

Analysis of the Illinois Natural Gas Self Directing Customers Program for the years 2011-2012 and 2012-2013

Prepared For:

Illinois Department of Commerce and Economic Opportunity

500 East Monroe Street
Springfield, Illinois 62701

Prepared By:

Energy Resources Center

University of Illinois at Chicago

1309 South Halsted Street

Chicago, Illinois 60607

May 19th, 2015

Patrick Brown

prbrown@uic.edu

(312)966-5055

Stefano Galiasso

sgalia2@uic.edu

(312)996-8646



Illinois
Department of Commerce
& Economic Opportunity



ERC
ENERGY RESOURCES CENTER

Contents

1. Program Overview	3
1.1 Background:	3
1.2 Purpose of this Report:	5
2. Analysis of SDC Customer reports.....	5
2.1 Self-Directing Customers evaluation criteria	5
2.2 Financial Information analysis	7
2.3 Energy Efficiency Information analysis.....	10
3. Project Verification	17
3.1 Statistical approach.....	17
4. Program Recommendations and Feedback.....	18
4.1 Program Recommendations.....	18
4.1.1. Standardized report format.....	18
4.1.2. Measurement and Verification (M&V) protocol	19
4.1.3. Frequently asked questions (FAQs)	20
4.1.4. Case Study list.....	21
5. Conclusions	22

1. Program Overview

1.1 Background:

The Illinois Department of Commerce and Economic Opportunity (DCEO) is administering the Natural Gas Self-Directing Customer (SDC) program as authorized in Section 8-104(m)¹ of the Public Utilities Act 220 ILCS 5.

The Act specifically states that:

- Power plants using natural gas are exempt from Section 8-104.
- Large gas users (those with NAIC code numbers beginning with 31, 32, or 33 and annual usage > 4 million Therms in a single utility territory or > 8 million Therms statewide) may apply to DCEO to be designated a “Self-Directing Customer” (SDC Customer) under the Illinois Energy Efficiency Portfolio Standard (EEPS).
- Customers that use 60% or more of their natural gas as a feedstock may also apply to be an “Exempt Customer” not required to participate in EEPS Program.

According to Section 8-104 (m) (1), SDC approved Customers must:

- Establish and maintain an energy efficiency reserve account and accrue funds in the account for the purpose of funding, in whole or in part, energy efficiency measures of the customer’s choosing
- Contribute annually to the energy efficiency reserve account a minimum amount equal to 2% of the customer’s cost of natural gas (composed of the customer’s commodity cost and the delivery service charges paid to the gas utility), or \$150,000, whichever is less.
- Annually report to DCEO on the status of the reserve account (verifying that the financial obligations were met), providing a description of the energy efficiency measures undertaken utilizing the funds in the account, providing the estimated energy savings gained by implementing the energy measures, and providing

¹ Legislation text available online at <http://www.ilga.gov/legislation/ilcs/fulltext.asp?DocName=022000050K8-104>

verification that the funds withdrawn from the account were in fact utilized for the energy efficiency measures.

- The annual reports are to be submitted by October 1st of each year beginning no sooner than October, 2012 covering the 12-month period ending May 31st of the same year.

During the first 3 years of the program, DCEO activities consisted of reviewing and approving SDC Customer applications, informing the approved applicants of their requirements under the law, and collecting the annual reports from the approved applicants. The law authorized DCEO to audit projects completed with SDC Customer funds, but did not specifically call for evaluation of the energy savings. DCEO and other stakeholders agreed that Evaluation, Measurement & Verification (EM&V) of SDC Customer projects would be valuable but it was not clear whether EEPS funds could be used for this purpose.

DCEO sought clarification to utilize EEPS funds to conduct EM&V activities in the filing to the Illinois Commerce Commission (ICC) for approval of DCEO's Public and Low Income Sector Energy Efficiency Plan 3 (for years 2014-2017).

In ICC e-docket 13-0499 issued on January 28th, 2014, the ICC clarified that the DCEO has the right to audit SDC Customers, verify energy savings and report annually to the Illinois Stakeholder Advisory Group (SAG). The Commission also clarified that the DCEO can use EEPS funds for these efforts. Since the ICC order applies to the specific portfolio of projects and programs beginning June 1st, 2014 and ending May 31st, 2017, ongoing EM&V protocols will be expanded to the SDC program moving forward starting with natural gas program year 4 (beginning June 1st, 2014).

