Exploring Energy Efficiency:

A Multi-Sector Survey on Energy Efficiency Tracking Platforms

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ABOUT THE SUSTAINABLE ENDOWMENTS INSTITUTE

Founded in 2005 as a special project of Rockefeller Philanthropy Advisors,Inc, the Sustainable Endowments Institute (SEI) has pioneered research, education and outreach to advance resilient institutional responses to the climate crisis.

Overview

As inclusion of greater sustainability practices and operational policies to reduce energy use takes root in buildings and campuses across the country, there is a growing need to better track, manage, and share the results that these projects produce. Numerous platforms and tools exist to help organizations across all sectors accomplish these goals, but there is little information examining what users prioritize and what platforms provide them across different sectors. To that end, the Sustainable Endowments Institute (SEI) sought to study how various organizations track their energy efficiency projects by conducting a multi-sector survey to assess the benefits and weaknesses of energy efficiency platforms.

SEI developed this brief report to encourage stakeholders to evaluate their own institution's needs as well as compare against peers in their own field. By examining the five different sectors of healthcare, higher education, K-12 school systems, municipalities, and corporations, SEI sought to examine the overarching commonalities for organizations appearing to prioritize reducing energy use, reducing operational costs, and more closely aligning with institutional environmental and carbon reduction goals.

Methodology

For this study, SEI focused on project-level tracking tools in use at institutions in the following sectors: healthcare systems, higher education, K-12 school districts, municipalities, and for-profit companies. The surveys were conducted from July through November of 2015. Potential organizations were identified by looking at current participants in green initiatives including the U.S. Green Building Council Center for Green Schools, the U.S. Department of Energy's Better Building Alliance, Health Care Without Harm, the Urban Sustainability Directors Network, the NYC Carbon Challenge, AASHE STARS participants, and Green Ribbon Schools. Representatives were asked to respond via email to a standard survey that inquired about the specific tools used to track and manage their energy efficiency projects, and the benefits of the tools they used, and the areas where those systems could be improved (See Appendix E).

What follows are the key findings from the responses. The responses represent organizations based in 41 U.S. states, 4 Canadian provinces, and Sweden. SEI received 194 responses across the five sectors.[1] In this report, data is compiled in the aggregate to discern best practices and common themes in user responses; this data is divided by sector in the appendices.

1 SEI received responses from 47 municipalities, 54 institutions of higher education, 30 K-12 school districts, 11 healthcare systems, and 52 corporations

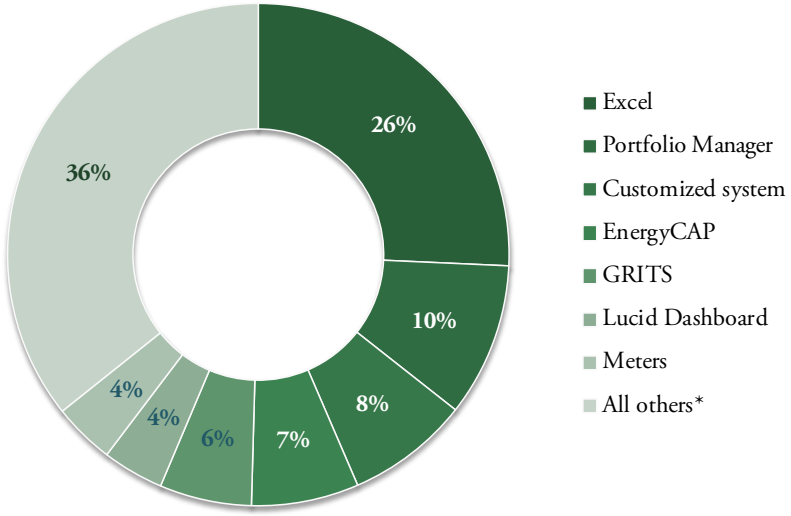
Common Tools and Platforms

Many software-based and online platforms are available to users who want to help their organizations track accumulated savings, financial, and carbon data from energy efficiency projects. In this study, the most commonly cited tools or platforms used to track energy savings are:

- Microsoft Excel
- EPA Portfolio Manager
- Tool(s) developed by the individual organization
- EnergyCAP
- The Green Revolving Investment Tracking System (GRITS)[2]
- Lucid Dashboard

Figure 1. demonstrates the most commonly cited tools among all organizations surveyed. Sector specific graphs can be found at the end of this report in Appendix A—Commonly Cited Tools by Sector. Of those surveyed, 43 percent of respondents reported that they use more than one tool to track energy savings. Twelve percent of respondents reported that they do not use any specific tools to track savings from energy efficiency projects and/or do not track energy savings.

Figure 1. Commonly Cited Energy Efficiency Platforms — All Sectors



2 GRITS is a webtool developed and managed by the Sustainable Endowments Institute. In the survey, SEI did not promote any specific webtool, including GRITS, and did not ask respondents to promote or endorse specific tools in the survey. For the complete list of questions, please see Appendix E — Survey.

* All others includes tools with three percent or less usage by respondents.

