

To Go It Alone or Participate?

Daniel S. Waintroob, KEMA Services Inc.

ABSTRACT

The option for industrial firms to *self-direct* or *opt-out* of public- or system-benefit funded programs creates a number of considerations for both the industrial customer and the energy efficiency program administrator. This paper reviews the benefits and costs of choosing one approach versus another, why a firm may *opt-out* or *opt-in*, and how various program administrators address both programmatic and portfolio issues. Presentation takeaways include suggestions as to whether, on an average, an industrial customer's participation in public/system benefits programs is a net positive and whether program administrators should seek their participation. Where imbalances are identified, ideas to mitigate them are offered. The presentation is designed for industrial customers weighing the costs and benefits of opting in and utility program administrators and planners seeking to address the issues associated with industrial *opt-out/opt-in* provisions.

The presentation reviews policies and procedures from a number of jurisdictions including mature markets such as California and newly developing markets such as North Carolina. A series of examples, based on actual projects, are used to illustrate how a project would be viewed from the perspective of an industrial customer (e.g., M/V costs to participate versus incentives, time involved to implement versus any acceleration or delay caused by public/system benefit programs). A review of participation/non-participation impacts to the program administrator are used to suggest the value of an industrial customer's participation. In addition, specific program policies that hinder or increase program participation are described and valued.

The Case for Creating Opt-out Provisions

The number of states with energy efficiency initiatives funded using public-benefit or system-benefit charges on electric and/or natural gas bills continues to grow. New initiatives in states previously with limited or no utility energy efficiency (EE) programs include Michigan, North Carolina, Illinois, Maryland, District of Columbia, Virginia, Delaware, Pennsylvania, Ohio, New Mexico, among others. In addition, these jurisdictions have substantial goals when compared to the historic results compounded by the fact that in some of these jurisdictions, the largest customers—often industrial users—have the option to *self-direct* or *opt out* of the utility funded program.

Six key reasons why industrial customers' representatives advocate for the right to opt-out were summarized in a policy brief published by ELCON¹ in December 2008. These reasons include:

¹ **Financing Energy Efficiency Investments of Large Industrial Customers: What is the Role of Electric Utilities?** ELCON: The Electricity Consumers Resource Council, Washington, DC, December 2008. Paper may be found at www.elcon.com

1. *They (industrial customers) can and have already increased energy efficiency more cost effectively with their own funds rather than relying on and paying for utility programs, which may not be as effective in realizing the expected returns for the dollars expended.*
2. *Utility programs are not typically designed to meet the specific needs of a large industrial facility where energy efficiency improvements are intertwined with complex industrial processes and the facility's often unique operational characteristics.*
3. *Utility programs tend to emphasize inflexible mandates without considering whether the intended results can be more cost effectively obtained by other means such as distributed generation or CHP (combined heat and power) technologies.*
4. *The higher rates that industrial customers pay to participate in utility-sponsored programs reduce the funds available to the customer for investing in higher value projects that make the most sense in the customer's business situation.*
5. *No provision is made for rewarding industrial facilities that make EE investments on their own, and in some cases such industrials are punished by being forced to subsidize the investments of their competitors or other ratepayer classes.”²*

Furthermore, the paper asserts:

“Large industrial customers do not face the same market barriers to energy efficiency investments as other utility ratepayers ... Large industrials have access to capital markets and can borrow funds at the same or lower rates as utilities can. They also have inhouse expertise on the cost/benefits of energy efficiency investments, and this expertise is generally better than what an electric utility or its consultants can provide.”³

While broad assertions such as these are certainly subject to debate and are difficult to prove, these arguments have prevailed with state legislatures in a number of states including Minnesota, North Carolina, Michigan, Oregon and Maryland. Opt-out provisions can create a number of challenges for public benefit program administrators as they seek to develop and manage a program portfolio that is both cost-effective and fair to all classes of ratepayers. Legislative mandates that create public or system benefits funding generally require the reduction of utility customers' demand and/or consumption by some percentage over a certain time period. These rules can be troublesome if the largest savings opportunities cannot be influenced by the program administrator with its program offerings. Furthermore, benefits obtained from energy savings from opt-out customers may not be reported or measured on a comparable basis to those in a regulated program, which is subject to third party evaluation

