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December 31, 2009
IOWA UTILITIES BOARD
EEP-2009-0002

APPENDIX A

Iowa Association of Electric Cooperatives
A Touchstone Energy® Cooperative

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Dec. 31, 2008

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Ms. Judi Cooper
Executive Secretary
Iowa Utilities Board
350 Maple St.
Des Moines, Iowa 50319-0069

Subject: Joint Progress Report on Energy Efficiency Potential for Member Rural Electric Cooperatives Pursuant to Iowa Code 476.6 subsection 16 bb. (3)

Dear Ms. Cooper:

Enclosed please find an original and three copies of the Iowa Association of Electric Cooperatives' joint progress report on energy efficiency pursuant to Iowa Code 476.6 subsection 16 bb (3). This code, in part, states that individual utilities or groups of utilities may collaborate in conducting the studies required and may file a joint report or reports with the Board. This joint progress report is being filed on behalf of 39 electric cooperatives which, as a group, provide retail electric service in all 99 Counties in Iowa.

Iowa Code 476.6 subsection 16 bb (1) requires electric utilities that are not required to be rate regulated under chapter 476 to assess the potential energy and capacity savings available from actual and projected customer usage through cost-effective energy efficiency measures and programs, taking into consideration the utility service area's historic energy load, projected demand, customer base and other relevant factors. Each utility must establish an energy efficiency goal based upon this assessment of potential and must establish cost-effective energy efficiency programs designed to meet the energy efficiency goal. Separate goals may be established for various customer groupings.

Iowa Code 476.6 subsection 16 bb (3) states that each utility shall commence the process of determining its cost-effective energy efficiency goals on or before July 1, 2008, and shall provide a progress report to the Iowa Utilities Board on or before Jan. 1, 2009. This report is being filed to satisfy those requirements. The final energy efficiency report that must be submitted to the Iowa Utilities Board on or before Jan. 1, 2010 will include the utility's cost-effective energy efficiency goals, descriptions of programs offered to meet those goals, and evaluations of the projected cost-effectiveness of the proposed portfolio of programs. The cost-effectiveness tests utilized by each utility or group of utilities will be utilized in accordance with section 476.6, subsection 14.

Executive Overview

The Iowa Association of Electric Cooperatives commenced the process, on behalf of its member utilities May 2, 2008 with a meeting, related to the assessment of potential process for energy efficiency with legal and technical consultants. This was the initial collaboration meeting for the Iowa Association of Electric Cooperatives (IAEC) related to energy efficiency for this assessment of potential.

The IAEC is using a qualified independent third-party consultant to assist in the assessment of potential. The IAEC consultant will aggregate the results of the potential assessments of the member cooperatives into a statewide Iowa rural electric cooperative energy efficiency assessment. The potential assessments that are underway for the member cooperatives are initially being conducted at the Generation and Transmission cooperative (G&T) level to reflect critical differences in avoided costs. The G&Ts have engaged qualified independent third-party consultants to assess energy efficiency potential for the distribution cooperatives that comprise their membership. This integrated approach of assessments is being completed based on the unique characteristics of each G&T group. While there are some similarities between rural electric cooperatives in Iowa there also are some significant differences that impact energy efficiency potential.

The IAEC has also been collaborating throughout 2008 with the member-consumers of the board of directors and the management teams of rural electric cooperatives in Iowa. The IAEC, in January 2008, conducted workshops across the state of Iowa related to energy efficiency for directors and the management teams of Iowa rural electric cooperatives. These workshops offered information on understanding the policy changes related to energy efficiency; an energy efficiency management primer; and issues in developing a stronger energy efficiency portfolio.

The 2008 IAEC district meetings and the Board Presidents' and managers' summer conference were two other key collaboration meetings related to energy efficiency. The collaboration with the management teams has involved leveraging the various IAEC conferences such as managers' conferences, accountants' conferences, communicators' and member service conferences. Additionally, IAEC has been participating in energy efficiency meetings being held at the various G&Ts.

The IAEC also has been participating in industry, regional and national meetings, workshops and webinars related to energy efficiency in an effort to assess additional opportunities for energy efficiency and to assist Iowa's electric cooperatives in the assessment of potential process and to improve existing program offerings. These meetings include working with various organizations in an effort to leverage federal funds for energy efficiency for Iowans through the Farm Bill and other federal programs. Additionally, the IAEC has been monitoring the activities before the Iowa Utilities Board related to energy efficiency for the for-profit investor-owned utilities. These activities provide information as to where the for-profit investor-owned utilities are investing their energy efficiency dollars and where they are achieving the most savings for these dollars invested.

The information from the various meetings is incorporated into the assessment of potential process.

I. Progress Report Roadmap

The remainder of this progress report identifies the cooperative study sponsors and their load composition and relative sizes in Section II. Section III then briefly compares the cooperatives to the rest of the Iowa electric sector. Energy efficiency definitions used for the cooperative study are presented in Section IV followed by a brief summary of Iowa cooperatives energy efficiency offerings in Section V. The methodologies being used for assessment of potential are outlined in Section VI with illustrative segmentation results to date presented in Section VII. The approaches that will be used for cost-effectiveness testing and estimation of achievable potential are documented in Section VIII. Brief descriptions of the goal-setting process and time lines that are envisioned for development of the Energy Efficiency reports to be filed by Jan. 1, 2010 are included in Sections IX and X.

The progress report is intended to provide useful insight into the nature of cooperative electric loads and to highlight some of the unique challenges in developing energy efficiency offerings for these loads. Findings to date and a complete outline of the planning process that is being followed also are provided.

II. Cooperative Study Sponsors

Table 1 2007 Sales by Class and Total Meters by Cooperative

(Sorted by residential customer class percentage)

		% of System kWhs Consumed by Member Group			
	Distribution Cooperatives	Residential	Small Commercial & Industrial	Large Commercial & Industrial	Total Meters
1.	Grundy Electric Cooperative, Inc.	100%	0%	0%	273
2.	Pleasant Hill Community Line	100%	0%	0%	105
3.	United Electric Cooperative, Inc.	100%	0%	0%	558
4.	Allamakee Clayton Elec. Coop., Inc.	91%	9%	0%	9,474
5.	Calhoun County Electric Coop. Assn.	88%	6%	6%	1,668
6.	Maquoketa Valley Electric Cooperative	85%	12%	3%	14,832
7.	Woodbury County Rural Electric Cooperative	83%	17%	0%	3,096
8.	Pella Cooperative Electric Association	76%	14%	11%	2,762
9.	Butler County Rural Elec. Coop.	76%	13%	11%	5,061
10.	Southwest Iowa Rural Electric Cooperative	74%	22%	3%	5,840
11.	Guthrie Co. Rural Electric Cooperative Assn.	73%	12%	15%	4,619
12.	Lyon Rural Electric Cooperative	72%	18%	10%	1,987
13.	Atchison Holt Electric Coop.	71%	29%	0%	1,180
14.	Southern Iowa Electric Cooperative, Inc.	70%	19%	10%	4,768
15.	Clarke Electric Cooperative, Inc.	70%	29%	1%	5,176
16.	East-Central Iowa Rural Electric Coop.	70%	26%	5%	8,393
17.	Hawkeye REC	67%	32%	0%	6,551
18.	Western Iowa Power Cooperative	67%	9%	24%	5,539
19.	Consumers Energy Cooperative	67%	28%	5%	5,271
20.	Humboldt County Rural Electric Cooperative	61%	22%	17%	1,879
21.	Linn County Rural Electric Coop. Assn.	60%	23%	18%	22,733
22.	Harrison County Rural Electric Cooperative	59%	5%	36%	3,613
23.	Chariton Valley Electric Cooperative, Inc.	56%	36%	8%	5,999
24.	Sac County Rural Electric Cooperative	56%	25%	18%	1,040
25.	North West Rural Electric Cooperative	55%	17%	28%	9,343
26.	T. I. P. Rural Electric Cooperative	53%	30%	16%	6,195
27.	Osceola Electric Cooperative, Inc.	51%	12%	37%	1,199
28.	Franklin Rural Electric Cooperative	51%	25%	24%	1,926
29.	Boone Valley Electric Coop.	49%	51%	0%	115
30.	Access Energy Cooperative	49%	15%	36%	8,803
31.	Farmers Electric Coop., Inc. - Greenfield	46%	13%	41%	4,849
32.	Nishnabotna Valley Rural Electric Coop.	45%	10%	44%	3,832
33.	Eastern Iowa Light & Power Cooperative	45%	6%	49%	23,219
34.	Heartland Power Cooperative	44%	13%	43%	5,222
35.	Midland Power Cooperative	43%	10%	48%	9,356
36.	Iowa Lakes Electric Cooperative	34%	21%	46%	12,077
37.	Grundy County Rural Electric Cooperative	31%	14%	55%	2,320
38.	Glidden Rural Electric Coop.	30%	17%	53%	1,695
39.	Prairie Energy Cooperative	26%	19%	55%	4,276