BENEFITS OF CURRENT SYSTEMS

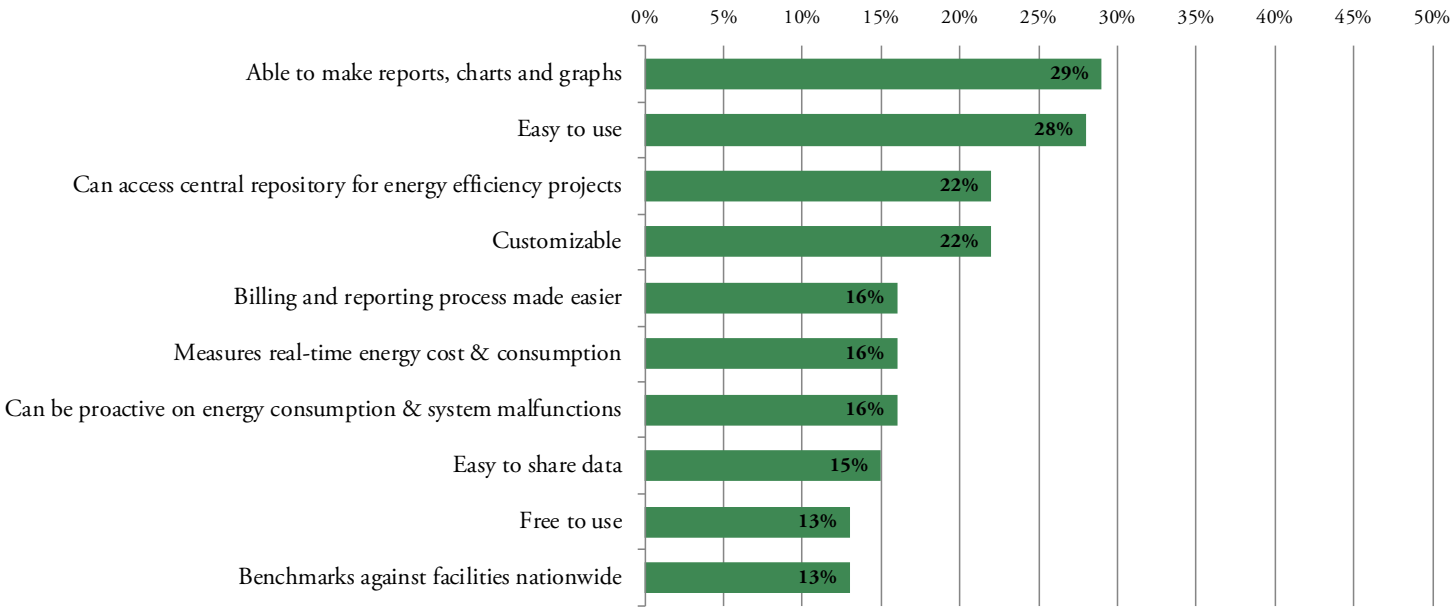
Respondents were asked about the benefits of their current tool(s) and given space to report as many qualities as they preferred. To analyze the data, SEI identified common themes among respondents who use at least one energy efficiency tracking tool and then responses were categorized based on these common themes to discern the overall trends. *Figure 2* demonstrates the most common benefits that users reported when using tools to track energy efficiency.[3] Sector specific graphs can be found at the end of the report Appendix B—Benefits of Current Systems.

Among the energy efficiency tracking tools, the most commonly cited benefit was the ability to translate energy efficiency metrics into reports, charts, and graphs. Tools that were easy to use were the second most commonly cited benefit, with 28 percent of respondents highlighting this capability. Also cited frequently were the existence of both a central database of projects to view overall data and the ability to customize a platform or tool.[4]

WEAKNESSES OF CURRENT SYSTEMS

Respondents were asked to identify the weaknesses of their current system and were given space to list as many qualities as they preferred. Among those surveyed, eighty-nine percent of respondents

Figure 2. Benefits of Current Systems — All Sectors

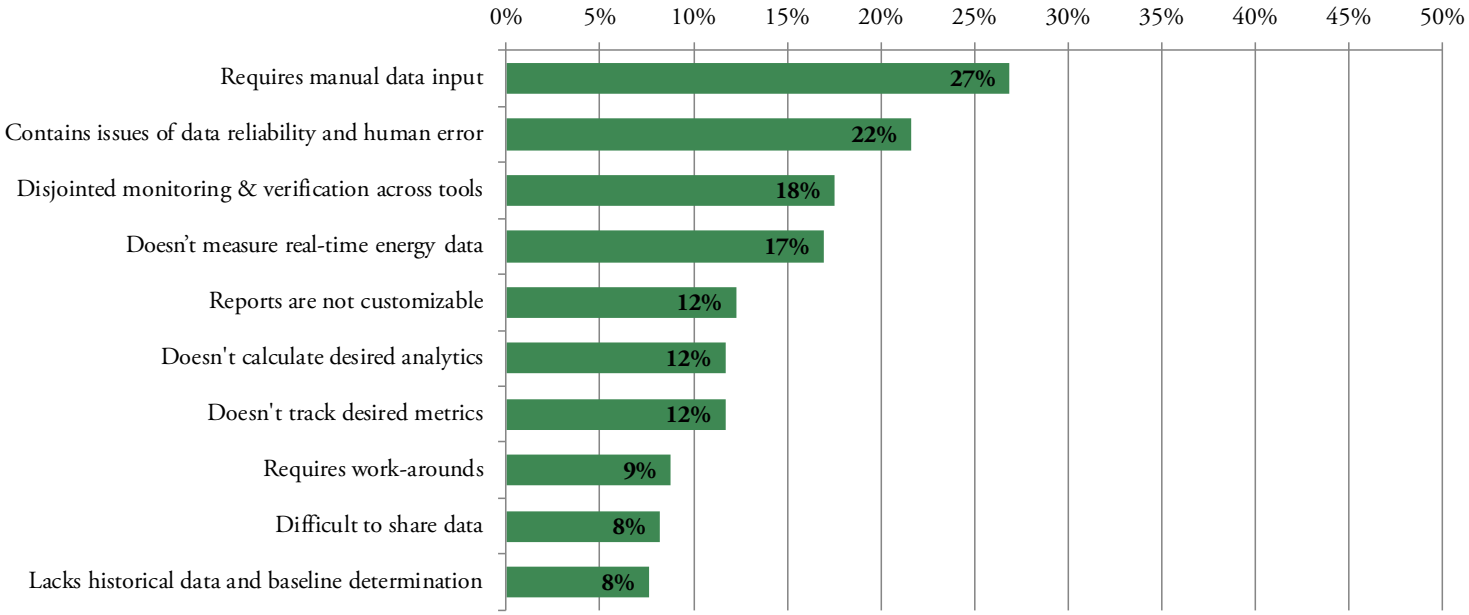


3 For each survey question, only the top ten common responses are included in this report.

4 Other cited benefits reported by less than 11 percent of respondents include: included weather normalization, automatic electronic data import, integration across different platforms, value and comprehensiveness, long-term data access, ability to set robust baselines, pre-loaded conversions and calculations, technical support and customer service, long-term relationship with vendor, the ability to determine payback on green revolving fund, and contributions to budgeting process.

indicated at least one weakness of their current system (shown in the chart below). Twenty-seven percent of the organizations surveyed reported that manual data input was a weakness when using their energy efficiency tracking tool. Twenty-two percent of organizations cited issues of data reliability and human error. Eleven percent of respondents reported no weaknesses in the systems that they used. Figure 3 shows the occurrence of the most commonly reported weaknesses.[5] Sector-specific graphs can be found in appendix C.