Program administrators, therefore, have strong incentives to have industrial customers participate and help reach goals, often at lower cost per MWh or KW obtained. Industrial participation also provides further assurance that savings or demand reduction projects impact

² ELCON brief op cit pp 1,2

³ ELCON brief op cit page 2

the utility system's load. The objections raised on behalf of industrial customers by ELCON can be addressed by program design. The following section provides examples of program design elements that address the perceived barriers.

Examples of Program Design Features that Address the ELCON Objections

The six key objections described above have been articulated by ELCON for more than 30 years and represent the major reasons that opt-out provisions are created. At a broad level, the objections can be summarized as follows: industrial customers are more capable than other business enterprises in making their own energy efficiency improvements and have the capital and wherewithal to implement energy efficiency measures on their own rather than through a public or systems benefit program. The assertion is also sometimes made that industrial customers have made all the cost-effective improvements available to them and they should not have to pay for other firms' improvements.

In response to these objections, program administrators have added several design elements to their programs to address these barriers. Exhibit 1 illustrates some common program features to address the concerns of large customers who seek greater flexibility.

As illustrated in the table above, many program administrators have taken the necessary steps to accommodate the needs of large customers including industrial customers. Of course, the design elements do not address whether benefits offset the costs associated with participation (e.g., surcharge, M/V, and other requirements).

It is important to recognize that the cost of opting out can vary widely from simply submitting a letter of intent to a more rigorous reporting of activities and proof of progress. Timing and flexibility may also play a role in the decision. For example, in North Carolina a firm can opt back in but then would be obligated for five years to participate in the public benefits program. In a scenario such as this, the benefits of opting in or out would not occur until such time as an energy efficiency project was identified. If the project was indirectly attributable to the program administrator (e.g., advertisements), then the customer would be receiving the benefits without subsidizing program costs. The following section provides examples of how an industrial customer may evaluate the choice between opting in or opting out of a program.

Exhibit 1. Examples of How Objections Are Addressed

Reasons Supporting Opt Out Provisions	Program Design Features to Address Objections	Examples
Already as energy efficient as is cost-effective	On site surveys, technical reviews and engineering support	Many, if not most utilities offer these services as do other public benefit organizations such as NYSERDA, WI Focus On Energy, Efficiency Vermont, etc.
Designs do not address needs of complex processes	Programs that blend utility funds with other sources to provide a comprehensive financing solution.	Energy Trust of Oregon
Inflexible mandates (e.g., CHP not eligible)	Offer specialty programs where industrial customers can bid-in projects that do not meet the standard criteria.	Enhanced Automation (KEMA/PG&E) DTE Energy, Consumers Energy RFP Programs, NYSERDA CHP Program
Higher rates from public benefits programs cost more than doing on own	Since public benefits programs usually cover an entire rate class, those who participate will often be subsidized by those who don't. This may be offset somewhat by M/V requirements. Some utilities provide a self-directed allowance for their customers and combined with technical assistance, it is hard to sustain this objection.	Santa Clara, California Michigan Utilities
No rewards for doing energy efficiency projects on own	Some ISO/RTO programs allow bids for programs that result in system peak load demand reduction. Generally these have high thresholds and penalties for non obtainment. However, payments are market driven. In the Northeast, RGGI allows bids for carbon reduction.	ISO NE forward capacity auction, RGGI.
Have no problem accessing capital at same cost as utilities; better inhouse expertise on cost-benefits	In our experience, even in the best of times, the first assertion varies significantly by industry and in the current environment may not be obtainable for broad segments of the U.S. economy. Some programs link improvements with tax credits and other vehicles and provide technical support from engineers who are expert in the industry, not energy efficiency generalists.	Energy Trust of Oregon, Wisconsin Focus on Energy,

