony in a proceeding before the Illinois**  
57 **Commerce Commission (ICC)?**

58 A: Yes, three years ago I filed testimony on Commonwealth Edison's 2<sup>nd</sup> three-year energy  
59 efficiency plan in Docket 10-0570.

60 **Q: Have you been an expert witness on energy efficiency matters before other regulatory**  
61 **commissions?**

62 A: Yes, I have filed expert witness testimony on more than 30 other occasions before similar  
63 regulatory bodies in nine other states and provinces, including the neighboring jurisdictions of  
64 Michigan and Ohio during the past couple of years.

65 **II. TESTIMONY OVERVIEW**

66 **Q: What is the purpose of your testimony?**

67 A: The purpose of my testimony is to address three elements of the Illinois Department of  
68 Commerce and Economic Opportunity's (DCEO's) evidence regarding its 3<sup>rd</sup> Energy Efficiency  
69 Portfolio Plan:

- 70 1. The reasonableness of DCEO's proposed savings for each of the three years of its plan  
71 (electric PY7/gas PY4 through electric PY9/gas PY6);
- 72 2. The adequacy of DCEO's approach to overseeing the large gas customer self-direct  
73 program; and

74 3. The reasonableness of DCEO’s proposal that the state shift from setting net energy  
75 savings goals (i.e. net of free ridership and spillover effects) to adjusted gross energy  
76 savings goals (i.e. without any adjustments for free ridership and spillover effects).

77 **Q: Please summarize your views on the reasonableness of DCEO’s proposed energy**  
78 **savings targets.**

79 A: DCEO’s proposed energy savings goals appear to be considerably lower than they should be  
80 given their available budget and their actual, evaluated experience to date. They should be  
81 required to explain the substantial differences and, absent a compelling explanation, to increase  
82 the goals to levels comparable to what they achieved – per dollar spent – in electric program year  
83 4 (EPY4) and gas program year 1 (GPY1).

84 **Q: Please summarize your views regarding the adequacy of DCEO’s approach to over-**  
85 **seeing the large gas customer self-direct program.**

86 A: DCEO appears to be taking a pretty “hands off”, minimalist approach to over-seeing the  
87 large gas customer self-direct program. It argues in its plan that because the legislative language  
88 governing the self-direct program is vague about the details of the program, that DCEO “has no  
89 enforcement mechanisms and no administrative support to ensure that energy efficiency projects  
90 are verified and executed in a manner consistent with the EEPS statutory requirement.”<sup>1</sup> I find  
91 that conclusion troubling. According to DCEO, the annual savings claimed in just the first year  
92 of the self-direct program – 5 million therms – are roughly equal to the total annual savings

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<sup>1</sup> DCEO 2014-2017 EEP Plan, p. 7.

93 DCEO is forecasting for all of the other gas efficiency programs that it manages. Letting the  
94 reasonableness of that level of claimed savings go unverified and unassessed could significantly  
95 diminish the effect of the law by allowing false claims of compliance with the law to go  
96 unnoticed. Moreover, though I am not an attorney, DCEO's interpretation of what it can and  
97 cannot do appears to be inconsistent with a reasonable read of the legislative language.

98 **Q: Please summarize your views on DCEO's proposal to shift from net savings goals to**  
99 **adjusted gross savings goals.**

100 A: I think it is problematic. While I agree with DCEO's suggestion that there are significant  
101 challenges to estimating net savings, DCEO's suggestion that we address those challenges by  
102 effectively ignoring free ridership and spillover effects is a classic case of "throwing the baby out  
103 with the bath water." As I discuss further below, a focus on adjusted gross savings rather than on  
104 net savings will almost inevitably result in less effective programs, with the result being less  
105 actual savings, lower value for ratepayers, and greater environmental damage.

### 106 **III. DCEO'S PROPOSED SAVINGS GOALS**

107 **Q: What are DCEO's proposed budgets and savings goals for PY7 through PY9?**

108 A: As Table 1 below shows, DCEO is proposing a three-year electric savings goal (measured in  
109 first year savings) of 415.6 GWh and a three-year gas savings goal (again, measured in first year  
110 savings) of 14.3 million therms. As Table 2 shows, DCEO is proposing a three-year total budget  
111 of a little more than \$228 million. 72% of the budget is electric; 28% is gas. It is my

112 understanding that the budget is consistent with statutory requirements that DCEO spend 25% of  
113 the funds collected by the utilities.