1.2 Purpose of this Report:

The Energy Resources Center, located at the University of Illinois at Chicago (ERC) was tasked by the DCEO to provide an engineering review of the reports submitted by the SDC Customers during program year 1 (June 1st, 2011 through May 31st, 2012) and program year 2 (June 1st, 2012 through May 31st, 2013) of the SDC Program. Program year 3 reports (June 1st, 2013 through May 31st, 2014) were not available at the time of this activity.

The ERC was asked to:

- 1) Evaluate the completeness of the reports in terms of the requirements placed on the participants by 220 ILCS 5/8-104(m).
- 2) Perform a randomly selected sample of site verifications to assess the implementation of the energy efficiency projects reported by the SDC participants.
- 3) Based on an analysis of the results of the site visits and the reports submitted by the SDC Customers, provide any conclusions and recommendations to DCEO as they move forward with the SDC program in program years 4 through 6.

2. Analysis of SDC Customer reports

2.1 Self-Directing Customers evaluation criteria

For the purposes of evaluating the completeness of the reports provided to DCEO by the SDC Customers, the certification requirements have been divided into 6 separate criteria, as described below:

Criterion #1: The SDC Customer established a stand-alone energy efficiency reserve fund for the purpose of meeting and tracking the financial requirements of the SDC program.

Criterion #2: The SDC Customer verified funding levels being equal to 2% of the customer's cost of natural gas or \$150,000 (whichever is less) for use on the SDC program. Several companies stated that deposits into an account were made,

however no balances or account information was provided and Criterion #1 could not be satisfied.

Criterion #3: The SDC Customer provided to the DCEO detailed financial information (deposits / withdrawals) regarding the energy efficiency reserve fund.

Criterion #4: The SDC Customer provided adequate descriptions of the energy efficiency measures implemented with funds from the energy efficiency reserve fund.

Criterion #5: The SDC Customer estimated the energy savings to be realized by implementing each of the defined energy efficiency measures.

Criterion #6: The SDC Customer verified that energy efficiency reserve funds were used for the implementation of the energy efficiency measures

Criteria 1-through-3 can be grouped into a table strictly related to financial information, while criteria 4-through-6 can be grouped into a table related to energy efficiency information. In PY1, of the 29 companies that elected to become Self-Directing Customers, DCEO received 28 reports. In PY2, two additional companies elected to become Self-Directing Customers and DCEO received 30 reports. One company which did not send in reports was kicked out after the second year of the program and is not included in this report.

ERC reviewed all of the reports that were made available to DCEO by the Self-Directing Customers. The tables below summarize the findings from the reports, divided by each criterion:

- Tables 1 and 2 address the financial criteria for PY1 and PY2
- Tables 3 and 4 address the energy efficiency criteria for PY1 and PY2

2.2 Financial Information analysis

Table 1: PY1 SDC Customers accounting requirements

PY1 Self-Directing Customer Name	Crit.1: Established Reserve Account	Crit.2: Verified reserve funds of 2% OR \$150K	Crit.3: Provided detailed accounting information (Deposits / Withdrawals)
SDC 1	YES	YES, \$39,573	YES
SDC 2		YES, \$150,000	
SDC 3	YES	YES, \$150,000	YES
SDC 4	YES	YES, \$113,228	
SDC 5	YES	YES, \$150,000	
SDC 6		YES, \$150,000	
SDC 7	YES	YES, \$150,000	
SDC 8		YES, \$150,000	
SDC 9	YES	YES, \$112,911	
SDC 10	YES	YES, \$150,000	YES
SDC 11	YES	YES, \$95,168	YES
SDC 12		YES, \$150,000	
SDC 13	YES	YES, \$150,000	
SDC 14	YES	YES, \$83,326	YES
SDC 15		YES, \$104,422	
SDC 17	YES	YES, \$96,050	YES
SDC 18		\$92,700	YES
SDC 19	YES	YES, \$111,765	YES
SDC 20	YES	YES, \$41,633	YES
SDC 21	YES	YES, \$150,000	YES
SDC 22		YES, \$150,000	
SDC 23	YES	YES, \$50,961	YES
SDC 24	YES	YES, \$150,000	
SDC 25			
SDC 26	YES	YES, \$41,050	YES
SDC 27	YES	YES, \$116,955	
SDC 29		YES, \$150,000	
SDC 30		YES, \$150,000	