Assessing the Trade-offs from an Industrial Customer's Perspective

For any given industrial customer, the trade-offs between opting in or opting out can be broken down into the cost of the surcharge versus the benefits received in working with the energy efficiency program administrator. As shown in the ACEEE scorecard⁴ on the following page, the percent of revenue devoted to public benefits ranges from 0 to 3% with, perhaps, the normal for a robust program averaging 1% to 1.5%. While there is no “average” industrial customer, an analysis of the EIA 861 submittal for 2005⁵ indicates that nationally, the average industrial customer may pay approximately 10¢ per kWh. Assuming a 1.5% surcharge for a public benefits program, approximately \$.0015 per kWh funds such programs assuming that charges are equitably distributed among rate classes. Exhibit 2 shows an analysis of what an average industrial customer might pay in various states, if they were subject to the \$.0015 per kWh surcharge. The analysis illustrates that in most states, the average industrial customer would contribute less than \$5,000 per year to the public benefits fund. Assuming that an opt-in feature requires a 5-year commitment, the *typical* industrial customer may be committed to \$25,000 over that period. A very large industrial customer with electric costs in the millions would probably pay less than \$75,000⁶ a year. Of course, this figure can be higher if industrial rate payers only pay a rider if they participate, such as the case in North Carolina.

The question remains as to whether the customer will obtain value that exceeds their contribution by participating. Of course, if they do not participate and are not forced to implement a project or the project is ineligible (e.g., CHP or fuel switching), the answer will always be *no*. But, if they do have eligible projects then the two major elements typically provided in a DSM program are:

- Rebates for electricity or natural gas savings measures that generally cover 30 to 50% of the installation costs often capped at a certain level.
- Technical assistance that often includes a 50% cost sharing for engineering firms.

Program participation may also add the cost of M/V, which would somewhat reduce the benefits both in terms of additional costs and delayed benefits. But, these requirements are generally for measures where the savings are uncertain or when program administrators need additional certainty.

Then the clear question becomes whether the industrial customer will achieve more than \$75,000 a year in benefits. Such a project might range from a \$150,000 to \$250,000 for each year they participate assuming that the project will also yield savings that are substantially greater than the cost of the project.

⁴ **The 2008 State Energy Efficiency Score Card**, Maggie Eldridge et. al., October 2008, ACEEE, Washington, DC, pp 7-8.

⁵ EIA 861 is a database in MS Access that provides sales and other data from 3,550 electric distribution utilities in the U.S. The table DATA_Release_File_2_data_expo contains data by utility that shows revenues and MWH sales by rate class. Further EIA's Electric Power Monthly shows the average price in cents per kWh by region and state for residential, commercial, industrial and transportation electric customers.

⁶ The actual calculations can be quite different, of course, as the rules for participating or not participating can determine what the requirements for a surcharge or rider would be.