114 **Table 1: DCEO Proposed Electric and Gas Savings Goals**

Program Types	Electric Savings (1st Year GWh)				Gas Savings (1st Year Therms - Millions)			
	Yr 1	Yr 2	Yr 3	Total	Yr 1	Yr 2	Yr 3	Total
Public Sector	112.81	115.04	120.47	348.32	3.46	3.46	3.45	10.37
Breakthrough Technology	3.61	3.65	3.67	10.93	0.10	0.10	0.09	0.29
Low Income	13.35	13.49	13.55	40.39	0.84	0.84	0.84	2.52
Market Transformation	4.06	5.32	6.58	15.96	0.26	0.37	0.47	1.10
Totals	133.83	137.50	144.27	415.60	4.66	4.77	4.85	14.28

116 **Table 2: DCEO Proposed Electric, Gas and Total Budget**

Budget Categories	Electric Budget				Gas Budget				Grand Total
	Yr 1	Yr 2	Yr 3	Total	Yr 1	Yr 2	Yr 3	Total	
Public Sector	\$28.70	\$29.05	\$29.19	\$86.94	\$11.61	\$11.39	\$10.99	\$33.99	\$120.93
Breakthrough Technology	\$1.62	\$1.64	\$1.65	\$4.91	\$0.63	\$0.63	\$0.56	\$1.82	\$6.73
Low Income	\$13.00	\$13.16	\$13.22	\$39.38	\$5.29	\$5.29	\$5.30	\$15.88	\$55.26
Market Transformation	\$5.41	\$5.48	\$5.51	\$16.40	\$2.11	\$2.11	\$2.19	\$6.41	\$22.81
EM&V, Marketing & Admin.	\$5.41	\$5.48	\$5.50	\$16.39	\$2.11	\$2.11	\$2.11	\$6.33	\$22.72
Totals	\$54.14	\$54.81	\$55.07	\$164.02	\$21.75	\$21.53	\$21.15	\$64.43	\$228.45

118 **Q: Are the proposed savings goals reasonable given the available budget?**

119 A: The proposed savings goals appear to be low relative to the available budget.

120 **Q: What is the basis for that conclusion with respect to electric savings?**

121 A: At the highest level, in its proposed plan DCEO is proposing to acquire 11% fewer MWh per  
122 year than it acquired in EPY4, while spending approximately 27% more money per year.<sup>2</sup> Put  
123 another way, DCEO is proposing to spend 39% more per MWh saved than it spent in PY4.

124 **Q: What is the explanation for such a large difference?**

125 A: DCEO has not explained in its evidence why the electric savings yield would be so much  
126 worse in its proposed plan than its actual experience in EPY4.

127 A part of the answer appears to be that DCEO actually spent less on non-program costs (i.e.  
128 EM&V, administration, and general marketing) – only about 6% of its total budget<sup>3</sup> – than it is  
129 proposing to spend in the current plan (about 10% of the budget).

130 Another part of the answer appears to be that DCEO forecasting that, on average, its programs  
131 will generate less savings per dollar spent than it actually achieved in EPY4.

132 **Q: How did you come to the conclusion that DCEO is forecasting lower savings per dollar  
133 spent than in EPY4?**

134 A: For each program for which it was possible, I have compared DCEO's proposed savings per  
135 dollar in this plan to what it actually achieved, as estimated by its independent evaluator, in  
136 electric program year 4 (EPY4). Such comparisons are possible for programs accounting for  
137 approximately two-thirds of DCEO's forecast electric savings.

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<sup>2</sup> In its plan (p. 6), DCEO forecasts average annual spending of \$54.68 million and average annual electric savings of 138.5 GWh, for an average expenditure of \$395 per first year MWh. In EPY4, DCEO spent \$44.17 million (response to NRDC 1.21) to generate verified net savings of 155.65 GWh (from spreadsheet titled "Summary of PY4 ADM evaluations.xlsx" provided in response to NRDC 1.04), for an average expenditure of \$284 per first year MWh.