Table 2: PY2 SDC Customers accounting requirements

PY2 Self-Directing Customer Name	Crit.1: Established Reserve Account	Crit.2: Verified reserve funds of 2% OR \$150K	Crit.3: Provided detailed accounting information (Deposits / Withdrawals)
SDC 1		YES, \$40,350	
SDC 2		YES, \$150,000	
SDC 3		YES, \$150,000	
SDC 4	YES	YES, \$86,342	
SDC 5		YES, \$150,000	
SDC 6		YES, \$150,000	
SDC 7	YES	YES, \$150,000	
SDC 8		YES, \$150,000	
SDC 9	YES	YES, \$120,565	
SDC 10	YES	YES, \$150,000	YES
SDC 11		\$80,118	
SDC 12		YES, \$150,000	
SDC 13	YES	YES, \$150,000	
SDC 14		\$91,446	
SDC 15		\$72,002	
SDC 16 ²			
SDC 17	YES	YES, \$87,459	YES
SDC 18		\$92,700	YES
SDC 19	YES	YES, \$49,572	YES
SDC 20	YES	YES, \$41,633	
SDC 21	YES	YES, \$150,000	YES
SDC 22		YES, \$150,000	
SDC 23	YES	YES, \$48,823	YES
SDC 24	YES	YES, \$150,000	
SDC 25			
SDC 26	YES	YES, \$33,487	YES
SDC 27	YES	YES, \$115,669	
SDC 28 ²			

² Denotes SDC Customer that joined in PY2

SDC 29			
SDC 30		YES, \$150,000	

Table 1 and Table 2 are summarized below:

- Criterion #1 – Established a reserve account: 64% of companies showed evidence of a reserve account in PY1, and 43% in PY2. Some SDC Customers reported the amount of money set aside and accrued over the two years, but did not provide any account information and were not considered to have met this requirement. There was confusion from several companies as to how much information they actually had to provide to meet this requirement.
- Criterion #2 – Verified 2% or \$150K in reserves: 93% of companies reported accruals of \$150,000 and/or proved 2% accrual for PY1, and 73% for PY2. Fifteen (15) companies in PY1 and thirteen (13) companies in PY2 reported deposits of \$150,000 for the year. Of the remaining companies, twelve (12) SDC Customers reported a 2% accrual and proved it via natural gas bills in PY1, and nine (9) SDC Customers for PY2. The remaining SDC Customers either did not report anything in terms of accrual, or reported a 2% amount without verification. The total funds reported accrued in PY1 is \$3,199,742, and the total funds reported accrued in PY2 is \$2,910,166.
- Criterion #3 – Verified deposits / reductions: Only 43% of SDC Customers in PY1 and 23% of SDC Customers in PY2 reported deposits and reductions of the reserve account balances by month, a number significantly lower than the previous two requirements.

2.3 Energy Efficiency Information analysis

Table 3 – PY1 SDC Customers energy efficiency reporting requirements

PY1 Self-Directing Customer Name	Crit.4: Described EE measures	Crit. 5: Estimated Energy Savings	Crit.6: Verified funds expended towards EE
SDC 1			
SDC 2	YES	YES	
SDC 3	YES	YES	YES
SDC 4	YES	YES	
SDC 5			
SDC 6	YES	YES	
SDC 7	YES	YES	
SDC 8	YES	YES	YES
SDC 9	YES	YES	
SDC 10	YES	YES	YES
SDC 11	YES		
SDC 12			
SDC 13			
SDC 14			
SDC 15	YES		
SDC 17	YES	YES	YES
SDC 18			
SDC 19			
SDC 20			
SDC 21	YES	YES	
SDC 22	YES		
SDC 23			
SDC 24	YES	YES	YES
SDC 25	YES	YES	YES
SDC 26	YES	YES	YES
SDC 27	YES	YES	YES
SDC 29	YES	YES	YES
SDC 30	YES	YES	