Exhibit 2, Snapshot of Electric Industrial Customers by State

State	# Industrial	Average KWh	Average Revenue	Total Revenue	Hypothetical PB Charge
TN	1,998	16,829,536	\$ 796,301	\$ 1,591,009,000	\$ 25,244
IL	7,684	7,532,191	\$ 271,678	\$ 2,087,574,000	\$ 11,298
DE	579	7,347,948	\$ 354,288	\$ 205,133,000	\$ 11,022
SC	4,786	6,702,978	\$ 304,965	\$ 1,459,564,000	\$ 10,054
KY	6,629	6,533,972	\$ 235,473	\$ 1,560,951,000	\$ 9,801
HI	684	5,718,857	\$ 902,899	\$ 617,583,000	\$ 8,578
VT	367	4,478,512	\$ 348,199	\$ 127,789,000	\$ 6,718
AL	8,721	4,159,932	\$ 188,189	\$ 1,641,194,000	\$ 6,240
NV	3,370	3,878,857	\$ 295,069	\$ 994,381,000	\$ 5,818
VA	5,197	3,724,081	\$ 165,981	\$ 862,603,000	\$ 5,586
WI	7,145	3,551,580	\$ 191,439	\$ 1,367,832,000	\$ 5,327
IA	5,941	3,015,517	\$ 137,651	\$ 817,783,000	\$ 4,523
OH	23,356	2,920,635	\$ 129,709	\$ 3,029,490,000	\$ 4,381
MI	13,918	2,836,981	\$ 132,921	\$ 1,849,998,000	\$ 4,255
NC	10,976	2,742,463	\$ 138,158	\$ 1,516,421,000	\$ 4,114
MN	8,266	2,693,670	\$ 135,203	\$ 1,117,590,000	\$ 4,041
IN	19,057	2,568,314	\$ 113,596	\$ 2,164,797,000	\$ 3,852
NY	12,193	2,519,001	\$ 125,411	\$ 1,529,134,000	\$ 3,779
GA	15,361	2,252,574	\$ 118,922	\$ 1,826,756,000	\$ 3,379
MD	16,559	2,050,285	\$ 91,141	\$ 1,509,206,000	\$ 3,075
MS	7,748	1,972,363	\$ 105,935	\$ 820,783,000	\$ 2,959
PA	29,271	1,776,323	\$ 103,112	\$ 3,018,190,000	\$ 2,664
MT	4,584	1,608,236	\$ 50,191	\$ 230,077,000	\$ 2,412
MO	10,592	1,592,602	\$ 72,346	\$ 766,288,000	\$ 2,389
NM	4,030	1,579,031	\$ 88,585	\$ 356,998,000	\$ 2,369
LA	18,161	1,488,422	\$ 99,881	\$ 1,813,941,000	\$ 2,233
AZ	8,097	1,405,297	\$ 82,164	\$ 665,280,000	\$ 2,108
NJ	14,282	1,318,662	\$ 81,076	\$ 1,157,922,000	\$ 1,978
ND	2,328	1,310,207	\$ 56,647	\$ 131,874,000	\$ 1,965
AK	1,123	1,029,393	\$ 95,675	\$ 107,443,000	\$ 1,544
CT	5,505	984,882	\$ 90,039	\$ 495,662,000	\$ 1,477
WA	24,721	974,221	\$ 38,150	\$ 943,101,000	\$ 1,461
WV	11,620	973,458	\$ 37,476	\$ 435,472,000	\$ 1,460
CO	12,837	938,810	\$ 53,845	\$ 691,209,000	\$ 1,408
WY	8,651	925,574	\$ 36,930	\$ 319,485,000	\$ 1,388
UT	8,986	889,024	\$ 37,699	\$ 338,766,000	\$ 1,334
TX	113,955	849,822	\$ 60,693	\$ 6,916,247,000	\$ 1,275
MA	14,865	848,577	\$ 61,191	\$ 909,609,000	\$ 1,273
OK	17,756	840,301	\$ 42,914	\$ 761,975,000	\$ 1,260
SD	2,317	793,940	\$ 39,303	\$ 91,064,000	\$ 1,191
CA	80,812	752,549	\$ 59,361	\$ 4,797,045,000	\$ 1,129
NH	3,219	692,842	\$ 77,119	\$ 248,245,000	\$ 1,039
FL	29,672	663,128	\$ 42,842	\$ 1,271,206,000	\$ 995
KS	17,004	656,612	\$ 31,875	\$ 542,007,000	\$ 985
OR	21,815	634,346	\$ 28,105	\$ 613,100,000	\$ 952
RI	2,658	581,345	\$ 48,418	\$ 128,694,000	\$ 872
AR	31,365	563,202	\$ 26,681	\$ 836,840,000	\$ 845
ID	25,259	341,916	\$ 13,359	\$ 337,435,000	\$ 513
NE	37,130	237,503	\$ 10,521	\$ 390,638,000	\$ 356
Averages		\$ 2,515,928	\$ 139,782	\$ 1,183,946,612	\$ 3,774

Case Studies in Participation

Following are summaries of publicly available case studies provided by Energy Trust of Oregon and NYSERDA, plus one example for ComEd that is not yet published. These examples were selected to provide both regional and industry diversity.