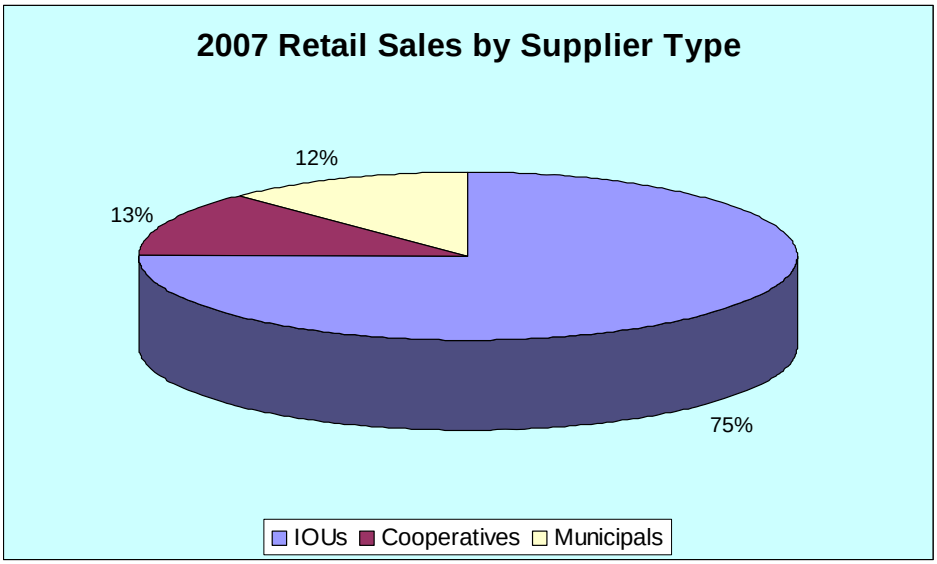
Source: Iowa Utilities Board website.

Table 1 lists the cooperatives who are participating in this joint progress report. The size differences across the participant organizations and the variation in composition of load also are evident in Table 1. Customer counts vary by more than 85 times while the share of sales to residential consumers varies from 26 percent to 100percent. These and other distinctive system characteristics will impact the assessment of potential energy efficiency savings, program offerings and goals.

III. Cooperative Profile As Part of Iowa's Electric Sector

As shown in Figure 1, electric sales in Iowa are dominated by for-profit investor-owned utilities with a 75 percent share while cooperatives and municipal electric utilities roughly split the remaining 25 percent.

Figure 1

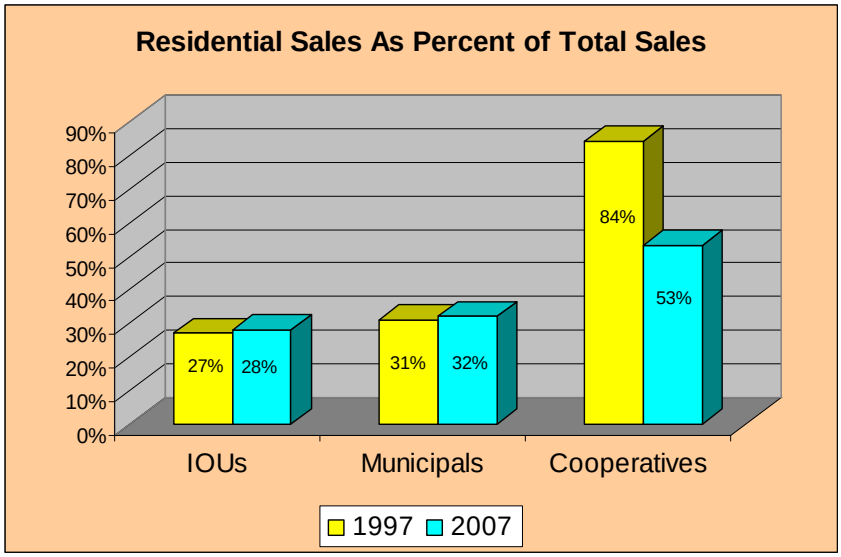


Source: Data from Iowa Utilities Board website

Several distinctive features of Iowa's electric cooperatives have significant influence on their opportunities to promote energy efficiency programs. Key distinctions include:

- Many investor-owned utilities and municipal systems provide both natural gas and electric service to their customers while Iowa cooperatives almost universally focus exclusively on electric supply.
- The most common heating fuel for most cooperative members is propane supplied by independent organizations.
- As shown in Figure 2, cooperative sales have historically been dominated by the residential class which is in strong contrast to the other Iowa electric service providers. In the past decade, these differences have narrowed considerably but are still substantial. The relatively rapid growth of cooperative sales to commercial and industrial (C&I) customers over the past decade suggests that C&I facilities served by cooperatives are relatively new and probably more efficient than the older facilities served by other providers.

Figure 2



Source: Annual reports filed with the Iowa Utilities Board.

IV. What Is Energy Efficiency?

Although the 2008 Iowa legislation that requires potential studies and report filings is broadly referred to as Energy Efficiency, the specific requirements clearly address reductions in both peak demands and total energy requirements. Clear definition of the kinds of load modification to be addressed is an essential prerequisite to agreement on the goals that are adopted.

Iowa Code 476.6 subsection 16 bb (2) states:

> Energy efficiency programs shall include efficiency improvements to a utility infrastructure and system and activities conducted by a utility intended to enable

> or encourage customers to increase the amount of heat, light, cooling, motive power or other forms of work performed per unit of energy used. In the case of a municipal utility, for purposes of this paragraph, other utilities and departments of the municipal utility shall be considered customers to the same extent that such utilities and departments would be considered customers if served by an electric or gas utility that is not a municipal utility. Energy efficiency programs include activities which lessen the amount of heating, cooling or other forms of work which must be performed, including but not limited to energy studies or audits, general information, financial assistance, direct rebates to customers or vendors of energy efficient products, research projects, direct installation by the utility of energy efficient equipment, direct and indirect load control, time of use rates, tree planting programs, educational programs and hot water insulation distribution programs.

In accordance with this definition, the Iowa cooperative studies are focusing on both reduced energy input per unit of useful work performed and cost-effective changes in the time pattern of energy use.

V. Brief Cooperative Energy Efficiency History

Iowa's electric cooperatives have a strong historical commitment to energy efficiency and have been achieving commendable results from their energy efficiency programs. Rural electric cooperatives have been reporting energy efficiency information to the Iowa Utilities Board since 1992. The most recent filing was made in July 2008.

Rural electric cooperatives' energy efficiency programs, incentives and educational tools can be classified in four major categories:

- Incentive programs to promote energy-efficient technologies – This includes 37 programs and energy-efficient technologies in the areas of residential cooling and heating, residential lighting, residential water heating, residential appliances, efficient home incentives, and agriculture, commercial and industrial.
- Demand-response programs – This includes 14 programs in the areas of load control, time-of-day pricing for residential and nonresidential customers, crop drying and irrigation.
- Energy audit and technical support programs – This includes three residential and nonresidential programs.
- Educational and research programs – This includes six education and research programs for residential and nonresidential consumers.

Attached Appendix A is a matrix showing the program offerings reported in the IAEC joint energy efficiency filing from July 2008 filing for each cooperative for the years 2008 or 2009.

The assessments of remaining potential are expected to build upon this positive track record of energy efficiency offerings.

