

Memorandum

To: Illinois Energy Efficiency Stakeholder Advisory Group Total Resource Cost Subcommittee
From: Celia Johnson, SAG Senior Policy Analyst
Date: June 16, 2015
RE: Non-Energy Benefits Adders in Other Jurisdictions

Background

The Illinois Power Agency (“IPA”) petitioned the Illinois Commerce Commission (“Commission”) for approval of the 2015 IPA Procurement Plan in ICC Docket No. [14-0588](#), pursuant to Section 16-111.5(d)(4) of the Public Utilities Act (“IPA docket”). In the IPA docket docket, the Natural Resources Defense Council (“NRDC”) proposed that Illinois utilities include several adders when performing the Total Resource Cost Test (“TRC Test”) analysis for energy efficiency programs, including Non-Energy Benefits (“NEBs”).

Several parties in the IPA docket expressed concerns about the impact of a Commission decision on the TRC test on interested participants not a party to the 14-0588 proceeding. The Commission also expressed concern about the expedited schedule and the large number of contested issues in procurement proceedings. The IPA recommended that workshops be conducted to allow the proper time and process for considering whether the proposed changes to the TRC test should be adopted. In the IPA docket Final Order, the Commission declined to adopt NRDC’s recommended changes to the TRC Test analysis. Instead, the Commission directed that the issues raised by NRDC related to the TRC Test be discussed by the Illinois Stakeholder Advisory Group (“SAG”). A separate SAG TRC Subcommittee was formed to address NEBs and other issues related to the TRC test.¹

Issue

Should NEBs be included in the Illinois TRC calculation? If so, how should they be quantified?

NRDC Proposal

The second TRC Subcommittee meeting held on March 17, 2015, included presentations by Chris Neme, Energy Futures Group on behalf of NRDC, and Lisa Skumatz, Skumatz Economic Research Associates (“SERA”) on NEBs. Neme presented background on NEBs, including NRDC’s proposal to include percentage portfolio adders, as described below. Skumatz, a national expert on NEBs, presented to the TRC Subcommittee on how NEBs are calculated.

Neme described NRDC’s proposal to include NEBs in the Illinois TRC Test calculation as follows:

1. 15% Default Non-Low Income Benefits Adder
2. 30% Default Low Income Benefits Adder

¹ See Draft IPA TRC Subcommittee Plan, Version 1.0. Retrieved from http://ilsagfiles.org/SAG_files/Subcommittees/IPA-TRC_Subcommittee/2-17-2015_Meeting/IPA_TRC_Subcommittee_Plan_Ver_1_DRAFT_v2.pdf.

3. 50% Whole House Retrofit Program Benefits Adder
4. Other program specific adders can be developed to replace default values
5. Begin conducting some IL NEBs studies
 - a. Could be added to existing evaluations at modest cost.

NRDC’s position is that NEBs should be an essential component to the TRC. Their rationale is two-fold: 1) the Illinois TRC Test includes utilities and participants, therefore including the participant portion of costs requires the inclusion of participant benefits, which is not limited to energy benefits; and 2) Illinois legislation explicitly calls for inclusion of “other quantifiable benefits” in the TRC Test.

Non-Energy Benefits in Illinois

In Illinois, Ameren Illinois, Nicor Gas, Peoples Gas-North Shore Gas and the Department of Commerce and Economic Opportunity (“DCEO”) include a NEBs adder for electric and/or gas energy efficiency programs. ComEd does not include a NEBs adder. Table 1 below summarizes the adders used by program administrators in Illinois.

Table 1: Quantifying Non-Energy Benefits (NEBs) in Illinois			
Program Administrators Using NEBs Adders			
Program Administrator	Adder	Description	Description Source
Ameren IL	7.5% gas; 10% electric		
ComEd	No NEBs adder	CO2 costs at \$0.0139/kWh. The primary environmental benefit that could be included in the Illinois TRC test is the value of avoided CO2 emissions. ComEd included the average carbon value proposed by the NRDC within our analysis. This value (\$18.50/tonne) was applied to PJM’s 2009 marginal power plant emission rate to arrive at an average value of \$0.0139/kWh. DSMore does not provide escalation factors for externalities and emissions.	C/E Report, EPY5
DCEO	10%	DCEO reports TRC results with and without NEBs, assuming at 10% adder, not distinguishing between gas/electric NEBs. EPY4/GPY1: Participant non-energy benefit (NEB) adders were applied to calculated benefits. A 15% default non-low income benefits adder was applied to Public Sector and Market Transformation Programs. A 30% default low-income benefits	C/E Report, EPY4/GPY1

Table 1: Quantifying Non-Energy Benefits (NEBs) in Illinois			
Program Administrators Using NEBs Adders			
Program Administrator	Adder	Description	Description Source
		adder was applied to Low Income Programs. TRC scores were calculated with and without the non-energy benefit adders. Environmental benefits of avoided CO2 emissions from electricity generation were valued at \$0.013875 / kWh and included in the calculation of benefits.	
Nicor Gas	7.5% gas		
Peoples Gas - North Shore Gas	7.5% gas		
Other Methods			
Method	Description		Description Source
Include non-energy (electric/gas) benefits in the IL-TRM	Water savings is quantified in the IL-TRM. Measures include: Clothes Washer; showerhead; aerator; thermostatic restrictor valve; dishwasher; ozone laundry; and HE pre-rinse spray valve measures. IL-TRM also quantifies operations and maintenance savings where differences exist between baseline and efficient measures.		ICC Staff
Include carbon in TRC analysis			ICC Staff