Figure 3. Weaknesses of Current Systems



5 Other cited weaknesses reported by less than six percent of respondents include: not tracking energy efficiency project savings, difficulty in downloading data, the lack of sub-meter integration that would help track consumption change, weak public data interface and/or no online capability, lack of standardization across the sector, high cost for using the tool(s), proficiency in Excel can be a limiting factor, certain tools are not "user friendly," and certain tools contain unnecessary features.

Conclusions & Recommendations

Whether a user accesses an internally-designed platform or utilizes an outside product to track energy efficiency projects, these tools are critical for addressing many organizational priorities and missions. And while a wide variety of tools and platforms are available to organizations wishing to better track energy, carbon, and financial savings from energy efficiency projects, every tool and platform has room for improvement.

WHAT MAKES A WINNING TOOL

Excel and EPA's ENERGY STAR Portfolio Manager were the most popular tools among respondents. Both of these tools are free, or relatively low cost considering that most users have some form of a spreadsheet program that is used for many other purposes outside of energy efficiency project tracking. The learning curve on both is slight, so both programs are easy to learn and can be used by many different stakeholders. Excel offers a wide spectrum of features ranging from basic spreadsheet management and data tracking to building customized models to track complex energy efficiency projects. Excel's reports, charts and graphs are also easy to construct, and share with others. ENERGY STAR Portfolio Manager offers other features including weather normalization and pre-loaded analytic tools that can be used for large-scale energy efficiency planning.

MOST COMMON BENEFITS

The most common benefits respondents cited were the ability to create reports, charts and graphs and that the systems are easy to use. Raw data alone is only as powerful as the programs that can translate it to be ready for analysis and sharing with colleagues and key stakeholders. Since energy efficiency projects often involve multiple stakeholders including staff from operations, accounting, sustainability, and finance, it is imperative that a tool be able to easily help all stakeholders understand what is being presented to aid in decision-making.

MOST COMMON WEAKNESSES

The most common weaknesses cited were that the systems require manual input and have issues with data reliability and human error. These two weaknesses can be related: manual data input runs the risk of human error, which affects the reliability and accuracy of the data outputs. Manual data input also requires staff time that could be used for more meaningful work. Any analysis is only as good as the quality of the data available, so using a tool or system with known issues of data reliability can greatly hinder decision-making.

PRIORITIES FOR USERS

Recommendations from these findings suggest that tools and systems should work to include

automatic data uploading features and a system of data verification to save staff time and yield higher quality data. Priorities like sharing information with other stakeholders, streamlining the tool to make it easier to use and integrate with other existing tools, and generating customized reports will also aid in the capacity to implement projects with greater energy reduction.

OPPORTUNITY FOR INCLUSIVITY

It is important to note that not all organizations surveyed have the capacity and/or resources to track such efficiency projects. One public school system reported that, while sustainability was a priority, they are "simply trying to replace items as they break" before "launching projects specifically for energy efficiency purposes." This means that there exists ample ways to engage those not even tracking energy efficiency projects with easy to use, customized tools. Additionally, SEI found that the average dates of platform implementation for the users surveyed was 2008, highlighting an opportunity for organizations to upgrade their systems in a strategic effort to meet the changing demands of their energy systems.

REFLECTION

SEI hopes this report can help organizations think deeply about their own needs going forward, compare their needs with the data from peer institutions and other sectors, and potentially make better informed decisions about the platforms they use going into the future in a broad effort to reduce energy use on a large-scale level.

Appendix A

Commonly Cited Tools by Sector

Respondents in all sectors indicated using Microsoft Excel as part of their tracking system. Many respondents in municipalities, K-12 schools, higher education, healthcare systems and the corporate sector respondents indicated Portfolio Manager as a secondary tool for energy tracking.

