Disclaimer:
The State Energy Office of North Carolina would like to thank the National Energy Services Coalition for allowing the use of this resource for USI participants. A great deal of work went into compiling this information into a single location. As you go through this program and/or have additional questions, please contact Reid Conway reid.conway@ncdenr.gov.

ENERGY SERVICES COALITION
A Public Private Partnership

GESPC-U Lesson #109:

The Investment Grade Audit: Just the Facts

FYI: Terms and Acronyms can be found on the last page

Summary: We now turn to the actual utility consumption data and what utility billing information is imperative for the owner to provide the ESCO, and how to obtain it.

In Lesson #108, we walked through the list of facility and system background information that Owners and ESCOs together should collect and verify. The value of that effort is to best inform and document pre-project or pre-construction conditions and lay the foundation for a scope of work that's envisioned to be a part of this performance contracting project.

And to that list of information, we now add actual utility consumption data. It's typical for Owners to be asked to provide three years of utility information for all fuels; gas, electric, propane, coal, water and sewer bills so the ESCO can establish an accurate "baseline" of historical use. Owners often wonder why so much utility bill information is collected – why three years? Can't the ESCO establish typical consumption and usage trends from just one year's worth of data?

Given the year-to-year variability of factors like weather and say, occupancy, the answer is probably not. The challenge is knowing how

much utility information is needed to confidently illustrate a believable monthly and annual usage baseline pattern. A single year of utility consumption will not account for any of the aforementioned variability and may be abnormally high or low. With two years of data, a one-time impactful event may result in one of the year's having a high usage year or a low usage year, leaving to question which is more telling and what can be labeled normal. But with three years of consumption data, there should be enough information to somewhat normalize for the variables that impact consumption, resulting in a more representative sample from which to develop a baseline.

And now with COVID and the increased remote learning, working from home, etc. it is even more important to get the most accurate utility data together to form a true baseline of utility usage. Again, with COVID, we have seen an increase in filtration, introduction of more outside air into facilities and increased air changes per hour. All of these cause the HVAC equipment to run longer and work harder and thus it increases our utility costs. Will this operational pattern be normal, only time will tell? The ESCO and the owner are trying to find the best baseline to use.

Now before digging through files for archived utility bills, know that most utility companies will allow the owner to authorize their ESCO, as owner's agent, to obtain utility consumption and cost information directly from the utility. The ESCO knows that more than just monthly costs are needed. It is imperative to also obtain the utility use by unit, such as kWh, kW, therms or other units of natural gas, gallons of water, etc., with each of their respective unit costs. Along with those reports, a sample bill that represents every meter for every utility should be provided. Seeing the exact bills will accurately reveal not only consumption and cost, but additional fees and riders, both fixed and variable. Fixed fees typically are not impacted by the amount of utility is used and, therefore, will not be impacted by reducing utility use. On

the other hand, bills may include variable surcharges which are assessed as a fee per unit of utility used. This type of surcharge is of course affected when less of that utility is used. This detailed information will help determine the portions of the bill that can be impacted by efficiency and which cannot.

The better an owner and their ESCO understand the interactive components that make up a utility bill, the better educated they'll be when analyzing the accuracy of any projected utility and cost savings. And just to get it out there, there is nothing wrong with asking the ESCO to explain in understandable terms, how best to understand each line of the utility bills. By gaining a deep understanding of their utility rates and bills, the owner will be better prepared to ensure that utility cost savings are not calculated using a simplified "blended rate" but are developed with the necessary rigor that uses all the appropriate components of the utility bill.

One of the best examples of this practice is with electric bills and the calculation of electrical cost savings. If the electric rate is such that the facility is charged both for energy kWh, and demand, or kW, blending those billed component costs will usually result in inaccurate cost savings projections. The projected savings may be greater or may be less than if the cost savings for each of those electric components were calculated individually. And, a better understanding of how demand impacts the bill will help lead to more appropriate cost savings recommendations that independently target both amount of energy consumed and the demand or when the most power is used. While this little shortcut may sound harmless, blending the fixed cost components of your bills with the utility unit costs, will also inaccurately reflect actual cost savings.