VI. Assessment of Potential Process

IAEC Role in the Assessment of Potential Process

The Iowa Association of Electric Cooperatives is coordinating an assessment of demand side management (DSM) energy efficiency potential and cost-effectiveness with evaluations developed by an independent third party consultant for each G&T group. There are six G&T groups. The Iowa Association of Electric Cooperatives plans to aggregate the results into a statewide REC assessment of potential with assistance from a third-party consultant. This approach allows widespread involvement in the process while assuring consistency of inputs and evaluation methodologies. It also exploits economies of scale while fully recognizing distinct avoided cost projections for various power suppliers and other unique system characteristics. The achievable potential estimates and cost-effectiveness results at the G&T level will provide the basis for goal setting by each of the 39 member cooperatives.

The Iowa Association of Electric Cooperatives coordination efforts to date have included:

- Participation in several meetings between the G&Ts, their member systems, and their consultant;
- Provision of training sessions for, and presentations to, cooperative Boards to build awareness and support for energy efficiency programs;
- Working with key implementation staff from the distribution cooperatives including managers, accountants, office managers, communicators, and member service personnel who have one-on-one contact with the member-consumers; and,
- Initiatives to improve cooperative accounting procedures for monitoring and verification of savings estimates.

The Iowa Association of Electric Cooperatives also is coordinating the interface with the Iowa Utilities Board during preparation of the cooperative energy efficiency assessment as exemplified by participation in:

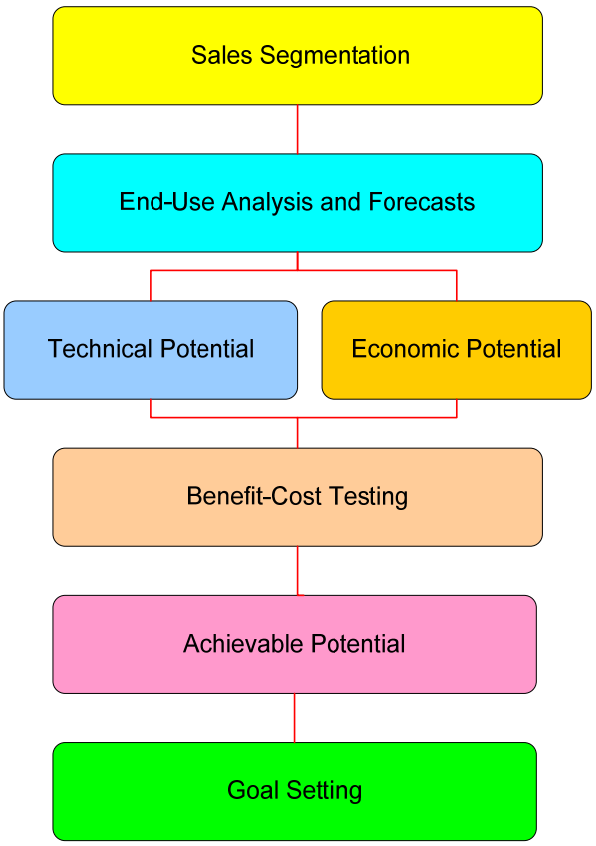
- An August 27, 2008 meeting with IUB staff to discuss the process being used for assessment of potential;
- A July 15, 2008 meeting between Linn County Rural Electric Cooperative, the IUB and the Consumer Advocate to discuss energy efficiency program offerings; and,
- Post-meeting sharing of the results of these meetings with member cooperatives.

Finally, the Iowa Association of Electric Cooperatives has been monitoring a variety of sources of data and methods that contribute to the cooperative energy efficiency assessments and providing supporting data to the consultants preparing the cooperative studies. The sources that have been considered include but are not limited to: reports and filings of other utilities, research reports to legislative bodies and national organizations; and applicable laws and regulations.

Potential Assessment Process

Figure 3 summarizes the primary process being used in the collaborative potential assessment. System and class sales data must be further disaggregated to begin sizing the energy efficiency opportunities that are available at this time and over the planning horizon covered in the energy efficiency report to be filed on January 1, 2010. Wherever it is practical to do so, existing survey data is being used to categorize sales by end use in a way that aligns with the Iowa Utility Association's study results for Iowa IOUs. This is being done separately for the household components of the residential classes for the G&T groups that comprise the collaborative cooperative project. End use forecasts for these household components are then prepared for 2018 to tie to the IOU estimates of technical and economic potential for each household end use as a percent of sales to those end uses. The primary purpose of these theoretical estimates of technical and economic potential is to prioritize the end uses for which specific measures and programs will be identified and subjected to detailed benefit-cost testing. The detailed benefit-cost evaluations quantify the estimates of achievable potential at the G&T level that will be used to support goal-setting by the individual distribution cooperatives. The analysis of achievable potential includes direct consideration of the number of new and replacement additions of appliances that can be anticipated in each year and the impact of proposed incentives on those selections.

Figure 3 Potential Assessment Process

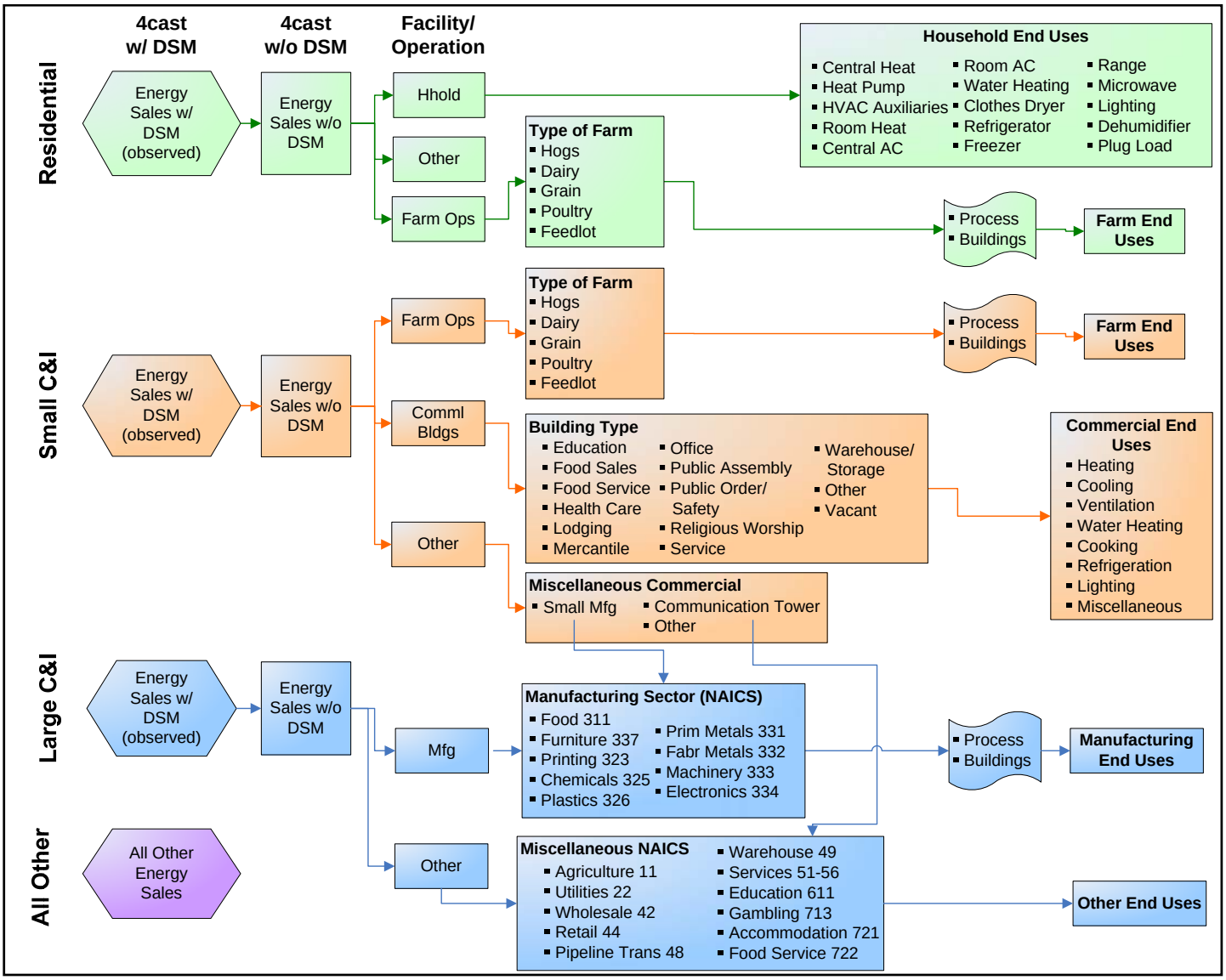


Sufficient current cooperative data is very limited to support development of end-use models for segments other than residential households. For farm operations (regardless of revenue class), small

commercial and industrial (SCI), and large commercial and industrial (LCI) accounts, 2007 sales have been segmented based on available survey responses and analyses of specific account data by each of the member distribution cooperatives.