<sup>3</sup> From spreadsheet titled "Summary of PY4 ADM evaluations.xlsx" provide in response to NRDC 1.04).

138 As Table 3 shows, DCEO is forecasting that for many programs, including several key ones, it  
 139 will cost much more to acquire electric savings in EPY7-9 than it cost to acquire electric savings  
 140 – through the same programs – in EPY4. Most notably, DCEO is forecasting that savings from  
 141 the Public Sector Standard and Public Sector Custom programs, which together account for half  
 142 of DCEO’s forecast three-year electric savings, will be 17% and 40%, respectively, more  
 143 expensive than in EPY4.

144 **Table 3: Comparison of EPY4 and EPY7-9 \$/MWh Saved**

Program	EPY7-9 MWh	\$/MWh		
		EPY4	PY7-9 avg	% chg vs. EPY4
Affordable Housing Construction	6,270	\$989	\$1,694	71%
Building Operator Certification	4,500	\$131	\$120	-8%
Lights for Learning	900	\$780	\$1,333	71%
Low Income Residential Retrofit	18,100	\$749	\$883	18%
Public Housing Authority Efficient Living	14,190	\$832	\$600	-28%
Public Sector Boiler Tune-Up	-			
Public Sector Custom	49,560	\$162	\$228	40%
Public Sector Standard	158,690	\$221	\$258	17%
Public Sector New Construction	13,980	\$132	\$155	17%
Totals	266,190			20%

145

146 **Q: How much more electric savings would DCEO get from the programs you analyzed if**  
 147 **its costs in EPY7-9 were comparable to those it actually incurred in EPY4?**

148 A: As Table 4 shows, if DCEO were able to acquire savings in EPY7 through EPY9 at  
 149 approximately the same costs per MWh that it acquired them in EPY4, it would acquire an  
 150 additional 52,687 MWh over the three year period. That is a 20% weighted average increase for

151 the programs I analyzed. Since those programs represent approximately two-thirds of DCEO's  
152 forecast EPY7-9 electric savings, the increase relative to DCEO's total savings forecast would be  
153 about 13% across its entire program portfolio (leaving the forecast saving from other programs  
154 unchanged).

155 **Table 4: EPY7-9 MWh Savings Increase from Applying Actual EPY4 Costs/MWh**

Program	DCEO Proposed Plan	Adjusted per EPY4 Costs	Change	
			MWh	%
Affordable Housing Construction	6,270	10,737	4,467	71%
Building Operator Certification	4,500	4,121	(379)	-8%
Lights for Learning	900	1,538	638	71%
Low Income Residential Retrofit	18,100	21,330	3,230	18%
Public Housing Authority Efficient Living	14,190	10,237	(3,953)	-28%
Public Sector Boiler Tune-Up	-	-	-	0%
Public Sector Custom	49,560	69,226	19,666	40%
Public Sector Standard	158,690	185,281	26,591	17%
Public Sector New Construction	13,980	16,407	2,427	17%
Totals	266,190	318,877	52,687	20%

156

157 **Q: What accounts for the difference?**

158 A: I cannot fully explain why DCEO's electric savings estimates for EPY7-9 are different from  
159 what it actually experienced because I was not privy to DCEO's internal deliberations.

160 However, I have identified one factor that appears to have had a substantial impact. DCEO has  
161 stated that in developing savings estimates for its filed plan that it assumed that the combination  
162 of realization rate adjustments (i.e. converting gross savings to adjusted gross savings based on  
163 evaluation results) and NTG adjustments would be 80% for public sector programs and 90% for

164 low income programs.<sup>4</sup> In actuality, the adjustments evaluators developed for public sector  
165 programs were all higher than that, ranging from 87% for Public Sector New Construction to  
166 114% for Public Sector Standard; the adjustments for low income programs ranged from 79% for  
167 the Low Income Residential Retrofit program to 111% for the Affordable Housing Construction  
168 program. The difference between those actual evaluation-based adjustments and the  
169 unsubstantiated 80% public sector adjustments and 90% low income adjustments that DCEO  
170 used in its plan more than explains the difference between actual EPY4 cost per MWh saved and  
171 DCEO's planned EPY7-9 estimate of savings. In fact, if DCEO didn't change any of its other  
172 assumptions, and simply used the EPY4 evaluated gross realization rates and NTG values the  
173 savings from the programs shown in Table 4 would have been about 77,000 MWh – or 29% -  
174 higher over the three year period.