There is so much to be learned from a keen analysis of utility consumption that may impact the day to day operation of a facility. But

on so many occasions the bills are simply paid without a second thought. As an example, many states have incorporated a service or software package that automatically collects all of the state agencies' utility bills and simply validates that appropriate rates are applied and perhaps some other accounting streamlining benefits. An unintended consequence of this type of service, is that it may eliminate any meaningful review and understanding of usage and cost trends. This seems to have led to a relinquishing of any awareness or responsibility about utility use, the impact of efficiency, or how efficiency impacts are reconciled by performance contracting project participants. The connection between actions and impact can be overlooked or lost entirely. While the information provided may be helpful in some ways, both the ESCO and the Owner need to make clear how they treat this information. Is it detailed enough to be appropriately used for the engineering calculations for both baseline and savings use and cost? If you're an owner and the accuracy of this information is in any way questionable or is not detailed enough, don't be surprised if your ESCO that's planning on supporting your project with a guarantee asks for the actual information from the utility companies' bills instead of from the 3rd party software package.

And while we're on the topic of utility bills, for many it is a real challenge to locate all of the meters that are listed on a utility bill. If you are going to go about the work of initiating an investment grade audit, it could prove helpful to locate all those meters and reconcile the meter numbers to the bills. It might surprise you to find that you're still paying meter fees for meters that have been abandoned or consolidated in some construction effort along the way.

Although, locating all the meters and reconciling them to the actual bills can be a lot of work -- if that's something the owner wants done as a part of the project, it needs to clearly say so in the ESCO solicitation and ultimately in the final IGA contract scope of work. The ESCOs need to

be duly informed of this and all requirements so they can plan and price the effort accordingly.

A fairly common benefit from performing good utility bill review, is that simple, previously unseen billing errors may also come to light. And still another discovery -- sometimes as additions are made to buildings, new, separate meters get installed that serve the addition only. It could be that by working with the utility company and combining the old and new meters, a better rate can be secured. Or, it may become evident that some building meters are simply being billed on an incorrect rate. Discoveries such as these often result in nearly immediate utility bill cost adjustments.

As we discussed in Lesson #108, Owners and ESCOs need to agree on how or if these savings will be reflected as a part of their project.
As all this information starts to come together -- the building square footage and utility bill information can quickly illustrate the Energy Utilization Index which is a standard metric of efficiency. Expressed in Btus per square foot per year, this simple metric delivers a quick snapshot of how efficient facilities and systems are in relation to one another. And the utility cost per square foot per year can be easily gleaned. It is not uncommon that when the ESCO and owner review this initial EUI information, they may decide to exclude some facilities that appear to be operating quite efficiently.

Setting of the utility baseline is the most critical part of any performance contract. This is where both the owner and the ESCO go back to if for some reason things change. A building burns down, a storm floods a building, or other acts that must be addressed as part of the guarantee period. Again, if the owner does not have knowledgeable staff that fully understands and has time available to work closely with the ESCO, then hiring a 3rd party engineer is highly recommended.

Once you feel comfortable with the information above, please scroll down and complete the quiz below. Email your answers to Reid Conway at reid.conway@ncdenr.gov. If you have additional questions, feel free to include them as well.

Lesson 9 Quiz

1. What is the typical number of years of utility information that is analyzed to illustrate a baseline of consumption in GESPC project?

2. What are some of the information that can be gathered from the utility bills?

3. What is the risk of using a blended rate?

4. What are some of the down sides of using a centralized or service consolidation for utility bill payment?

5. Who should decide if inappropriate rate applications, improper billing or other found billing errors should be counted as saving for you performance contract?

6. What is an Energy Utilization Index and what can it be used for?

Terms and Acronyms

3rd Party	3rd Party Engineer
COS	Council of State
DOA	NC Department of Administration
DPI	NC Department of Public Instruction
ECM	Energy Conservation Measure
ESA	Energy Services Agreement
ESC	Energy Services Coalition
ESCO	Energy Service Company could be interchangeable with QP
ESPC	Energy Saving Performance Contracting
GEPC	Guaranteed Energy Performance Contracting
GESPC	Guaranteed Energy Saving Performance Contracting
GS	General Statute
GU	Governmental Unit
IGA	Investment Grade Audit
IPMVP	International Performance Measurement and Verification Protocol
LGC	Local Government Commission (Housed in the Treasurer's Office)
LGU	Local Governmental Unit
M and V	Measurement and Verification
OR	Owner's Representative
OSBM	NC Office of State Budget and Management
PC	Performance Contracting
Pre-Bid	Meeting held prior to the bid opening
QP	Qualified Provider could be interchangeable with ESCO
QR	Qualified Reviewer
RFP	Request for Proposal
SEO	State Energy Office
UNC	Refers to the UNC System
USI	Utility Savings Initiative