Figure 4 provides an illustrative overview of the sales segmentation analyses being developed at the G&T level. End-use analyses that are being considered also are shown although the determination of what can be done here depends centrally on the relative importance of these sectors and the availability of sufficient data to reasonably forecast sales at this level of detail. Until the segmentation analyses are complete, we will not be certain of the extent of the end-use analyses that are justified.

Figure 4 Illustrative G&T Segmentation



VII. Illustrative Segmentation Results

Residential Segmentation

Figure 5 below provides an illustration of the kinds of loads that are found in the residential class for a sample of three Iowa G&T cooperatives. Typically, household usage is dominant but farm load also is substantial within this revenue class. Miscellaneous small loads such as separately metered well pumps also are commonly found in the residential class.

Figure 5 Residential Segmentation

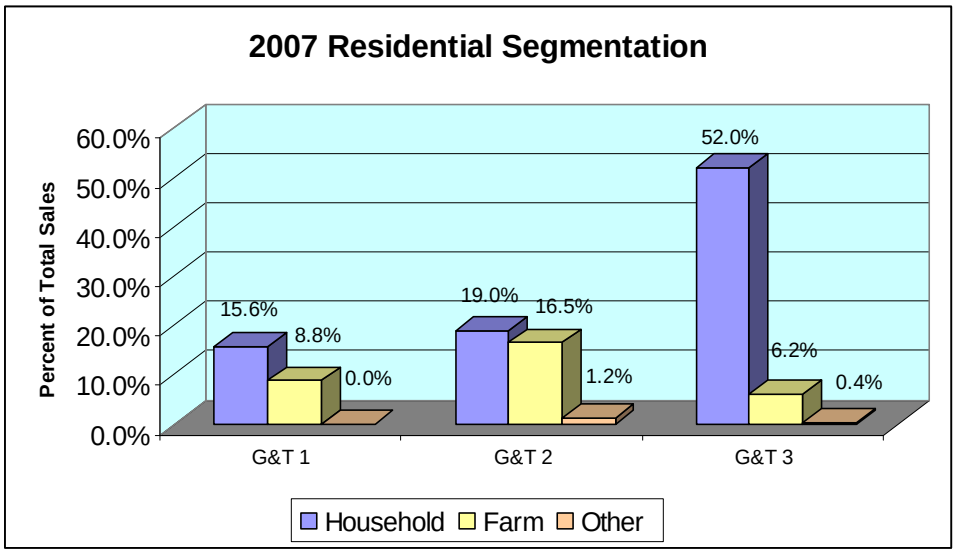
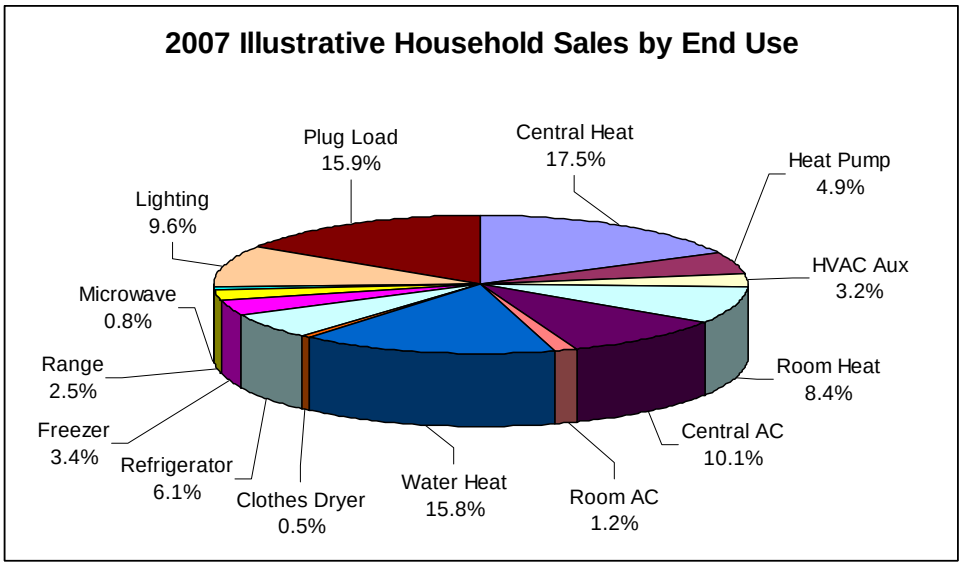


Figure 6 further disaggregates the 2007 household usage by specific end-use for one of the G&T groups. The dominant end-uses identify the priority targets for detailed benefit-cost analysis of measures and programs related to those end-uses. Although the household sector relative to total sales varies significantly across the groups, the end-use shares of household sales are similar to the example shown in Figure 6 for each group. The dominance of space heating systems, central A/C, water heating, refrigeration and lighting is evident and provides sound guidance in selecting the measures/programs for detailed benefit-cost analysis to establish achievable potential estimates.

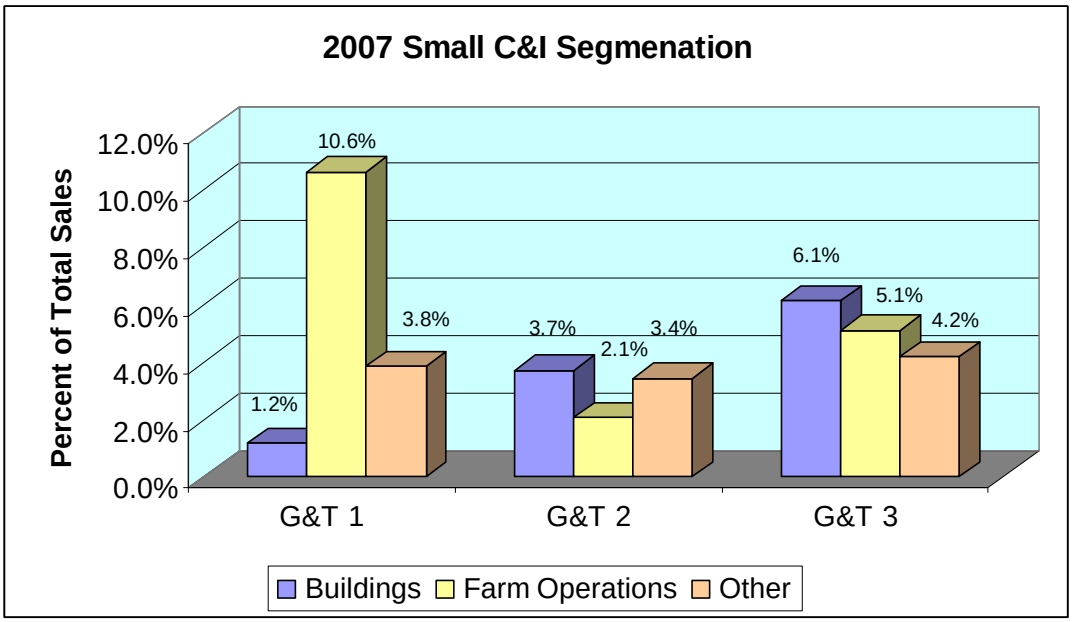
Figure 6 Household Segmentation



Small Commercial & Industrial (SCI)[1] Segmentation

The SCI loads for cooperatives differ dramatically across systems and compared to IOU and Municipal systems. As shown in Figure 7, farm operations are often included in this class as well as in the residential class. Swine and poultry operations are the largest sectors within the SCI farm operations sectors. The conventional view of SCI loads as commercial buildings like those characterized by the Commercial Building Energy Consumption (CBECS) data developed by the U.S. Department of Energy apply to relatively small sectors for Iowa cooperatives. Mercantile and lodging are the largest components of the building sector but typically only account for about 1.0 percent of total sales. The other category shown in Figure 7 contains small manufacturing operations and many communications facilities such as cell towers.