175 **Q: Have you conducted a similar analysis of DCEO's gas savings?**

176 A: Yes. The differences are even more dramatic than in the electric sector. In its proposed plan  
177 for GPY4-6, DCEO is proposing to spend an average of 132% per year more than in GPY1 (i.e.  
178 more than double the spending) to acquire just 13% more savings per year. Put another way, it is  
179 proposing to spend a little more than twice as much per unit of savings than it spent in GPY1.<sup>5</sup>

180 **Q: What is the explanation for such a large difference?**

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<sup>4</sup> Direct Testimony of Agnes Mrozowski, p. 35, lines 684-689.

<sup>5</sup> In its plan (p. 6), DCEO forecasts average annual spending of \$21.49 million and average annual gas savings of 4.76 million therms, for an average expenditure of \$4.51 per first year therm. In GPY1, DCEO spent \$9.28 million (response to NRDC 1.21) to generate verified net savings of 4.21 million therms (from spreadsheet titled "Summary of PY4 ADM evaluations.xlsx" provided in response to NRDC 1.04), for an average expenditure of \$2.20 per first year therm.

181 A: DCEO has not explained in its evidence why the gas savings yield would be so much worse  
182 in its proposed plan than its actual experience in GPY1.

183 A part of the answer is that DCEO appears to be forecasting that it will get much less savings per  
184 dollar spent than it actually achieved in the same programs in GPY1. As with the electric  
185 analysis discussed above, for each program for which it was possible, I have compared DCEO's  
186 proposed savings per dollar in this plan to what it actually achieved, as estimated by its  
187 independent evaluator, in gas program year 1 (GPY1). Such comparisons are possible for  
188 programs accounting for nearly half of DCEO's forecast gas savings.

189 As Table 5 shows, DCEO is forecasting that for almost every program, including several key  
190 ones, it will cost much more to acquire gas savings in GPY4-6 than it cost to acquire gas savings  
191 – through the same programs – in GPY1. Most notably, DCEO is forecasting that savings from  
192 the four Public Sector programs I analyzed will be more than three times as expensive as in  
193 GPY1.

194 **Table 5: Comparison of GPY1 and GPY4-6 \$/Therm Saved**

Program	GPY4-6 Therms (millions)	\$/therm		
		GPY1	GPY4-6 avg	% chg vs. GPY1
Affordable Housing Construction	0.45	\$15.35	\$9.73	-37%
Building Operator Certification	-	\$38.59		
Lights for Learning	-			
Low Income Residential Retrofit	0.87	\$5.30	\$7.21	36%
Public Housing Authority Efficient Living	0.30	\$9.25	\$11.60	25%
Public Sector Boiler Tune-Up	1.47	\$0.28	\$1.02	263%
Public Sector Custom	1.06	\$1.18	\$3.91	232%
Public Sector Standard	1.69	\$2.19	\$7.85	258%
Public Sector New Construction	0.33	\$0.84	\$2.55	203%
Totals	6.17			188%

195

196 **Q: How much more gas savings would DCEO get from the programs you analyzed if its**  
 197 **costs in GPY4-6 were comparable to those it actually incurred in GPY1?**

198 A: As Table 6 shows, if DCEO were able to acquire savings in GPY4 through GPY6 at  
 199 approximately the same costs per therm that it acquired them in GPY1, it would acquire an  
 200 additional 11.6 million therms over the three year period. That is a 188% weighted average  
 201 increase for the programs I analyzed. Since those programs represent a little less than half of  
 202 DCEO's forecast GPY4-6 gas savings, the increase relative to DCEO's total savings forecast  
 203 would be about 80% across its entire program portfolio (leaving the forecast saving from other  
 204 programs unchanged).