Table 4 – PY2 SDC Customers energy efficiency reporting requirements

PY2 Self-Directing Customer Name	Crit.4: Described EE measures	Crit. 5: Estimated Energy Savings	Crit.6: Verified funds expended towards EE
SDC 1			
SDC 2	YES	YES	YES
SDC 3	YES	YES	YES
SDC 4	YES	YES	
SDC 5	YES	YES	
SDC 6	YES	YES	
SDC 7			
SDC 8	YES	YES	
SDC 9	YES	YES	
SDC 10	YES		
SDC 11	YES		
SDC 12	YES		YES
SDC 13	YES	YES	
SDC 14			
SDC 15	YES	YES	
SDC 16 ³	YES	YES	
SDC 17	YES	YES	YES
SDC 18			
SDC 19	YES		YES
SDC 20			
SDC 21	YES	YES	
SDC 22	YES	YES	
SDC 23			
SDC 24			
SDC 25	YES	YES	
SDC 26	YES	YES	YES
SDC 27	YES		
SDC 28 ³			
SDC 29	YES	YES	

³ Denotes SDC Customer that joined in PY2

SDC 30			
--------	--	--	--

Table 3 and 4 can be summarized below:

- Criterion #4 – Described energy efficiency measures: 68% of SDC Customers in PY1 and 70% of SDC Customers in PY2 described the energy efficiency measures implemented. Self-Direct Customers are not required to implement energy efficiency measures each year, they are only required to spend a portion of the reserve account on energy efficiency measures sometime during the first three years of their participation in the program. Several companies chose to accrue funds for the full three year duration of the program, and chose to implement projects in year three of the program (not verified or evaluated in this report).
- Criterion #5 – Estimated energy savings: Of the SDC Customers who implemented energy efficiency measures and described the measures undertaken in their annual reports (19 in PY1 and 21 in PY2), 84% reported estimated savings in PY1 and 80% in PY2. The total annual savings reported for the program was 11,195,460 Therms and \$7,914,167 for PY1 and PY2. These numbers are flawed due to some companies only reporting Therm savings or \$ savings for projects, instead of both. The ERC used a rate of \$0.45 per Therm which was derived from US EIA data for the industrial sector for the state of Illinois. Natural gas fluctuated between \$0.45 and \$0.54 depending on time of year. For the purposes of this report, \$0.45 was selected due to SDC Customers being large industrial clients with discounted rates. This rate was then used to estimate the total Therms and \$ savings reported when one or the other value wasn't included in a report. The total estimated savings reported for the program was 23,930,251 Therms and \$10,717,569 for PY1 and PY2. With the reported cost for projects to be \$19,207,448, the estimated cost per therm saved is \$0.80. The estimated cost per therm saved using only SDC funding is \$0.21. These values compare favorably with the current custom incentive being offered through the DCEO Illinois Energy Now Program of \$3.00/therm saved. See

Table 6 for a detailed summary on all projects reported. The numbers in red font are the savings estimated by the ERC.

- Criterion #6 – Verified funds expended towards energy efficiency: 47% of SDC Customers who reported energy efficiency projects and 25% of SDC Customers who reported EE projects met this criterion and were able to verify that the funds accrued in the energy reserve were actually spent in the measures reported.

In summary:

Table 5 – Summary of all projects done by each company. Estimated values are in red.

SDC Customer	Project	Natural Gas Savings (therms)	Annual Savings	SDC Customer Total Project Cost	SDC Funds Spent ⁴
SDC 1	No measures				
SDC 2	Project 1	269,982	\$80,994	\$249,000	\$150,000
	Project 2	340,558	\$153,251	\$166,498	\$150,000
SDC 3	Project 1	546,000	\$245,700	\$416,234	\$158,564
	Project 2	1,963,151	\$883,418	\$123,930	\$123,930
	Project 3	613,673	\$276,153	\$17,506	\$17,506
SDC 4	Project 1	159,317	\$71,693	\$134,479	\$113,228
	Project 2	230,760	\$103,842	\$269,410	\$86,342
SDC 5	Project 1	310,300	\$139,635	\$120,660	\$120,660
SDC 6	Project 1	86,000	\$38,700	\$383,000	\$300,000
	Project 2	7,600	\$3,420	\$108,000	
	Project 3	77,380	\$34,821	\$186,000	
	Project 4	13,750	\$6,188	\$10,000	
	Project 5	24,050	\$10,823	\$60,000	
	Project 6	13,750	\$6,188	\$10,000	
SDC 7	Project 1	333,333	\$150,000	\$1,000,000	\$150,000
SDC 8	Project 1	151,203	\$83,162	\$138,000	
	Project 2	340,197	\$187,108	\$482,000	\$150,000
	Project 3	165,000	\$74,250	\$102,000	
	Project 4	140,000	\$63,000	\$158,000	\$150,000
SDC 9	Project 1	242,343	\$109,054	\$20,528	\$20,528
	Project 2	323,530	\$145,589	\$91,930	\$91,930
SDC 10	Project 1	50,384	\$22,673	\$2,452	\$2,452
	Project 2	346,667	\$156,000	\$31,241	\$31,241
	Project 3	732,762	\$426,000	\$662,939	\$266,307
SDC 11	Project 1	210,000	\$99,246	\$278,150	\$95,168
	Project 2				
	Project 3				
	Project 4			\$32,220	\$32,220
SDC 12	Project 1			\$121,698	\$121,698
SDC 13	Project 1			\$86,453	\$86,453