Figure 7

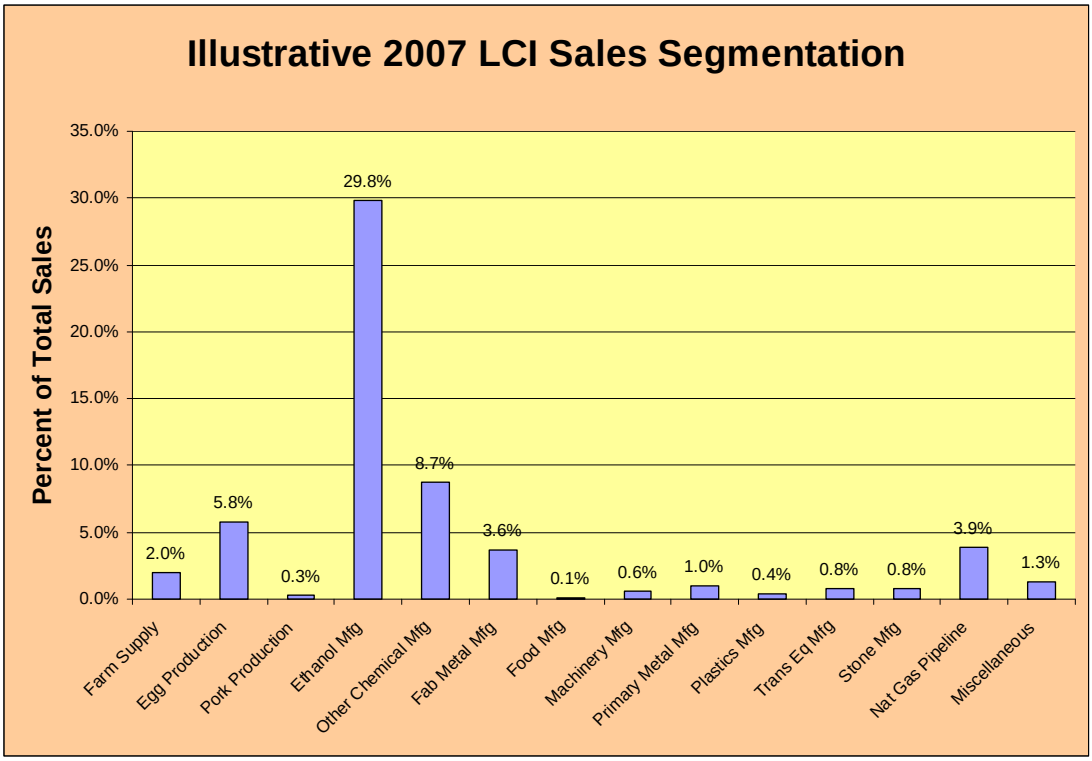


[1] SCI is typically defined to include accounts 1,000 KVA or less of connected load consistent with Rural Utilities Service Revenue Classifications.

Large Commercial&Industrial (LCI)[2] Segmentation

Although LCI loads account for more than half of the 2007 sales for two of the G&T groups and more than 20percent for a third, the total number of facilities served is only about 200. Very large ethanol plants are an example of the kinds of large, high-tech operations of very recent vintage that are found in this cooperative segment. The most useful classification scheme for these loads uses the national system of NAICS[3] coding. The composition of the LCI class varies substantially across the various cooperative groups. An illustrative split by NAICS codes is presented in Figure 8. For this particular G&T group, ethanol plants account for almost 30 percent of total sales compared to 18.2 percent and 1.6 percent for two of the other G&T groups. Even casual inspection of the composition of the LCI loads for the various G&T groups will reveal substantial diversity of load types that may make it impractical to offer standardized energy efficiency programs across G&T groups. It would likely be even less practical for each distribution cooperative to offer standard LCI programs. Energy efficiency offerings for these kinds of loads will need to be tailored to needs that can only be identified through energy audits of specific facilities. Of course, some standard lighting or efficient motor programs may be appropriate for this class and would be available. The difficult challenge, however, lies in attempting to quantify the potential savings availabe to these loads absent adequate energy audit data.

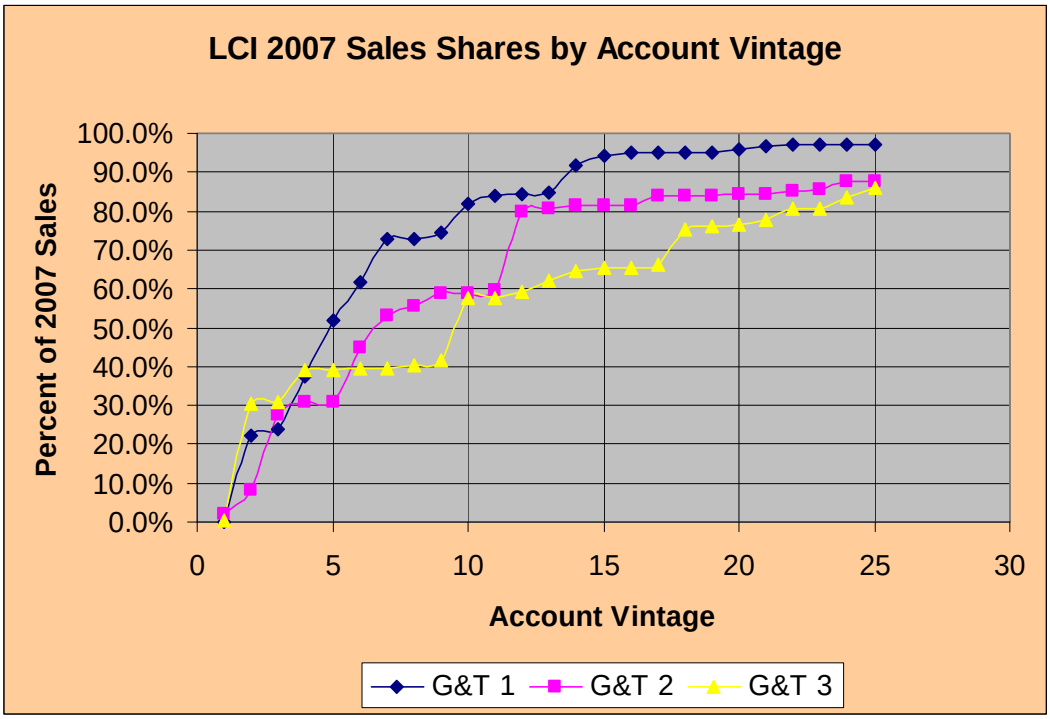
Figure 8



[2] LCI is typically defined as greater than 1,000 KVA of connected load consistent with Rural Utilities Service Revenue Classifications.
[3] North American Industrial Classification System. Classification at the 6-digit level appears to be the most useful wherever sufficient data are available.

In assessing the potential for energy efficiency improvements for cooperative LCI loads, it is important to recognize the recent genesis of these kinds of loads on cooperative systems. Figure 9 summarizes an account vintage analysis showing the percent of 2007 LCI sales that are to accounts of various ages for three sample G&T groups. Between 30 percent and 52 percent of 2007 LCI sales are to accounts that first came on line within the last five years. LCI loads that first came on line within the last decade account for between 60 and 80 percent of 2007 sales.[4] In general, new production facilities incorporate energy efficient technologies particularly with the emphasis that has been placed on energy in recent years both nationally and in Iowa. Potential improvements for recent vintage loads is believed to be much more limited than for older facilities.

Figure 9



[4] This analysis actually overstates the age of accounts by using the initial online date for each account. Many of these accounts began with a much smaller facility and then had single or multiple expansions as markets for their products grew rapidly recently.

VIII. Cost-Effectiveness Testing

As shown in Figure 3, the sales segmentation analyses by class for each G&T group are intended to provide broad indicators of the highest potential sectors. Programs and measures that address those high priority targets will then be subjected to detailed benefit-cost testing to develop quantitative estimates of achievable potential that will guide the goal-setting process.

The benefit-cost models for each of the high-priority programs will be prepared by third party consultants with G&T staff subsequently extending these models to test additional programs. Benefit-cost models prepared by staff will be reviewed by the consultants to assure consistency of methods and inputs.