The Energy Trust of Oregon⁷ was founded in 1999 and is funded by a 3% public-purpose charge. The Energy Trust delivers its services to industrial customers using Program Delivery Contractors (PDCs) that are experts in the industries they are serving. The PDCs serve the customer in a number of ways including: 1) conducting scoping studies, 2) developing specifications, 3) evaluating bids, 4) overseeing installation and verification, 5) facilitating paperwork associated with program incentives, and 6) assisting with the application for Oregon Business Energy Tax Credits. The Trust's website provides several case studies and the Blue Heron Paper Company is described below as an example of a very large project.

Blue Heron⁸ received Energy Trust Incentives of \$5.4 million plus a \$500,000 grant from the Climate Trust, a \$4.5 million construction loan, and a \$2.8 million tax credit from the State of Oregon. The project cost was \$11.8 million and the estimated savings are \$5.3 million. In addition, the upgrades allowed the mill to upgrade its product line. Although Blue Heron is a subsidiary of a much larger company (i.e., Smurfit Stone) with greater financial resources, it is our opinion that despite excellent project economics, it would have been difficult to efficiently finance the project from internal sources. Furthermore, while not stated in the Energy Trust website, the DOE's EEER website indicates that the value of the assessment was \$120,000. Given the 3% public purpose charge, the breakeven point would be \$184 million in electric expenditures. Given the present value of the savings and likely consumption of the mill, it is clear that Blue Heron would not have benefited if opting out where an option. The program administrator also benefited as the case study indicates the cost for kWh saved was approximately \$0.005. The Oregon public also benefited from making one of their key employers stronger.

The NYSERDA website⁹ also offers useful case studies. NYSERDA has been operating energy efficiency programs using a System Benefits charge which is currently at \$.00142 per kWh. NYSERDA offers a menu of programs for its industry customers including FlexTech, which provides technical support, and Product Manufacturing Business incentives. NYSERDA's website provides a variety of case studies including examples of CHP projects that indicate a higher degree of flexibility than the ELCON paper asserts. Also, one case study describes KEMA's Compressed Air Efficiency Services that produced energy savings of 6,630 MWH per year, which indicates that, in fact, not all worthwhile energy savings had been harvested by industries in New York. In one example, a plant experienced a 28% reduction in annual kWh use and also saved \$76,000 in annual maintenance costs. In another example, the plant had a 30% reduction in demand. The average project payback listed was 8 months. Assuming that these savings represent 15% of the total bill¹⁰, the average industrial participant in the air compressor initiative likely contributed less than \$8,000 a year to the SBC program and saved an average of \$56,975 per year. Clearly, significant value was gained through

⁷ Case studies may be found at their website <http://www.energytrust.org>

⁸ In addition to the case study on the Energy Trust web site a write can be found at http://www1.eere.energy.gov/industry/bestpractices/pdfs/fp_cs_blue_heron.pdf our description uses both items.

⁹ <http://www.nyserda.org>

¹⁰ Assumes that the two examples given were "best case" examples.

NYSERDA's program. If these customers had self-directed, perhaps at some point they would be realizing these savings, but given the rapid paybacks, there clearly is a significant opportunity cost for delaying project implementation.