Non-Energy Benefits in Other Jurisdictions

Overall, it appears that NEBs are not widely incorporated in calculating energy efficiency program cost-effectiveness. However, a few states have varying rules for including NEBs in cost-effectiveness tests. A California Public Utilities Commission Energy Division staff paper references a recent survey of 41 states, with twelve (12) states indicating they include NEBs in their cost-benefit tests, representing 29% (Kushler et al. 2011). Only 13 (32%) states indicated that they included environmental externality benefits in their cost-benefit tests, and another 5 states (12%) included “other societal benefits” (excluding environmental benefits) in their cost-benefit tests.²

In addition, ACEEE completed a survey on EM&V practices in the United States, summarized in a 2012 report. The report shows that there is a general lack of consideration of NEBs in DSM program evaluation (with a few exceptions). The survey confirms that avoided costs are still the universally accepted kind of benefit created by DSM programs, and found that only a few states

² See *Addressing Non-Energy Benefits in the Cost-Effectiveness Framework* at 4-5. California Public Utilities Commission. 2012. Retrieved from <http://www.cpuc.ca.gov/NR/rdonlyres/BA1A54CF-AA89-4B80-BD90-0A4D32D11238/0/AddressingNEBsFinal.pdf>.

indicate that some general environmental factors (normally emissions and CO2) and customer factors are also important and/or considered. The survey also found that zero respondents indicated they are attempting to include comfort, health, or improved productivity in the benefits side of their cost-effectiveness equations.

Figure 11 in the ACEEE report is excerpted below, as it shows the number of states including the following benefits when calculating their primary cost-effectiveness test:

Benefit	Number of States Including each Benefit
Utility system avoided costs	40
Environmental externality benefits	14
Customer 'non-energy' benefits	12
Other 'societal' benefits (not including 'environmental' benefits)	5

NEB adders range from 10-25%, with 10% or 15% being the most commonly used adder. Several other states allow utilities to consider NEBs, but do not allow or require utilities to incorporate NEBs in their cost-effectiveness tests. However, the trend appears to be a slow but steady movement toward broader incorporation of NEBs.

In many cases there aren't separate adder amounts for different sectors, but in cases where there was it generally meant that the adder was higher for low income programs. Typically NEBs adders include environmental benefits from reduced pollution, reduced water and other fuel use, and reduced maintenance. NEBs such as increased personal comfort, reduced noise, and better health and productivity have been considered by states and utilities, but currently are not covered by most NEB considerations or adders.

See Table 2: Quantifying Non-Energy Benefits in Other Jurisdictions for information.

Source List

- *A National Survey of State Policies and Practices for the Evaluation of Ratepayer-Funded Energy Efficiency Programs*. Report Number U122. February 2012. Martin Kushler, Seth Nowak, and Patty Witte. American Council for an Energy Efficient Economy (ACEEE).
- *Addressing Non-Energy Benefits in the Cost-Effectiveness Framework*. California Public Utilities Commission. 2012. Retrieved from <http://www.cpuc.ca.gov/NR/rdonlyres/BA1A54CF-AA89-4B80-BD90-0A4D32D11238/0/AddressingNEBsFinal.pdf>.
- *Picking a Standard: Implications of Differing TRC Requirements*. The Cadmus Group. 2012. Retrieved from <http://www.cadmusgroup.com/wp-content/uploads/2012/11/Picking-a-Standard.pdf>.
- *Non-Energy Benefits: Status, Findings, Next Steps, and Implications for Low Income Program Analyses*, Skumatz Economic Research Associates. May 2010. Retrieved from <http://docs.cpuc.ca.gov/efile/REPORT/134710.pdf>.

- *Memorandum from Walter Poor, Department of Vermont Public Service, to Susan Hudson, Vermont Public Service Board, RE Department of Public Service Comments in the Cost-Effectiveness Screening of Efficiency Measures Workshop Process Related to Non-Energy Benefits, Discount Rate, Risk Adjustment, and Low-Income Adders.* State of Vermont Department of Public Service. December 9, 2011. Retrieved from <http://psb.vermont.gov/sites/psb/files/projects/EEU/screening/DPSCostEffectivenessScreeningComments12-9-11.pdf>.
- *Recognizing the Full Value of Energy Efficiency.* Jim Lazar and Ken Colburn, Regulatory Assistance Project. September 2013.
- Appendix C, Massachusetts Technical Reference Manual for Estimating Savings from Energy Efficiency Measures. 2013-2015 Program Years – Plan Version. October 2012. Retrieved from http://ma-eeac.org/wordpress/wp-content/uploads/TRM_PLAN_2013-15.pdf.
- *Massachusetts Program Administrators, Massachusetts Special and Cross-Sector Studies Area, Residential and Low-Income Non-Energy Impacts (NEI) Evaluation.* August 15, 2011. Tetra Tech.
- *Energy Efficiency Cost-Effectiveness Screening: How to Properly Account for ‘Other Program Impacts’ and Environmental Compliance Costs.* Synapse Energy Economics, Inc.; Regulatory Assistance Project. October 2012. Retrieved from www.raponline.org/document/download/id/6149.
- *A Brief Overview of Benefit-Cost Testing for Energy Efficiency Programs: Current Status and Some Key Issues.* Presentation to the NASUCA 2014 Mid-Year Meeting, June 3, 2014 (Martin Kushler, ACEEE). Retrieved from: <http://nasuca.org/nwp/wp-content/uploads/2014/01/Dr.-Kushler.pdf>.
- *Recognizing the Full Value of Energy Efficiency (What’s Under the Feel-Good Frosting of the World’s Most Valuable Layer Cake of Benefits).* Jim Lazar and Ken Colburn. Regulatory Assistance Project (RAP), September 2013.