The consultant models estimate benefits and costs on a life-cycle basis over a time horizon equal to the life of the proposed program plus the average life of the measure being tested. Benefits and costs represent incremental differences between baseline and program future scenarios. Comparison on a "before and after" basis is sometimes interesting but is generally not relevant for benefit-cost testing. The focus here must be on differences in future consumer choices that can be attributed to the incentives being offered by the cooperatives. "Before and after" analysis is often contrasted against "with and without" analysis in distinguishing these alternative analytic approaches. The only significant case where both methods would yield similar results would occur when appliances are replaced with more efficient units before the end of their expected lives. However, the incentive required to induce this behavior by many consumers is typically cost prohibitive. More commonly, the end user choices that can be influenced by utility promotional programs occur at the end of an appliance life. This allows estimation of the choices that can be expected in each future year as a primary guide to estimates of achievable potential.

In developing the benefit-cost models, the following definitions from the Iowa Administrative Code have been used to guide the cost-effectiveness testing:

Societal test means an economic test used to compare the present value of the benefits to the present value of the costs over the useful life of an energy-efficiency measure or program from a societal perspective. Present values are calculated using a 12-month average of the 10-year and 30-year Treasury Bond rate as the discount rate. The average shall be calculated using the most recent 12 months at the time the utility calculates its benefit/cost tests for its energy-efficiency plan in subrule 35.8(6). Benefits are the sum of the present values of the utility avoided supply and energy costs including the effects of externalities.[5] Costs are the sum of the present values of utility program costs (excluding customer incentives), participant costs, and any increased utility supply costs for each year of the useful life of the measure or program. The calculation of utility avoided capacity and energy and increased utility supply costs must use the utility costing periods.[6]

[5] In accordance with the existing Iowa Code, externalities are being calculated using a 10percent adder on both energy and capacity costs in lieu of more complex and speculative estimates of costs related to generation and delivery of electricity.

[6] Unlike most rate-regulated utilities, most cooperatives are unlikely to have established utility costing periods that have been previously approved in rate hearings. Variations in supply costs will be recognized to the extent that reasonable estimates can be made of both the cost variations and the time pattern of the load reductions associated with a given energy efficiency or demand response program.

Utility cost test means an economic test used to compare the present value of the benefits to the present value of the costs over the useful life of an energy-efficiency measure or program from the utility revenue requirement perspective. Present values are calculated using the utility's discount rate. Benefits are the sum of the present values of each year's utility avoided capacity and energy costs (excluding the externality factor) over the useful life of the measure or program. Costs are the sum of the present values of the utility's program costs, customer incentives, and any increased utility supply costs for each year of the useful life of the measure or program. The calculation of utility avoided capacity and energy and increased utility supply costs must use the utility costing periods.

The typical cooperative ownership and organizational structure divides generation and transmission functions from retail sales of electricity with all-requirements contracts and wholesale rates connecting the two parties. To properly reveal the positions of all stakeholders, this requires that the utility cost tests include separate analyses of the G&T versus the collective group of member systems.

Participant test means an economic test used to compare the present value of benefits to the present value of costs over the useful life of an energy-efficiency measure or program from the participant's perspective. Present values are calculated using a discount rate appropriate to the class of customers to which the energy-efficiency measure or program is targeted. Benefits are the sum of the present values of the customers' bill reductions, tax credits, and customer incentives for each year of the useful life of an energy efficient measure or program. Costs are the sum of present values of the customer participation costs (including initial capital costs, ongoing operations and maintenance costs, removal costs less a salvage value of existing equipment, and the value of the customer's time in arranging installation, if significant) and any resulting bill increases for each year of the useful life of the measure or program. The calculation of bill increases and decreases account for any time-differentiated rates to the customer or class of customers being analyzed to the extent that this impacts results significantly.

Ratepayer impact measure (RIM) test means an economic test used to compare the present value of the benefits to the present value of the costs over the useful life of an energy-efficiency measure or program from a rate level or utility bill perspective. Present values are calculated using the utility's discount rate. Benefits are the sum of the present values of utility avoided capacity and energy costs (excluding the externality factor) and any revenue gains due to the energy-efficiency measures for each year of the useful life of the measure or program. Costs are the sum of the present values of utility increased supply costs, revenue losses due to the energy-efficiency measures, utility program costs, and customer incentives for each year of the useful life of the measure or program. The calculation of utility avoided capacity and energy, increased utility supply costs, and revenue gains and losses must use the utility costing periods.

In determining the cost-effectiveness of specific programs and of their complete portfolio of offerings, cooperatives will consider all of these tests to assure an equitable sharing of net benefits without excessive negative influences on any constituency.

IX. Goal Setting

Benefit-cost testing of specific programs will be prepared separately for each G&T group to recognize key differences in avoided costs, system differences and possible differences in program costs and incentive offerings. The benefit-cost analyses include annual estimates of the expected participants in each DSM energy efficiency program. The goal-setting process for individual member distribution cooperatives will require each member system to set their goals so that the sum of member goals corresponds reasonably with the estimates of achievable potential for their G&T.

X. Anticipated Timelines

At this time, the segmentation analyses for three collaborative G&T groups are being finalized while responses to data requests are being prepared for two more groups. Estimates of technical and economic potential for the dominant household end-uses have been developed for four of the five G&T groups in the collaborative. Responsive programs for those priority end-uses are now being selected and data collection for the related benefit cost-testing has begun. Household end-use modeling is now being prepared for the fifth collaborative G&T group. The most challenging tasks remaining in the potential assessment relate to quantification of farm potential and for the large, complex and heterogeneous LCI loads.

The overall process and timeline will allow for fact-based decision making and establishment of energy efficiency goals for each rural electric cooperative based upon their unique system characteristics and member-consumers served. It will also assist in identifying the cost-effective energy efficiency programs that can be offered by each rural electric cooperative.

The timeline being used by the RECs for this assessment of potential for the most part mirrors the overall timeframe the IUB uses for the for-profit investor-owned utilities. Significant work and study is already underway and each cooperative participating in this joint filing has committed significant resources to ascertain its potential and set its goals accordingly. The final report for the RECs will be submitted by Jan. 1, 2010 as required and will include specific cooperative goals and programs that are expected to achieve those goals.

Respectfully,

Regi Goodale
Director of Regulatory Affairs

cc: Iowa Utilities Board Members (1 copy each)
John Perkins OCA (3 copies)
IDNR (1 copy)
Office of Energy Independence (1 Copy)