205 **Table 6: GPY4-6 Therm Savings Increase from Applying Actual GPY1 Costs/Therm**

Program	DCEO Proposed	Adjusted per GPY1	Change	
			Therms	%
Affordable Housing Construction	0.45	0.29	(0.16)	-37%
Building Operator Certification	-	0.01	0.01	
Lights for Learning	-	-	-	
Low Income Residential Retrofit	0.87	1.18	0.31	36%
Public Housing Authority Efficient Living	0.30	0.38	0.08	25%
Public Sector Boiler Tune-Up	1.47	5.33	3.86	0%
Public Sector Custom	1.06	3.52	2.46	232%
Public Sector Standard	1.69	6.06	4.37	258%
Public Sector New Construction	0.33	1.00	0.67	203%
Totals	6.17	17.76	11.59	188%

206

207 **Q: What accounts for such a significant difference?**

208 A: I cannot explain why DCEO's gas savings estimates for GPY4-6 are so different from what it  
 209 actually experienced because I was not privy to DCEO's internal deliberations. In contrast with  
 210 electric savings, the DCEO assumptions regarding realization rates and NTG values appear to be,  
 211 in aggregate, consistent with GPY1 evaluated results. It is possible that changes to deemed  
 212 savings assumptions in the Technical Reference Manual (TRM) are part of the explanation.  
 213 However, it is hard to imagine that such changes could fully explain the differences if for no  
 214 other reason than a significant portion of the savings are likely to come from custom measures  
 215 that are not covered by the TRM. Since the savings from those custom measures were verified  
 216 by an independent evaluator in GPY1, it is difficult to understand why DCEO's savings  
 217 assumptions for the future would be so much lower.

218 **Q: What do you conclude about DCEO's proposed savings goals from this analysis?**

219 A: DCEO's proposed savings goals appear to be conservative, particularly on the gas side.

220 DCEO should be required to explain the differences and, absent a compelling explanation,  
221 should be required to increase goals to levels that would be consistent with actual achievements  
222 in EPY4 and GPY1 (with appropriate adjustments for changes to the TRM).

223 **IV. DCEO'S OVERSIGHT OF GAS SELF-DIRECT PROGRAM**

224 **Q: What is your understanding of the requirements of the gas self-direct program imposed**  
225 **by Section 8-104?**

226 A: Section 8-104 requires large gas customers who want to participate in the self-direct program  
227 (rather than pay into and participate in the gas utility programs) to apply to DCEO. An  
228 application must, among other things, contain the customer's certification that:

- 229
- it qualifies to participate;

230

  - it has established "an energy efficiency reserve account" to be used to fund the  
231 installation of "energy efficiency measures" of its choosing;

232

  - it will put the lower of \$150,000 or 2% of its annual cost of case in the account each year;

233

  - and

- 234       • the customer will report annually to DCEO on all deposits to the account, all  
235            withdrawals, a description of the efficiency measures funded through the account, an  
236            estimate of the energy they are forecast to save.

237 DCEO is required to review and approve applications. Importantly, DCEO also has “the right to  
238 audit the information provided in the customer’s application and annual reports” to ensure  
239 compliance with the requirements of the law.

240 Finally, ICC may initiate evaluations of the program. The first evaluation must be after October  
241 1, 2014. There must be at least three years between evaluations.

242 **Q: On page 7 of its Plan, DCEO states that the law neither defines the types of efficiency**  
243 **projects that participating customers could fund with their reserve accounts nor specifies**  
244 **whether their efficiency investments have to be cost-effective. Is that consistent with your**  
245 **understanding?**

246 A: Yes. The law simply says that the money set aside in the energy efficiency reserve accounts  
247 must be used to fund energy efficiency measures. Subsection (b) of 8-104 defines energy  
248 efficiency as “measures that reduce the amount of energy required to achieve a given end use.”  
249 Subsection (m)(1)(B) of the law elaborates a little to make clear that combined heat and power  
250 projects are eligible. I do not read the law as having any other constraint. Thus, I agree that  
251 passing a cost-effectiveness test is not required. I also agree that the range of measures in which  
252 participating customers can therefore choose to invest is very broad. The only real constraint is  
253 that they actually save energy.