Figure 4a. Municipalities

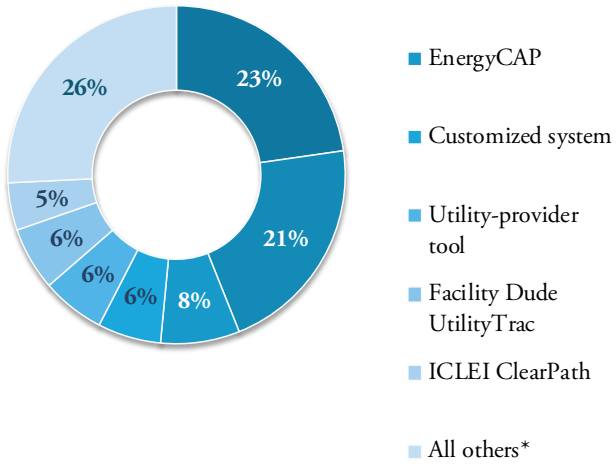


Figure 4b. K-12

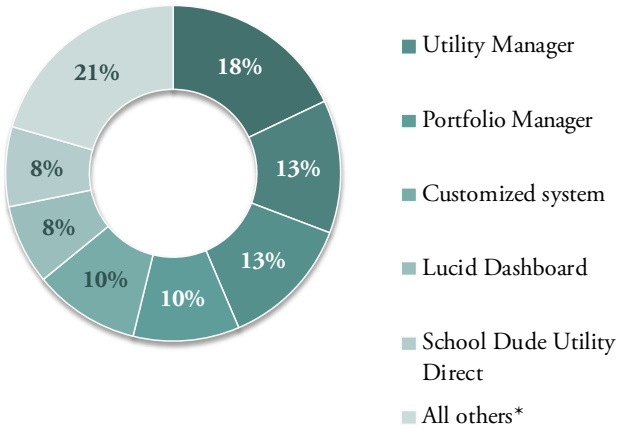


Figure 4c. Higher Education

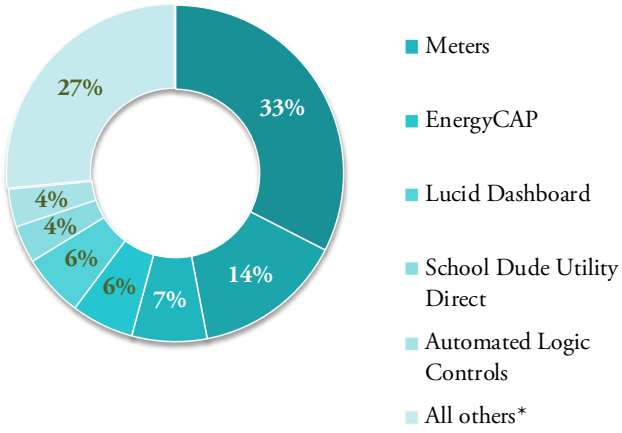


Figure 4d. Healthcare

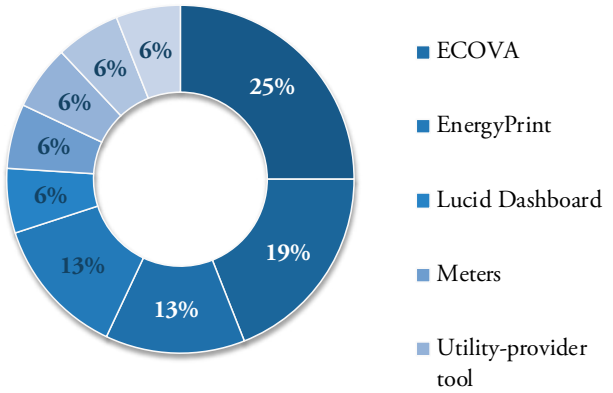
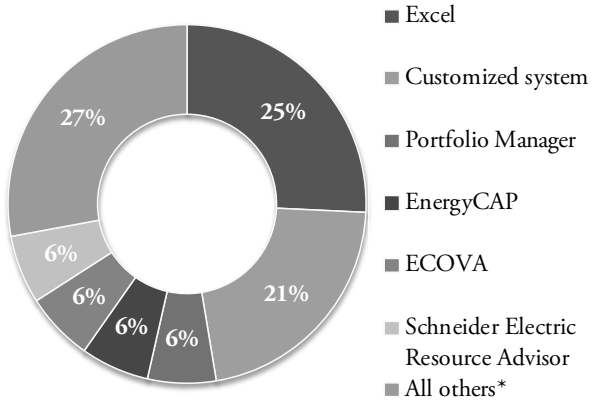


Figure 4e. Corporations



Appendix B

Benefits of Current Systems

Municipalities, higher education institutions and K-12 school districts listed the ability to make reports, charts and graphs more often than all other beneficial qualities. In healthcare systems, the ability to benchmark against other facilities and option for weather normalization took the top benefit. Respondents in the corporate sector favored an energy efficiency tracking tool that serves as a central repository of project data and the ability to customize a platform.