		Programs offered by Cooperative A Total of 37 IAEC Member Cooperatives	Total	Access Energy Cooperative	Allamakee-Clayton Electric Cooperative, Inc.	Boone Valley Electric Cooperative	Butler County REC	Calhoun County Electric Cooperative Assoc.	Chariton Valley Electric Cooperative, Inc.	Clarke Electric Cooperative, Inc.	Consumers Energy	East-Central Iowa REC	Eastern Iowa Light & Power Cooperative	Farmers Electric Cooperative (K)	Farmers Electric Cooperative, Inc. (G)	Franklin REC	Glidden REC	Grundy County REC	Grundy Electric Cooperative, Inc. (Mo.)	Guthrie County REC	Harrison County REC	Hawkeye REC	Heartland Power Cooperative	Humboldt County REC	Iowa Lakes Electric Cooperative	Linn County REC	Lyon Rural Electric Cooperative	Maquoketa Valley Electric Cooperative	Midland Power Cooperative	Nishnabotna Valley REC	North West REC	Osceola Electric Cooperative, Inc.	Pella Cooperative Electric Association	Prairie Energy Cooperative	Sac County REC	Southern Iowa Electric Cooperative, Inc.	Southwest Iowa Rural Electric Cooperative	T.I.P. REC	Western Iowa Power Cooperative	Woodbury County REC
		2007 TOTAL RETAIL METER COUNT	215,650	8,803	9,474	115	5,061	1,668	5,999	5,176	5,271	8,393	23,219	653	4,849	1,926	1,695	2,320	273	4,619	3,613	6,551	5,222	1,879	12,077	22,733	1,987	14,832	9,356	3,828	9,343	1,199	2,762	4,276	1,040	4,768	5,840	6,195	5,539	3,096
I. Incentive Programs for Energy Efficient Technologies																																								
1		***Residential Cooling & Heating***	**36**	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	1.1	Energy Star Air Conditioning Incentive			X		X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	X	X		X	X		X			X	X	X	X	X	X	X
	1.2	Energy Star Qualified Room Air Conditioner Incentive		X	X		X	X	X	X	X	X	X		X	X	X	X	X	X			X	X	X			X	X			X		X	X	X	X	X		
	1.3	Geothermal Incentive		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	1.4	Air Source Heat Pump Incentive		X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	1.5	Heat Recovery Ventilators									X	X	X		X					X						X		X	X								X			
	1.6	High Efficiency Zoned Electric Heat					X	X					X				X					X							X					X	X					
2		***Residential Lighting***																																						
		Interior Lighting	**37**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	2.1	Change a Light Rebate Program		X			X	X		X	X	X	X		X	X	X	X		X	X			X	X	X		X	X	X	X		X	X	X	X	X	X	X	X
	2.2	Local CFL Rebate Program(s)		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		X	X	X	X	X		X	X		X
	2.3	CFL Recycling		X							X		X			X	X				X	X	X	X	X					X	X		X	X		X				
		Exterior Lighting	**34**	X	X		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
	2.4	High Efficiency Exterior Lighting Incentives		X	X			X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
	2.5	LED Holiday Lighting Incentives					X	X								X						X	X		X				X					X						
3		***Residential Water Heating***	**36**	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	3.1	High Efficiency Water Heater Incentives		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	3.2	Drainwater Heat Recovery System										X	X		X					X						X		X									X			
	3.3	Flow Restrictors:		X			X	X								X	X	X	X					X	X			X	X					X	X					
		3.3.1 Flow Restrictors - Faucet		X			X	X								X	X	X						X	X			X	X					X						
		3.3.1 Flow Restrictors - Shower		X			X	X								X	X	X	X					X	X			X	X					X	X					
	3.4	Heat Pump Water Heater Incentives		X						X		X	X		X					X						X		X	X								X			
4		***Residential Appliances***	**20**	X	X					X	X	X	X		X		X	X	X	X		X	X			X		X	X			X				X	X	X		
	4.1	Energy Star Qualified Clothes Washer		X	X					X	X	X	X		X		X	X	X	X		X	X			X		X	X			X				X	X	X		
	4.2	Energy Star Qualified Dishwasher		X						X	X	X	X		X		X	X	X	X		X	X			X		X	X							X	X	X		
	4.3	Energy Star Qualified Refrigerator			X					X	X	X	X		X		X	X		X		X	X			X		X	X			X					X	X		
	4.4	Energy Star Qualified Dehumidifier								X							X	X					X																	
	4.5	Refrigerator Removal / Recycling																					X			X		X												
	4.6	Replacement of Old Freezer with Energy Star Freezer															X	X					X					X				X								
5		***Efficient Home Incentives***	**30**	X	X		X		X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X	X	X	X		X	X
	5.1	Loans for Efficiency Improvements		X	X		X		X		X		X			X	X	X	X	X	X	X	X	X	X			X	X	X	X			X	X	X				
	5.2	Energy Efficient Home Construction Rebates								X	X	X							X	X		X	X			X		X	X				X				X		X	X
6		***Agriculture/Commercial & Industrial***	**37**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	6.1	Change a Light Rebate Program		X			X	X		X	X	X	X		X	X	X	X		X	X		X	X	X	X		X	X		X		X	X		X	X	X	X	X
	6.2	High Efficiency Interior Lighting Incentives		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		X	X	X	X	X		X	X		
	6.3	High Efficiency Exterior Lighting Incentives		X	X		X	X	X	X	X	X	X		X		X	X		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
	6.4	Energy Star Air Conditioning Incentive			X		X	X	X	X	X	X	X		X	X	X	X		X		X	X	X	X	X		X	X					X		X	X	X	X	X
	6.5	Geothermal Rebate Program		X	X		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X
	6.6	Air Source Heat Pump Incentive		X	X		X	X	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X
	6.7	Heat Recovery Ventilators								X	X	X	X		X					X			X		X	X		X									X			
	6.8	Premium Motors Rebate Program			X					X	X	X	X		X			X		X			X	X	X	X		X	X		X			X			X			
	6.9	Adjustable Speed Drive Motor Incentive			X					X	X	X	X		X			X		X		X	X	X	X	X		X	X		X			X			X			
	6.10	Dairy Pre-coolers Incentive								X	X	X	X		X					X		X	X			X		X	X								X	X		
	6.11	Livestock Ventilation Fans			X					X	X	X	X		X					X		X	X			X		X	X								X	X		
	6.12	Dairy Heat Reclaimer			X						X	X	X		X							X	X			X		X	X								X	X		
	6.13	High-Efficiency Water Heater Incentive			X	X	X	X	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X
	6.14	Custom Rebate Program		X	X		X	X														X	X	X	X	X		X												
II. Demand Response Programs			**34**	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
7		Water Heater Load Control			X			X			X			X			X	X	X		X	X	X	X	X		X			X	X	X		X					X	X
8		Water Heater Storage			X		X	X			X					X						X	X	X										X						
9		Air Conditioning Load Control			X						X								X			X	X							X	X	X							X	X
10		Space Heating Load Control (Interruptible)			X						X										X	X	X							X	X								X	X
11		Residential Time-of-Day Price									X	X	X									X	X*			X												X		
12		Time-of-Use—Heat Plus								X	X	X	X		X					X		X				X		X	X				X				X	X		
13		Dual-Fuel (also called Electric Thermal) Storage Space Heating and Air Conditioning			X		X	X			X					X	X		X			X	X	X				X			X			X	X					
14		Dual-Fuel Space Heating																				X	X				X			X	X	X							X		X
15		*Crop Drying*			X					X	X										X	X	X		X		X				X	X								X
	15.1	Off Peak Pricing								X	X											X	X		X															
	15.2	Load Control			X																X	X	X				X				X	X								X
16		*Irrigation*			X		X						X								X		X				X				X	X							X	X
	16.1	Time of Use Pricing					X						X																											
	16.2	Load Control			X																X		X				X				X	X							X	X
17		Commercial and Industrial Time-of-Day Price					X			X	X		X			X				X		X	X	X		X		X	X				X				X	X		
18		Industrial Interruptible Price		X	X		X	X			X		X		X	X	X					X	X		X	X			X	X	X			X			X	X		
III. Energy Audit & Technical Support Programs			**36**	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
19		Expert Energy Services (Agricultural & C&I) *		X	X		X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X		X	X		X		X	X	X	X	X	X		X
20		Energy Audit Services (Residential) *		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
21		DARP Program		X			X				X												X	X				X							X					
IV. Educational & Research Programs			**37**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
22		Model Housing Education			X		X	X		X	X	X				X	X	X		X		X	X	X	X	X		X	X					X	X					
23		Domestic Water Heater Enhancement								X								X		X		X	X	X								X			X						
24		Member Information and Education		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
25		Peak Alert		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
26		Living with Energy in Iowa		X	X	X	X	X	X	X	X			X	X	X	X	X		X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	
27		Iowa Energy Center and Center for Global Regional Environmental Research & Cooperative Research Network		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		TOTALS		29	38	7	35	32	20	38	47	35	41	12	37	31	36	35	20	38	23	45	54	36	35	39	21	46	42	19	33	24	22	35	24	23	37	32	23	27

An "X" represents that the cooperative offered a program in 2008 or 2009

*Heartland is running a pilot program for Time of Day/Time of Use pricing

Source: IAEC Joint Energy Efficiency Filing with IUB and OCA dated 7/1/08 and Coop Websites

APPENDIX B

Demand Response Programs

Iowa distribution cooperatives offer a wide variety of demand response programs that are coordinated through their power suppliers. This section summarizes the status of demand response programs and provides a qualitative assessment of the benefits and costs of those programs for each G&T. Given the common history and focus of the demand response programs at NIPCO and L&O, they have been combined for this discussion.

Associated

Associated Electric Cooperative does not offer any coordinated load management programs at this time. A number of the member cooperatives have elected to offer their own programs or are evaluating the feasibility of offering such programs. Several Iowa members have recently introduced pilot time-of-use style rates. We are currently not counting any kWh or kW savings from these rates although they are ultimately expected to result in lower peak demand. The effects of these programs are being studied and savings will be included in future filings based on the results of those studies.