In the Midwest, ComEd customers pay a surcharge of \$0.004 per kWh and can receive rebates for electric saving measures. These rebates cover prescriptive measures such as lighting, cooling, and refrigeration, and allow custom measures. There are certain restrictions including onsite generation, peak shifting and fuel switching. Despite the restrictions, industrial customers represented about 31% of the participants in the first year of the program¹¹. Again, this indicates that there is significant opportunity for investment in energy efficiency. The economics are compelling as well since the payment for custom measures is 7 cents per kWh¹² and given that the 4 mil surcharge it clearly offers a great return for eligible measures.

In the examples presented above, it is clear that individual companies that participated in programs located in various regions of the U.S. were all net beneficiaries. While it may be argued that these are *best case* examples, they certainly illustrate that *going it alone* would, in these examples, have not been the correct choice. It can further be stated that given the non-incentivized return, some of these projects may not have been implemented and, from the public benefits perspective, all of these projects were very cost-effective and, therefore, enhanced the respective program administrator's portfolio. While these examples may be exceptions to the ELCON *rule*, they do indicate that the choice to opt in can be the rational one for many industrial customers.

Recommendations

Program Administrators

As described above, in our view, program administrators should seek to have robust participation from industrial customers in their DSM programs. Since this is a choice in many jurisdictions, the administering organization will have to promote participation. In the case of utilities, this is usually performed through the major account managers and, therefore, it is important to provide them with tools to show them the potential benefits. These tools should include:

- Clear statement of surcharges with examples of benefits that can be obtained from participation through the use of case studies and *calculators*.
- Education vendors and contractors who work with industrial customers through trade ally meetings, "lunch and learns", and similar vehicles.
- Publicly recognize those who participate as being partners in improving the environment and helping the public and themselves manage energy costs.

Industrial Customers

As illustrated in this paper, opting out may not be the right choice as you lose the opportunity to leverage your resources with those provided by the public benefits administrator

¹¹ Roger Baker of ComEd presentation to ACEEE Market Transformation Conference March 30, 2009. In addition some 30% of the participants are warehouses which arguably could be counted as industrial as well.

¹² Up to a program cap which was \$100,000 in PY 2008 and will be \$200,000 starting June 1, 2009.

who, in fact, can help lower the cost of implementing many worthwhile measures. When making the choice of whether to opt in or opt out, we suggest you evaluate the following:

- Surcharge you would pay to opt in versus the benefits you might receive from participation in a DSM program.
- Real costs not to participate such as lost opportunities to implement energy savings measures sooner, lost incentives, and lost technical assistance.
- Cost to comply with opt-out provisions.

Public and other Stakeholders

As with any public policy, transparency and the public benefits should be monitored. Regardless of the choices made, the public should be informed as to what choices have been made. Certainly this is much anecdotal evidence that despite representations to the contrary by ELCON and others there is much cost-effective efficiency to be achieved in the industrial sector. In states where opt-out is available, it seems reasonable that customers who opt-out should be held to a reasonable standard of proof that the funds they direct for energy efficiency indeed meet the goal.

References

Financing Energy Efficiency Investments of Large Industrial Customers: What is the Role of Electric Utilities? ELCON: The Electricity Consumers Resource Council, Washington, DC, December 2008. Paper may be found at www.elcon.com

The 2008 State Energy Efficiency Score Card, Maggie Eldridge et. al., October 2008, ACEEE, Washington, DC. pp 7-8.

Energy Information Administration 861 databases available at <http://www.eia.doe.gov/cneaf/electricity/page/eia861.html>

Production Efficiency: Blue Heron Paper Company described at the EnergyTrust of Oregon Inc, <http://www.energytrust.org> and http://www1.eere.energy.gov/industry/bestpractices/pdfs/fp_cs_blue_heron.pdf

KEMA Compressed Air System Efficiency Services described at <http://www.nyserda.org>

Energy Efficiency Programs in Northern Illinois, Roger Baker, Commonwealth Edison, http://www.aceee.org/conf/mt09/I2_Emerging_Trends_in_Industrial_Programs_Roger_Baker.pdf