254 **Q: Does that mean that DCEO does not have any role in reviewing whether the measures**  
255 **funded through the reserve accounts are allowable?**

256 A: No. DCEO has a role. However, that role is limited to determining whether a measure can  
257 be expected to save energy. Though a narrow role, it is an important one.

258 Among the things I would hope that DCEO is considering when evaluating whether participant  
259 uses of the fund will save energy is what the baseline for the purported efficiency measure is.  
260 For example, if a participant is buying a new piece of energy consuming equipment because the  
261 old equipment it was using stopped functioning and needed to be replaced, the baseline would be  
262 a standard *new* piece of equipment, not the old equipment that could no longer function. In that  
263 case, there would be energy savings only if the new equipment being purchased was more  
264 efficient than a standard new piece of equipment. Put another way, the efficiency measure in this  
265 example would be an upgrade from a standard new piece of equipment to an efficient new piece  
266 of equipment. In that context, one could legitimately argue that the reserve funds could only be  
267 used to fund the incremental cost from a standard new piece of equipment to an efficient new  
268 piece of equipment – not the entire cost of the new equipment.

269 **Q: Is that the way DCEO is interpreting its role in assessing whether the use of reserve**  
270 **funds was appropriate?**

271 A: When asked whether all replacement boilers paid for out of the reserve accounts were more  
272 efficient than standard new boilers, DCEO responded as follows:

273           *“Many of the reports lacked detail on the efficiency of the new boilers and it is not clear*  
274           *whether it is more efficient than a new standard boiler.”*<sup>6</sup>

275   Moreover, DCEO has yet to exercise its right to audit any customer reports.<sup>7</sup> Thus, it does not  
276   appear as if DCEO is asking those kinds of questions about baselines when determining whether  
277   the use of reserve funds was consistent with the law. However, it is difficult to know for sure  
278   because DCEO hasn’t implemented the law in a way that its assessment of proposed  
279   expenditures is in any way transparent to the public.

280   **Q: On page 7 of its plan DCEO also states that because of the vagueness of the law it “has**  
281   **no enforcement mechanisms and no administrative support to ensure that energy efficiency**  
282   **projects are verified and executed in a manner consistent with the EEPS statutory**  
283   **requirement.” Do you agree?**

284   A: No. As DCEO itself has acknowledged, the law clearly gives it the right to audit the  
285   participants’ annual reports (as well as their applications) to ensure compliance with the law.  
286   Thus, DCEO clearly has authority to

- 287           1. assess whether the measures claimed to have been installed were, in fact, installed;
- 288           2. assess whether the measures can reasonably be expected to save energy – as noted above,  
289           this should include an assessment of what the baseline conditions for installed efficiency  
290           measures was; and

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<sup>6</sup> Response to NRDC 1.18.

<sup>7</sup> Response to NRDC 1.16.

291 3. assess whether the funds withdrawn from the reserve account are appropriate for the  
292 measures installed.

293 It is hard to understand why that authority would be interpreted as inconsistent with the types of  
294 verification that are performed for EEPS programs.

295 As for administrative support to carry out such verification work, I am unclear as to the nature of  
296 DCEO's concern. I assume that it is financial. It is true that the self-direct portion of 8-104 does  
297 not include a mechanism for funding DCEO's verification work. However, it is not clear to me  
298 why DCEO could not use a modest portion of its other 8-104 funds to support such work.

299 **Q: When you suggest that DCEO has the authority to verify self-direct program efficiency**  
300 **investments in a manner consistent with EEPS, are you suggesting that the evaluation**  
301 **obligations are the same?**

302 A: No. First, verification is different than evaluation. It is one thing to verify that a measure has  
303 been installed and that it is reasonable to expect that it will save energy. It is another thing  
304 altogether to evaluate exactly how much energy it will save. Under EEPS, the utilities and  
305 DCEO are required not only to verify that efficiency measures have been installed consistent  
306 with program rules, but also to evaluate the savings they are producing. Unfortunately, the  
307 legislation establishing self-direct program does not have such an evaluation requirement. I say

308 “unfortunately” because good evaluation has been identified as one of the keys to successful self-  
309 direct programs.<sup>8</sup>

310 **Q: Are you saying that DCEO is prohibited from evaluating the accuracy of self-direct**  
311 **program savings estimates.**

312 A: No. I am only saying that they do not appear to be required to do so. As part of its audit  
313 process, DCEO could assess the accuracy – at least at some level (e.g. an engineering review of  
314 savings calculations and underlying assumptions) – of savings estimates. Any such assessment  
315 would be for informational purposes rather than enforcement purposes.