Figure 5a. Municipalities

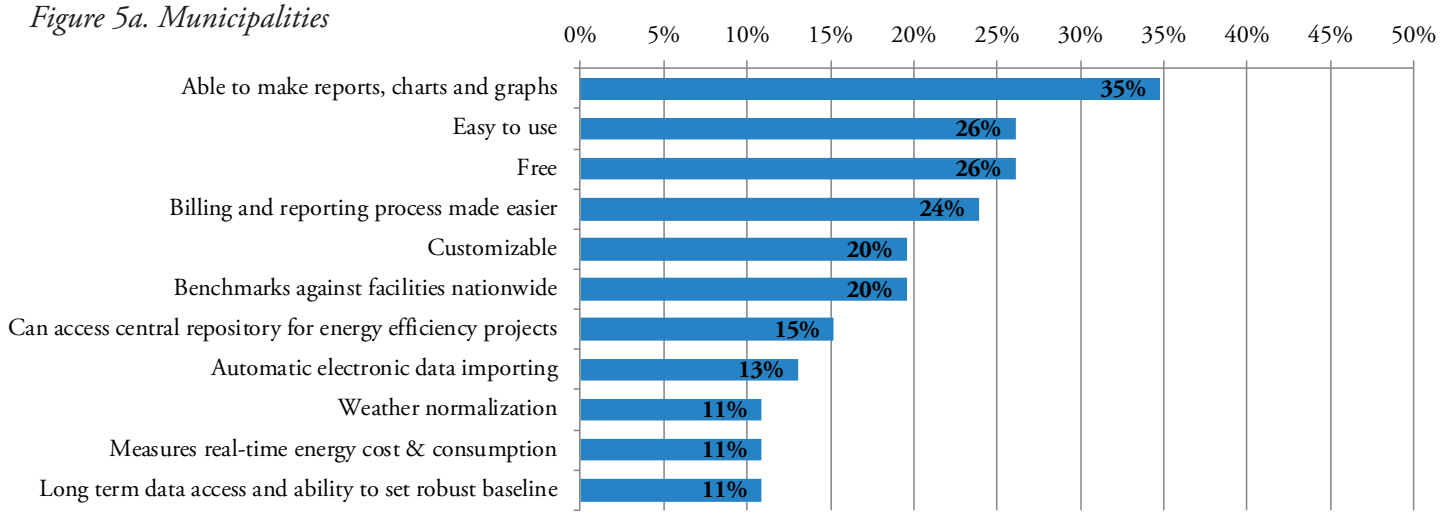


Figure 5b. K-12

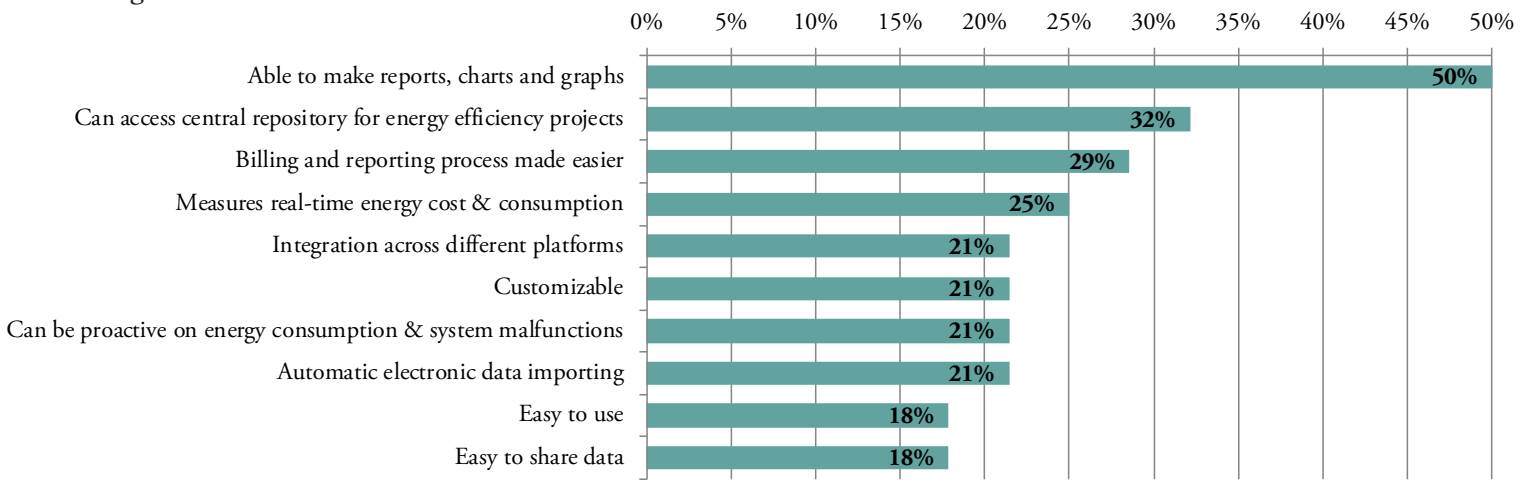


Figure 5c. Higher Education

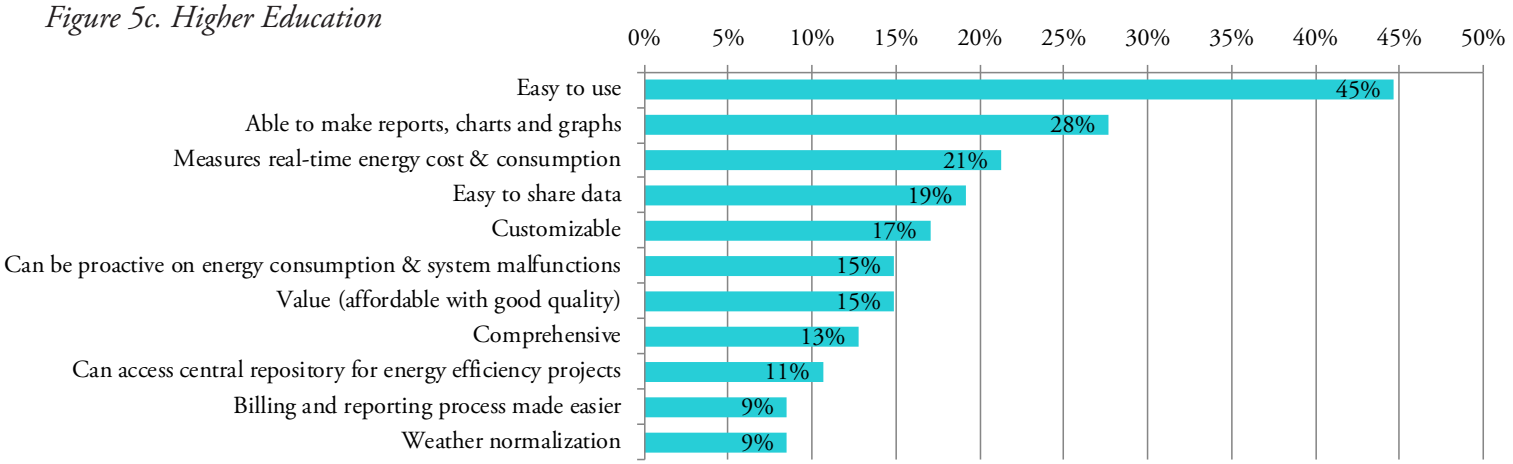


Figure 5d. Healthcare

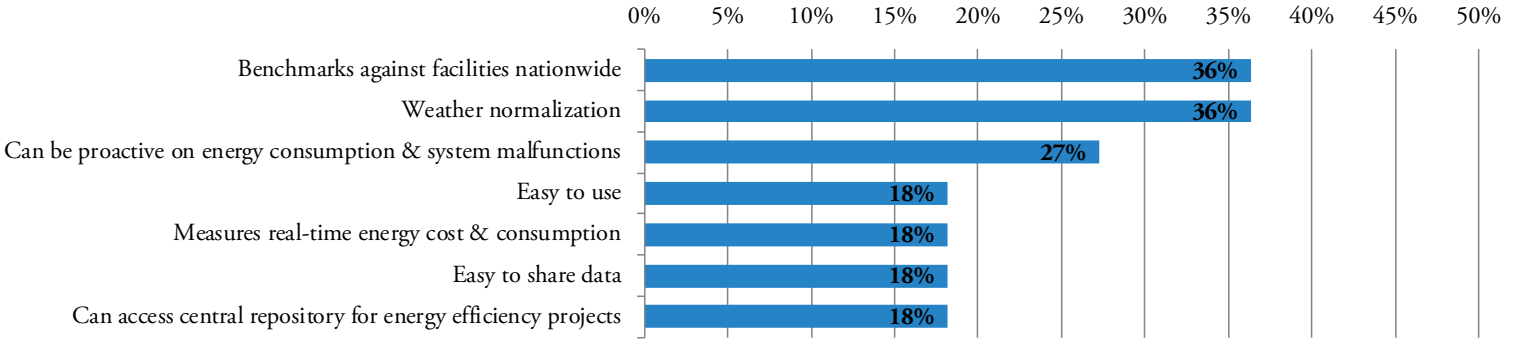
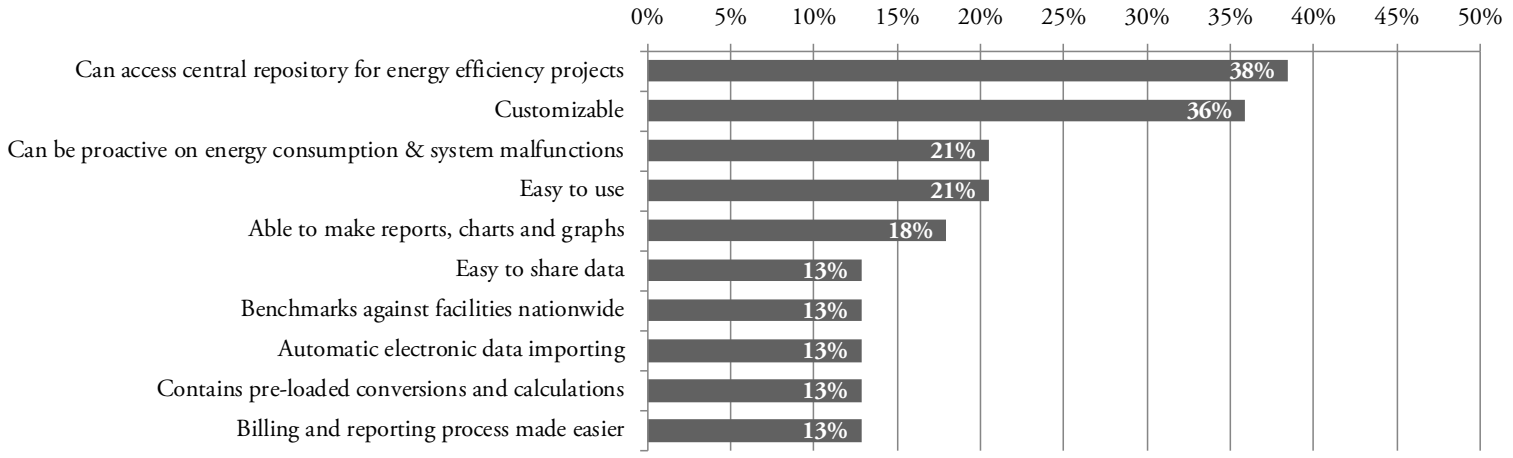


Figure 5e. Corporations



Appendix C

Weaknesses of Current Systems

Municipalities, healthcare systems and corporations all listed requiring manual input as the primary weakness in their current system. Higher education institutions and K-12 schools noted that issues of data reliability and human error were hindering their systems. Municipalities, higher education institutions, and corporations also noted with frequency that measuring and verification of data is disjointed across the tools they use.