⁴ Values in the last column in red were reported but not verified via account transfer information which was required for Criterion #3.

	Project 2	3,227,660	\$1,291,000	\$1,379,000	\$213,547
SDC 14	No measures				
SDC 15	Project 1	147,751	\$66,488	\$67,347	\$67,347
	Project 2	353,333	\$159,000	\$104,400	\$104,400
SDC 16	Project 1	1,930	\$869	\$9,206	\$150,000
SDC 17	Project 1	1,311,830	\$590,324	\$2,462,938	\$96,050
	Project 2				
	Project 3	1,396,780	\$628,551	\$224,864	\$87,459
	Project 4				
SDC 18	No measures				
SDC 19	Project 1	131,647	\$59,241	\$175,000	\$161,337
SDC 20	No measures				
SDC 21	Project 1	352,020	\$158,409	\$826,353	\$300,000
	Project 2	51,550	\$23,198	\$6,029	
	Project 3	218,810	\$98,465	\$73,027	
	Project 4	256,970	\$115,637	\$760,000	
	Project 5	11,290	\$5,081	\$23,795	
	Project 6	67,250	\$30,263	\$150,000	
	Project 7	99,680	\$44,856	\$46,333	
SDC 22	Project 1	77,778	\$35,000	\$150,000	\$150,000
	Project 2	20,000	\$9,000	\$84,356	\$150,000
	Project 3	20,000	\$9,000	\$32,709	
	Project 4	200,000	\$90,000	\$43,200	
SDC 23	No measures				
SDC 24	Project 1	3,901,302	\$1,755,586	\$1,978,500	\$150,000
	Project 2	73,233	\$32,955	\$805,000	\$150,000
SDC 25	Project 1	1,435,276	\$645,874	\$1,876,730	
	Project 2	607,984	\$273,593	\$446,628	
SDC 26	Project 1	33,900	\$16,000	\$64,409	\$41,050
	Project 2	175,063	\$78,778	\$165,175	\$33,487
SDC 27	Project 1	31,111	\$14,000	\$9,864	\$14,842
	Project 2			\$4,978	
	Project 3				
SDC 28	Project 1	179,570	\$80,807	\$162,679	\$150,000
SDC 29	Project 1	787,873	\$354,543	\$1,134,465	\$150,000
	Project 2	668,262	\$300,718	\$309,975	\$150,000
SDC 30	Project 1	398,708	\$179,419	\$168,160	\$168,160
Reported Totals	63 Total Projects	11,195,460	\$7,914,167	\$19,207,448	\$1,414,551
Estimated Totals⁵	63 Total Projects	23,930,251	\$10,717,569	\$19,207,448	\$4,905,906

⁵ Totals include estimates for natural gas and dollars based on a rate of \$0.45 per therm for companies which reported only one of the two statistics.

Table 6 – Summary of statistics on criteria required for SDC Customers

SDC Customers Criteria	Percentage of SDC Customers who met criterion in PY1	Percentage of SDC Customers who met criterion in PY2
Established a reserve account	64%	43%
Verified 2% OR \$150K	93%	73%
Deposits / Withdrawals information	43%	23%
Described EE measures	68%	70%
Estimated Energy Savings ⁶	84%	80%
Verified funds expended towards EE ⁶	47%	25%