316 **Q: What would be the value of such an assessment?**

317 A: First, the assessment might have value for the participating customers, helping them to better  
318 understand their energy use and perhaps even future opportunities for acquiring additional  
319 efficiency savings. Second, the assessment would have value for policy-makers, helping them  
320 understand what was actually accomplished by the program.

321 It is worth noting that the participants in the self-direct program estimated that they generated 5  
322 million therms of annual gas savings in the first year of the program. That is a substantial  
323 amount – on the order of what DCEO has forecast it will achieve annually *from all of the other*  
324 *programs it administers combined*. Given that magnitude of claimed savings, it would seem  
325 important, from a policy perspective, to understand whether the claims are accurate.

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<sup>8</sup> See, for example, Chittum, Anna, “Follow the Leaders: Improving Large Customer Self-Direct Programs”, published by the American Council for an Energy Efficient Economy, Report Number IE112, October 2011.

326 **Q: Would it be expensive to conduct such an assessment?**

327 A: No. We are talking about a review by appropriately qualified engineers or/and evaluation  
328 professionals of a relatively modest number of projects. I imagine that it would mostly involve a  
329 review of savings calculations and assumptions, but might also be supplemented by some limited  
330 on-site data collected through the DCEO audit process. The cost would probably be in the tens  
331 of thousands of dollars.

332 **Q: You noted that the law allows the ICC to initiate its own evaluation of the effectiveness**  
333 **of the program. Would you recommend that it do that?**

334 A: Yes. It is important that there be an independent assessment of the effectiveness of the  
335 program. Such an assessment should, among other things, include an evaluation of how much  
336 savings have actually been achieved.

337 **V. NET SAVINGS VS. ADJUSTED GROSS SAVINGS**

338 **Q: What rationale does DCEO's offer for moving from the current Illinois focus on net**  
339 **savings to adjusted gross savings?**

340 A: In a nutshell, DCEO says that net-to-gross adjustment factors can inexplicably vary from  
341 year to year, their development is complex, and they are biased downward because they more  
342 tend to address free ridership more fully than spillover.<sup>9</sup>

343 **Q: Are those concerns legitimate?**

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<sup>9</sup> This latter reason is the underlying reason for another of DCEO's arguments: that net savings approaches may lead to underestimating program cost-effectiveness and disadvantage programs that have substantial longer-term benefits.

344 A: Yes.

345 **Q: Then what is wrong with DCEO's suggestion that Illinois switch from a focus on net**  
346 **savings to a focus on adjusted gross savings?**

347 A: Net-to-gross (NTG) adjustments to savings are necessary to understand the true impacts of  
348 ratepayer funding of efficiency programs. Program administrators almost always pursue the  
349 easiest and cheapest savings. That is particularly true if there are either rewards for achieving  
350 and/or penalties for not achieving numerical goals. To put it bluntly, it is easy and inexpensive  
351 to "acquire" free riders because almost any customer will gladly accept a rebate for doing what  
352 they would have done anyway. Thus, if achievement of goals is assessed without any  
353 adjustments for free ridership, there will be a strong incentive for program administrators to  
354 "chase" free riders. Conversely, there will be no incentive for them to design programs that  
355 generate substantial spillover if they cannot claim credit for it.

356 Put simply, despite all of the challenges associated with estimating net-to-gross adjustments, the  
357 cost of not doing so is too great.

358 **Q: Did DCEO suggest an alternative approach to minimizing free ridership?**

359 A: Yes. It suggested that evaluators should assess markets to determine when particular  
360 measures are becoming standard practice and, based on that analysis, make recommendations for  
361 improving program designs. DCEO suggests that such recommendations "could range from  
362 dropping a particular measure from the list, raising the minimum measure efficiency eligible for  
363 incentives, or transitioning the program to supporting the next generation technology."