Figure 6a. Municipalities

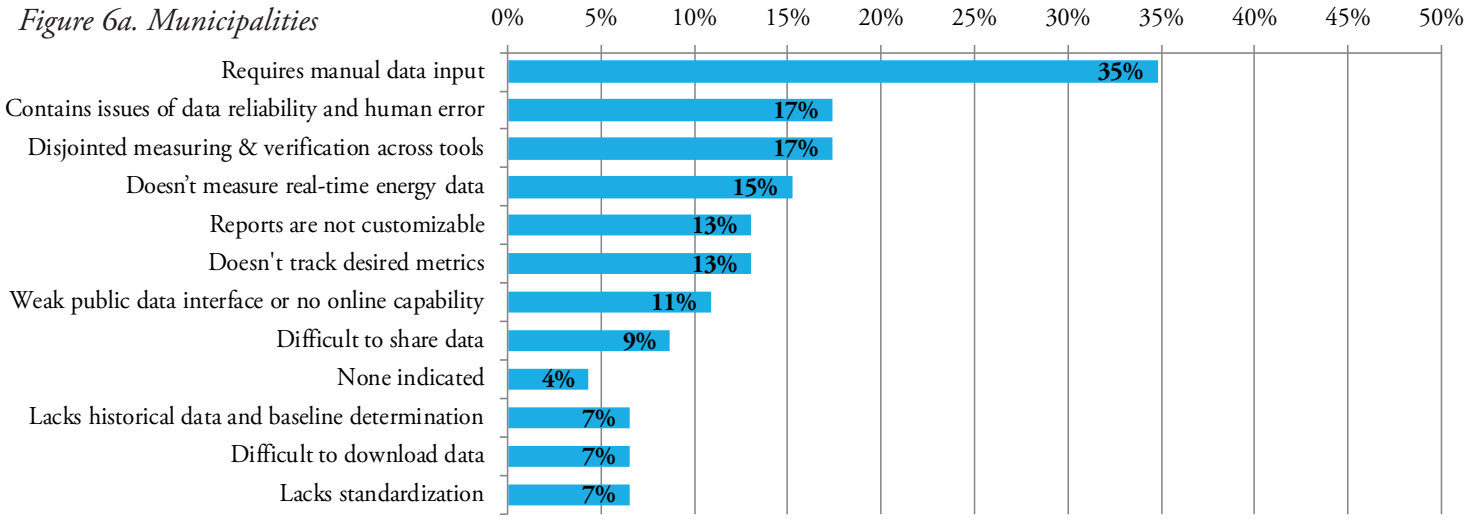


Figure 6b. K-12

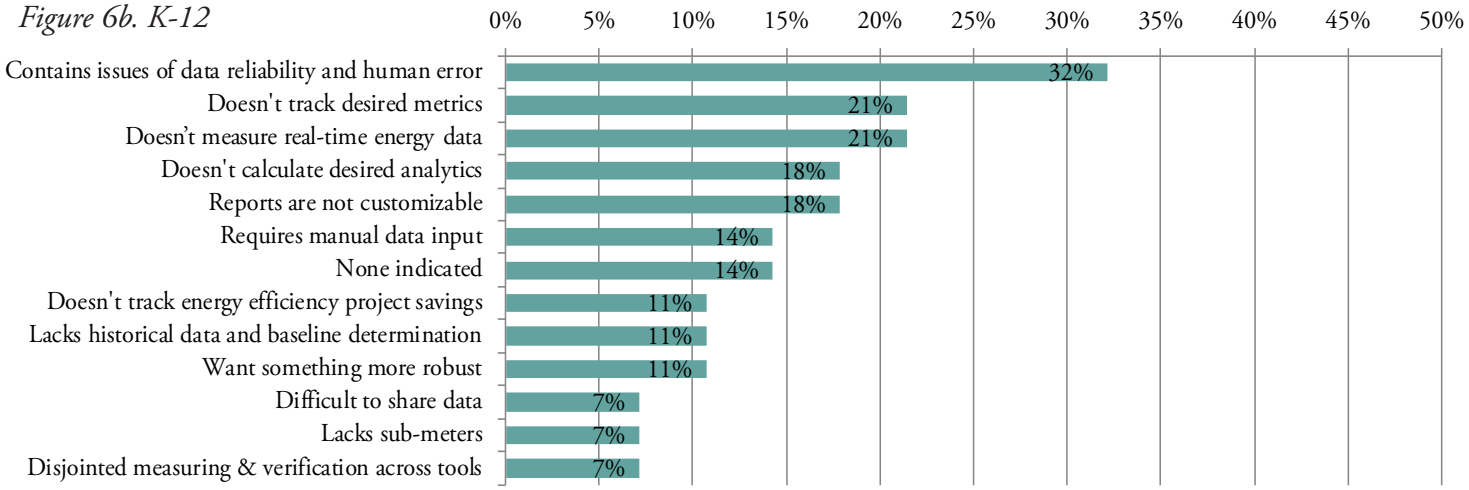


Figure 6c. Higher Education

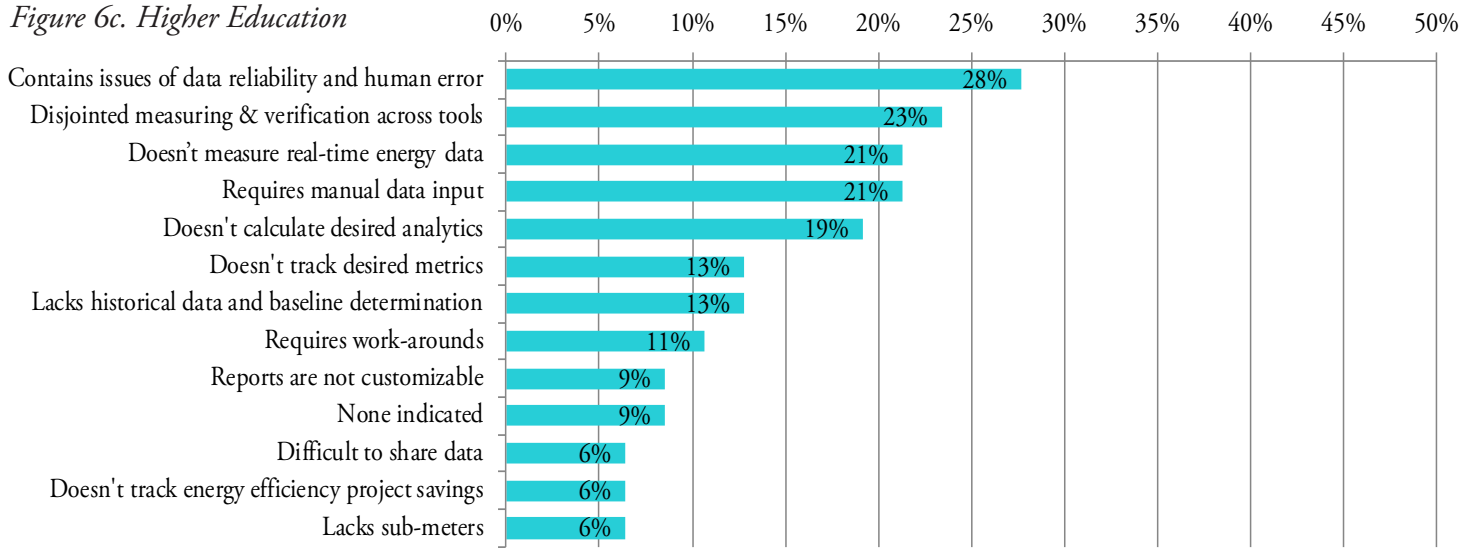


Figure 6d. Healthcare

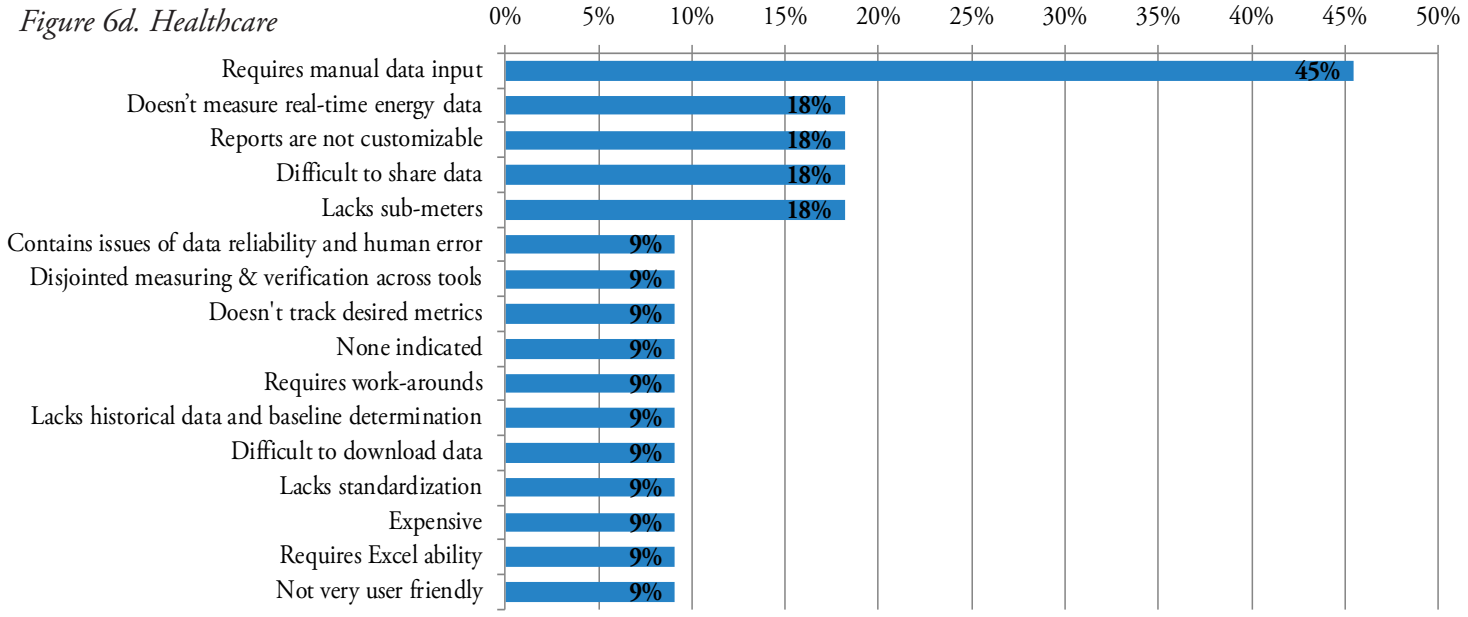
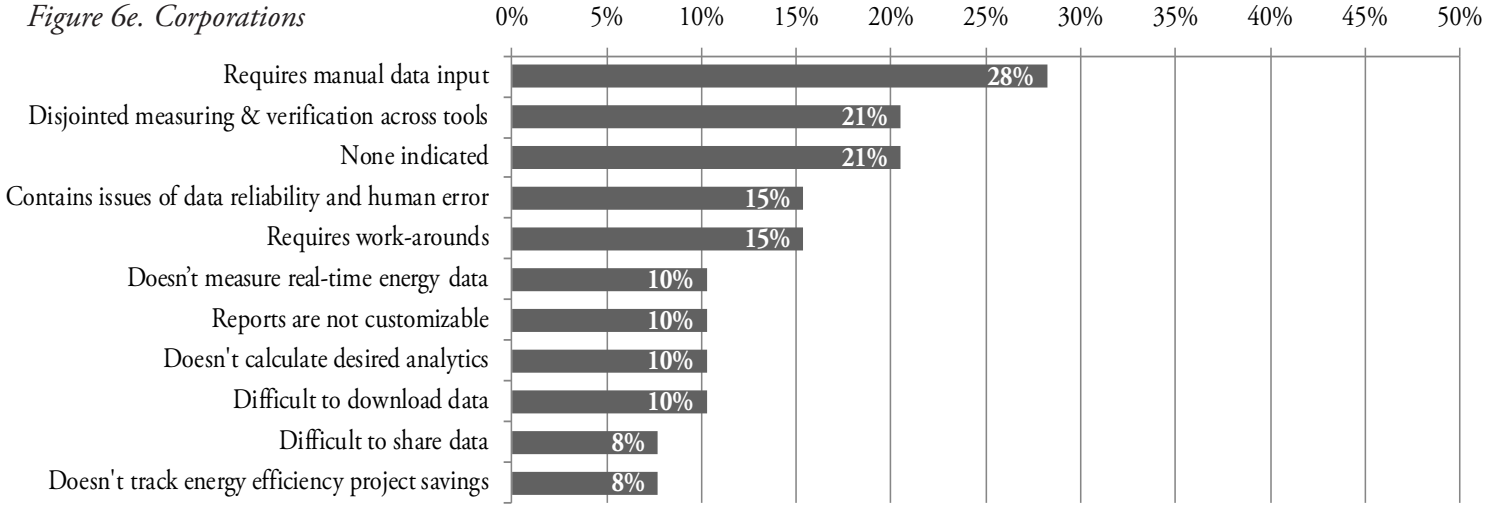


Figure 6e. Corporations

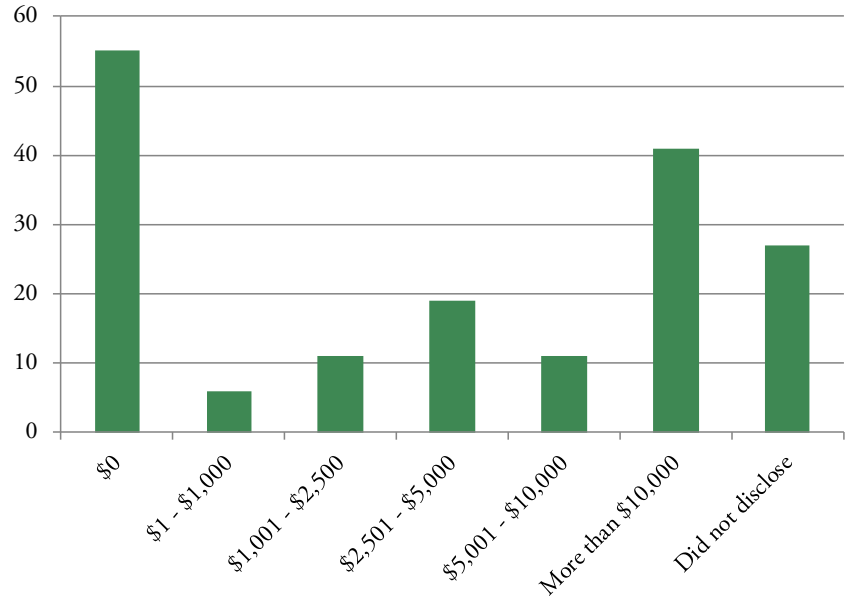


Appendix D

Pricing

Respondents were asked to indicate the price range they paid for their tracking systems on an annual basis. The results indicate that 32 percent of respondents do not pay anything for their system (or it is included with other systems like Microsoft Office or utility provided software packages) while 24 percent of respondents pay more than $10,000 per year for their systems. This leaves 27 percent of respondents who disclosed their pricing data who pay between $1-$10,000 per year.

Figure 7a. Distribution of Price for Energy Efficiency Tracking Platform- Across All Sectors



Appendix E

Energy Efficiency Platform Survey

1. What software/platform(s) do you use to track energy, financial and/or carbon savings data from energy efficiency projects?

2. When did you begin using this software/ platform(s)?

3. What are some of the benefits of your current tracking system?

4. What are some of the weaknesses of your current tracking system?

5. Approximately how much does this software/platform(s) cost your institution per year?

a. $0
b. Up to $1000
c. $1,001 - $2,500
d. $2,501 - $5,000
e. $5,001 - $10,000
f. More than $10,000