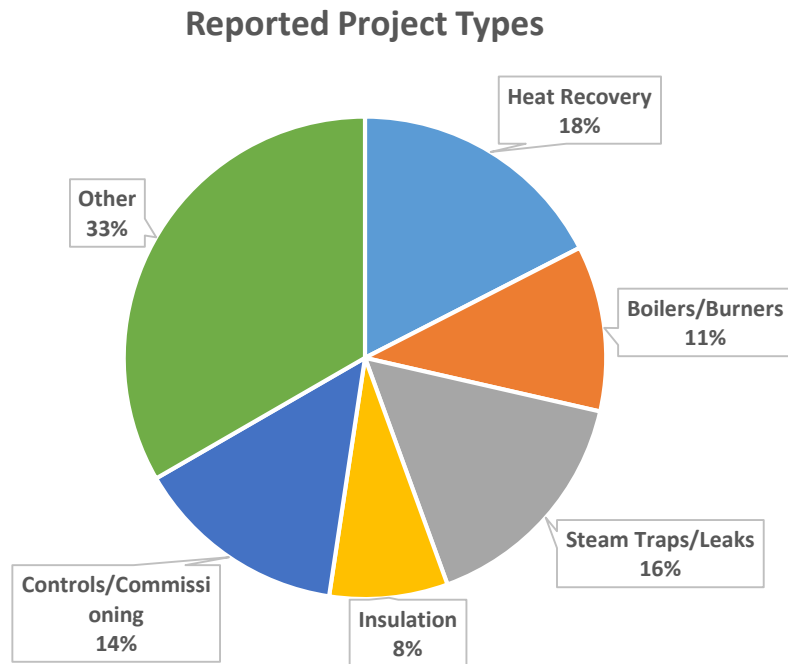


Figure 1: Breakdown of SDC reported project types

⁶ Percentages in these rows do not include companies which did not report energy efficiency projects.

Reported Cost by Project Type

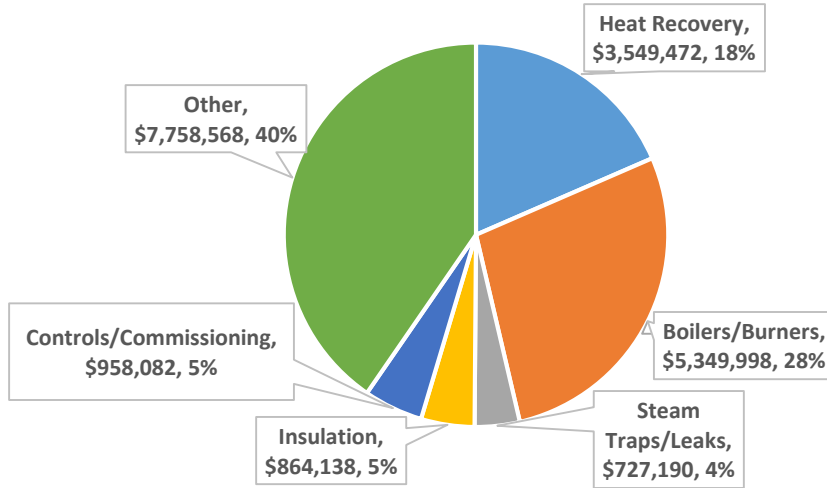


Figure 2: Breakdown of SDC cost reported by project type

Estimated Annual Savings by Project Type

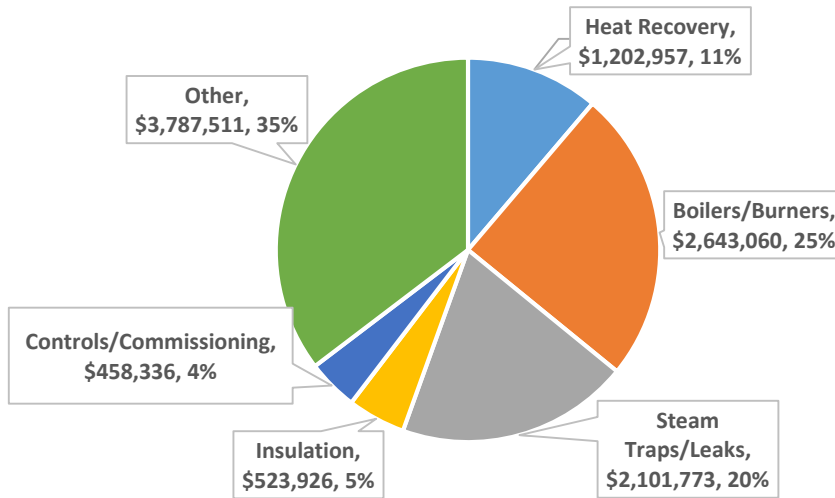


Figure 3: Breakdown of SDC estimated annual savings reported by project type

3. Project Verification

3.1 Statistical approach

A few assumptions have been made before carrying out site verifications:

- All SDC Customers can be considered to belong to the same market sector (large industrial customers)
- Each report is considered a unique project, in which multiple EE measures may have been implemented without interactive effects between EE measures contained in the same report, or for different reports among the same SDC Customer
- EE measures that SDC Customers reported are not time dependent, meaning that whether a measure was implemented in PY1 or PY2, the savings associated with the measure are solely dependent on the measure itself

Based on these assumptions, it is safe to consider a homogeneous population of EE measures reported by SDC Customers in both PY1 and PY2. Assuming that each report is a project, the population adds up to 58 reports. ERC determined that, based on the population size and the time constraints of the analysis, started in June 2014 and ended in November 2014, a randomly selected sample of twenty (20) reports would lead to a confidence level of 85% with an interval of confidence of $\pm 15\%$, also indicated as 85/15. The objective of each site visit was to verify that each EE measure described in the SDC Customer reports was actually implemented.

Each SDC Customer selected for random verification was contacted in the same way. At first, a letter was sent from DCEO indicating the intent to verify EE measures reported in the SDC Customer reports. Then, the point of contact indicated in the SDC Customer application to DCEO was contacted by phone to schedule a site visit. Non-Disclosure Agreements (NDA) were signed as necessary. Thanks to the SDC Customers' collaboration, ERC staff was able to visit seventeen of the randomly selected projects, with the remaining three stating no visit was necessary as nothing was implemented.

4. Program Recommendations and Feedback

4.1 Program Recommendations

The ERC has compiled a list of recommendations to improve the program based on observations and feedback from SDC participating Customers. ERC's recommendations are presented below:

4.1.1. Standardized report format

ERC⁷ recommends the development of a standardized reporting format, in the form of a template, with a two-fold objective:

- 1) Help SDC Customers identify the data required and how to properly report both financial and energy efficiency information
- 2) Help DCEO or its designated reviewers identify the information reported and whether or not important details are missing

From a SDC Customer perspective, understanding what information to report and how to report it was a major confusion factor that has probably resulted in inaction from several SDC Customers. From a reviewer's perspective, because of the extreme variability of the reports, finding the required information from each report was also a confusing and time consuming process. Each of the 30 SDC Customers used their own format, requiring a lot of time to dig through the reports to identify and collect the necessary information.

A template will greatly improve three key factors of the program:

1. The ability to monitor compliance with the program
2. The ability to quantify savings and impacts of the program
3. The ability to verify the savings and projects implemented by SDC Customers.

Compliance will be made much easier as each requirement stated in the application (see section 1.3) can be clearly repeated on the template. If a SDC Customer submits a report without a section filled out, it can be easily identified as missing and a follow up request can be sent to request additional information.

⁷ ERC is able to help with the crafting of the template if needed.

Having a clearly defined template would also solve several of the somewhat ambiguous reporting issues which SDC Customers may have questions about.

Another issue with the savings reporting is that SDC Customers are using a variety of different units of measure, including utility bill savings, and several companies reported savings only in dollars saved rather than units of energy. A template can be designed to specifically ask for energy savings in one energy unit (e.g. Therms per year) aligned with other EEPS metrics, and use dollars saved to quantify other impacts of the program on a year to year basis.

Last but not least, report templates would introduce the possibility to compare different projects and different SDC Customer reports across multiple years of program existence.

4.1.2. Measurement and Verification (M&V) protocol

The ability to report savings is a crucial component of this program, and while a template would streamline and standardize the process, establishing an agreed upon M&V protocol would ensure proper measurement of the savings. While the law states in 220 ILCS 5/8-104 (m) (1) (E)

the report shall include a verification by an officer or plant manager of the customer or by a registered professional engineer or certified energy efficiency trade professional that the funds withdrawn from the reserve account were used for the energy efficiency measures;

There is too much variability in how the savings can be reported, and to what standards the savings reporting requirements are being held to. From simple issues such as annual vs lifetime savings, to more complex issues such as interactive effects and savings normalization with respect to output or occupancy, savings reporting requirements should be standardized and held to the same level of scrutiny and accuracy as every other EEPS program, to the extent possible

Establishing the correct baseline is critical for proper evaluation of an industrial energy efficiency project. Baseline determination requires pre-implementation data collection of several elements of the process, such as # of widgets produced or lbs of product, hours

of operation, energy intensity of the process, and so on. Savings estimates will be measured / calculated upon a carefully determined dynamic baseline.