364 **Q: Wouldn't that approach adequately address your concerns about program**  
365 **administrators "chasing" free riders?**

366 A: No. It might help, but it would be an inadequate response to my concern.

367 First, it is important to remember that program administrators will have pre-established savings  
368 goals and will be doing everything in their power to ensure that the "count" of the savings  
369 achieved is greater than the goal. Thus, they will find ways to argue against accepting a  
370 recommendation that makes it significantly harder to achieve goals.

371 Second, even if program administrators were *required* to follow evaluator's recommendations on  
372 which measures can be promoted, the result will be less than ideal. The world is often more  
373 complex than yes/no (a measure is in or out) decisions suggest. Indeed, even for some measures  
374 with high market shares there are many individual customers or even groups of customers which  
375 will not purchase them without the support of a program. Taking such measures "off the table"  
376 will remove some important savings opportunities. Conversely, it is possible to design and  
377 implement programs that mostly acquire free riders even for measures for which the market  
378 share might be 10% of less.

379 Third, a significant portion of DCEO's and the utilities' energy savings come from custom  
380 projects with larger customers. Many of the measures installed through such programs are either  
381 unique to an individual facility or at least not very common. For such measures it would be  
382 impossible for evaluators to even know which measures to study, let alone develop

383 recommendations on whether they should be promoted and the incentive levels at which they  
384 should be promoted.

385 Finally, nothing in DCEO's proposed approach would provide any credit for spillover effects and  
386 potentially related long-term market transformation benefits.

387 **Q: If Illinois is to continue with its current focus on net savings, as you recommend, how**  
388 **should the concerns DCEO has raised – and that you agree are legitimate – be addressed?**

389 A: The concern about the inexplicable variability in NTG estimates could potentially be  
390 addressed a couple of ways. First, there might be value to having all the different evaluators in  
391 the state work together to reach consensus on the best approaches to assessing NTG in particular  
392 markets. Second, to the extent that variability persists, it may be appropriate to examine the  
393 evaluation results from multiple years and multiple sources – potentially even including out-of-  
394 state studies – to develop deemed NTG assumptions for certain markets. One variation on this  
395 approach is the use of Delphi panels, in which a range of different market experts (including  
396 those outside of the efficiency field, such as retailers or other industry experts) are provided the  
397 results of a number of different studies, educated on the key elements of the local market and the  
398 programs targeting the market, and asked to give their assessment of a reasonable assumption  
399 regarding NTG (rather than adhering to the specific numerical result from one study, using one  
400 particular estimation methodology, for one year in one service territory). This approach was  
401 used very successfully in New England a couple of years ago to estimate NTG for CFLs (I

402 myself, was one of more than 20 plus members of the Delphi panel) and is currently being used  
403 in Michigan to develop an NTG for CFLs.

404 The concern about the historically asymmetrical focus on free ridership (more) and spillover  
405 (less) can be resolved by ensuring that future NTG studies are explicitly required to address both.  
406 Finally, I don't think there is much that should be done about the complexity concern. We need  
407 to deal with complexity all the time. It should not be a reason to not do something. Indeed, it is  
408 often the price of progress. That said, the fuller assessment of spillover in evaluations could add  
409 to their costs, perhaps requiring a modest increase in the 3% of the program budgets currently set  
410 aside for evaluation.

411 **Q: DCEO notes that, to this point, it has simply assumed that the NTG for low income**  
412 **programs is 1.0. Are you suggesting that low income programs should also be subject to**  
413 **NTG adjustments?**

414 A: As a matter of principle, I think all resource acquisition programs should be subject to NTG  
415 adjustments if their savings are being counted when establishing and assessing achievement of  
416 energy savings goals. However, some practicality is necessary when setting priorities for  
417 investments in assessments of NTG adjustments. Given what we know about the constraints that  
418 low income customers face as well as the results of evaluation work conducted in other  
419 jurisdictions, I think it is reasonable to assume that the NTG for low income programs is 1.0. I  
420 also think it is reasonable to assume that will continue to be the case indefinitely (or until new

421 information causes reconsideration of the assumption) and that there is no reason at this point to  
422 expend valuable evaluation resources on assessing low income program NTGs.

423 **Q: Does this conclude your testimony?**

424 A: Yes.