NIPCO and L&O

NIPCO and L&O both obtain the majority of their power supply from Basin Electric. The traditional Basin wholesale rate features relatively high demand charges and lower energy charges with demand billing based on the monthly coincidental peaks.[1] This rate structure provides strong incentives to minimize coincidental monthly peaks which are major billing determinants for the Basin monthly power bills to NIPCO and to L&O. In response to those incentives, both NIPCO and L&O have well-established direct load control programs which are summarized in Table 1. With this portfolio of programs, both G&Ts have the capability to reduce load in every month of the year to reduce their demand charges from Basin. NIPCO estimates annual power cost savings in excess of $2.0 million from their direct load control system.

Table 1 NIPCO and L&O Load Control Capability

		NIPCO 2010		L&O 2007	
Load Control Programs	Seasonal Availabilty	Units	Pot'l kW Redn	Units	Pot'l kW Redn
Water Heaters	Annual	13,816	7,235	1,512	786
Central AC	Summer	8,708	6,372	126	92
Interruptible Space Heat	Winter	9,481	42,672		
Dual Fuel Space Heat	Winter	1,929	11,574	153	918
Irrigation	Summer	536	3,561	12	80
Crop Drying	Fall	82	154.17	17	32
C&I Interruptible	Annual	5	3,351		
Note: Excludes smaller TOU pricing programs for which load reductions are uncertain					

[1] There is a difference between the distribution cooperative perspectives for L&O and NIPCO. Lyon and Osceola buy power from L&O which buys power from Basin and from WAPA. The L&O rate to Lyon and Osceola is then a blended Basin and WAPA rate with somewhat lower demand and somewhat higher energy charges than the pure Basin rate. However, the incentives to minimize coincidental monthly peaks remain strong for both NIPCO and L&O.

The operating philosophy for both systems is to use load control for a limited number of hours each month in ways that eliminate or minimize the perceptible impacts on end user participants in the program. As a result, the participation rates and customer satisfaction are very high and attrition is very low. For the water heater and CAC programs, most participants are unaware of when they are being controlled. These programs have been promoted by tying water heater and CAC rebates for energy efficient units to an agreement that those units will be controlled. In addition, NIPCO members offer rate incentives while Lyon and Osceola offer monthly bill credits to participants.

While there can be little doubt that these programs offer substantial net economic benefits from societal, utility, participant and non-participant perspectives, neither NIPCO nor L&O maintain all of the data necessary to develop the benefit-cost ratios for each of their demand response programs. The following qualitative discussions of each benefit-cost test illustrate the challenges in quantitative evaluation of these programs:

Societal Test – The benefits for this test include the avoided demand costs plus an externality adjustment of 10% as specified in Iowa. The existing load control communication technology and switches at end user premises are approximately 20 years old for both systems and are fully depreciated. The systems continue to function without notable reduction in effectiveness due to failures or user interventions. System replacements are being considered in the context of synergistic deployments with AMI capability but neither schedules nor investment costs have been firmly established. During the period of continued use of the existing system, measurable costs are limited to hardware maintenance which is minimal plus program administration. Other possible costs for this test would include the cost to operate back-up generation or alternative heating systems during control periods and reduced comfort or lost production due to interruptions. These are unknown to NIPCO and L&O but the lack of attrition in the programs suggests that these costs are not substantial. Annual savings in excess of $2.0 million for NIPCO compared to measurable costs that do not exceed one tenth of that, show that these programs are in the public interest.

Utility and RIM Test – Benefits for the Utility test are the same as for societal test except externalities are excluded and a higher discount rate is used to calculate present values. The costs for the utility test include the maintenance and administration costs from the societal test plus the incentives paid to end users. Since the systems are operated to minimize, if not eliminate, loss of comfort to the end user participants, incentive payments are kept well below the savings to the utility based on avoided power supply costs. Again the only serious benefit-cost testing for these systems will come when system replacement investments are deemed advantageous. As long as utility payments to participants are kept below avoided costs less O&M costs for the load control system, revenue requirements will decrease as a result of this program and the RIM test will show positive net benefits.

Participant Test – Benefits to participants will equal the incentives paid by the utility which may be an upfront payment to join the program, a rate reduction for those in the program or a monthly payment. The intended operation of the system would result no noticeable impact on water heater and AC participants. In those cases, costs are zero and participant B-Cs are infinite if any incentive has been paid. Even if incentives are discontinued, both benefits and costs would then

be zero. For other control programs that may involve use of back-up generation or alternative heating systems, the incentive merely needs to cover the costs of those alternatives for 100 to 200 hours per year that control is used. Thus, the participant test should easily be met.

Corn Belt

Corn Belt has recently chosen to purchase power from Basin and thus faces a very similar rate structure as NIPCO which provides strong incentives to minimize monthly coincident peaks. The major difference for Corn Belt is that they do not have a load control system in place. However, they have been intensively evaluating the feasibility of installing direct load control technology. Corn Belt is included in the successful grant application by the Cooperative Research Network of the National Rural Electric Cooperative Association. This $65 million grant from USDOE will allow Corn Belt to deploy a load management system for about 60% of the total investment cost. The most recent evaluation suggests that a DLC system would produce savings in purchase costs from Basin from control of water heaters and CAC units that are between two and three times the present value of investment, incentive, and operating costs of the system. This assumes 50% participation of eligible water heater and CAC end users which is well below the penetration rates that have been achieved by NIPCO and L&O. The load control studies are now being refined to establish clearer implementation strategies and benefit estimates plus refined project schedules tied to the USDOE procurement and funding possibilities.

At the same time, Corn Belt has installed distributed generation on their system that totals between 15 and 20 percent of their peak load. Feasibility studies are exploring the most advantageous possible use of that resource either as a supplement or an alternative to direct load control

Corn Belt's final decisions on direct load control versus DG will be made within the next few months as the feasibility studies are completed and the available DOE support is clarified. While Corn Belt is convinced that one of the alternative forms of demand reduction will be implemented, any detailed calculations of benefits and costs for this filing will soon be superseded.

Dairyland Power Cooperative (DPCI3)

The three Iowa cooperatives served by Dairyland (DPCI3) actively participate in well-established load control programs using a fully depreciated communication and control system. In this respect, the benefits and costs for their demand response programs are very similar to those discussed above for NIPCO and L&O. The primary difference lies in Dairyland's avoided costs which are tied to specific capacity expansion plans and possible market purchases rather than to a wholesale rate from Basin.

The participation in DPCI3 load control programs and potential load reductions are presented in Table 2. For water heaters and CAC, the three DPCI3 coops have about 38 percent of the control capability of the six NIPCO systems. DPCI3 energy requirements are about 50% of those for the NIPCO systems. Slightly less penetration of DLC for DPCI3 is reasonable since DPC's avoided costs are more heavily weighted toward energy than NIPCO's. From a benefit cost perspective, a pro-rata evaluation compared to NIPCO would suggest that DLC for DPCI3 is easily justified from each of the stakeholder perspectives. With NIPCO avoided costs estimated at more than

$2.0 million per year pro rata adjustments for differences in potential control and for differences in avoided demand costs would suggest a DPCI3 avoided cost in the range of $1.2 million per year. That would easily cover the maintenance and administrative costs for the control system that is in place.

Table 2 DPC Load Control Capability 2010

		DPCI3	
Load Control Programs	Seasonal Availabilty	Units	Pot'l kW Redn
Water Heaters	Annual	9,213	4,791
Water Heater Storage	Annual	295	295
Central AC	Summer	65	47
Interruptible Space Heat	Winter	1,301	5,856
Dual Fuel Space Heat	Winter	1,046	6,276
Irrigation	Summer	0	
Crop Drying	Fall	27	51
C&I Interruptible	Annual	0	
Note: Excludes smaller TOU pricing programs for which load reductions are uncertain			

Central Iowa Power Cooperative (CIPCO)

The cost effectiveness for this measure was determined at the time the rate was developed. The rates are established based on the power supplier avoided costs and include the reduction in costs due to interruptible load.

The costs shown for the interruptible rate program include the entire amount of rate discounts applied to the interruptible customers. Only a portion of these costs can actually be attributed to savings from the interruptible portion of the load. A portion of these rate discounts reflect the lower cost to serve the higher load factor and power factor loads that are typical of these interruptible customers.