ERC did not have access to metered data before and/or after implementation of each energy efficiency measure, reducing the scope of the verification process. Adopting a process like the International Performance Measurement & Verification Protocol (IPMVP) would help ensuring that the necessary data would be available to both plant managers of SDC Customers and M&V teams to properly evaluate the impact of the measures implemented.

Formal energy management processes such as the US sponsored Superior Energy Performance (SEP) or the ISO 50001 would help plant managers and organizations include energy efficiency in their planning and day to day operations, as well as establishing dynamic baselines and help organization achieve greater goals than otherwise possible simply with the SDC program initiative. For full disclosure, ERC staff was very involved in the early deployment of the SEP/ISO 50001 standard in Illinois.

For standard / prescriptive measures, SDC Customers should be directed to the Illinois Technical Reference Manual (TRM) to estimate energy savings.

ERC supports DCEO's decision to evaluate SDC Customers reports using the same Evaluation, Measurement & Verification (EMV) contractor of the EEPS programs.

4.1.3. Frequently asked questions (FAQs)

A FAQ companion website should go along with the program. During site visits and conversations with SDC Customers, questions and issues about the program came up repeatedly, many of which were shared by multiple SDC Customers. Rather than answering them all individually during the EE verification process, the FAQ site would provide answers before it's too late to both currently enrolled SDC Customers and new SDC Customers joining in the next program cycle. ERC has compiled a list of the most frequently asked questions:

- Do reserve funds have to be spent every year, or can they be saved for a large project? (This is answered by the statute, but was a recurring question from participating SDC Customers)

- If it is possible to save up reserve funds from years one and two for a large project in year three, is it possible do a large project in year one and then assign reserve funds from year two and three to pay for it?
- Is it possible to roll over reserve funds from one three-year cycle to the next three-year cycle?
- Do SDC Customers have to prove savings after providing an estimate and implementing the designated EE projects?
- Are SDC Customers penalized for reporting no projects during a year in which they are saving for a project in another year?
- Is there a minimum threshold required for natural gas savings?
- How should projects which are implemented over multiple years be reported?
- Are projects which prevent energy losses allowable under this program? (Example, a project which increases the longevity of equipment and what efficiency it runs at)
- Are projects which purchase equipment for in house work allowable (such as equipment to do steam surveys, find leaks, find defective insulation, etc.)

4.1.4. Case Study list

Finally, the ERC recommends creating a project case study list for companies to use. Several companies stated interest in doing more and bigger projects, but were unsure about what to do and what direction to take. A sample list of projects and case studies will allow for companies to gain new ideas and directions and hopefully inspire implementation of more projects.

5. Conclusions

The review of the first two annual SDC Customer reports showed mixed levels of compliance among SDC Customers. It has to be noted that each one of the 30 SDC Customers enrolled achieved only partial compliance with respect to all of the reporting requirements stated in Public Act 220 ILCS 5/8-104 (m). This is not necessarily a sign of an unsuccessful program.

Anecdotal evidence collected during the site verification visits suggests that SDC Customers plant managers are generally very satisfied with the program and welcome the opportunity of discretionary funds reserved to energy efficiency projects. There are strong signs that lead to believe that compliance would dramatically improve by creating a standardized report format, in the form of a template, which clearly identifies the information required.

The law currently is very broad in defining how to measure the savings, and most SDC Customers who reported energy efficiency measures (see Table 5 in section 2, between 77% and 84% of SDC Customers who reported energy efficiency measures also reported energy savings); nevertheless, the SDC program initiative would improve by adopting a standardized, widely accepted Measurement & Verification (M&V) process such as the International Performance Measurement & Verification Protocol (IPMVP).

The site verifications showed that every project (meaning 100% of the projects verified through statistical random sampling) described by SDC Customers was actually implemented. Estimating savings without metered data for these types of highly customized, process-related industrial projects is not possible during a site verification visit, and would require involvement of an independent Evaluation, Measurement & Verification (EMV) third party auditor well before the implementation of a project. Typically, two (2) months prior to the scheduled implementation should be enough to collect metered data and establish the correct Energy Performance Indicators (EnPIs) necessary to determine the dynamic baseline upon which savings would be calculated.

In conclusion, while it is not possible to verify the savings claimed, the program led to an estimated 23,930,251 in therm savings with expenditures of \$19,207,448 from 30 SDC Customers in the first two (2) years of the SDC program initiative.