

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](mailto:reid.conway@ncdenr.gov).



## GESPC-U Lesson #114:

### Down to Zero

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

**Summary:** At the heart of the IGA is the baseline energy costs. We take you behind the curtain for a look at how the ESCO arrive at the Baseline Energy Costs and Rate information included in the IGA.

We have reached the point where the Energy Service Company provides the details on how they arrived at all the Baseline energy use, cost, and utility rate information. We touched on this in an earlier lesson and mentioned that baseline development was a very time-consuming process for the ESCO -- and likely for the owner as well. This is where the fruits of those labors are provided in detail. This should include, among other items, the description and itemization of each utilities' billing rates including any schedules and Riders. This should all be found in Schedule C. If for some reason the ESCO has baseline information in other Schedules, it needs to be removed and placed in Schedule C. Because in future years, someone else might not know to look in another Schedule for additional information. Table of Contents will say Schedule C Baseline and that is where the data needs to reside.

Just as one example, one end-user had facilities in multiple locations and there were three different utility companies for electricity and three different utility companies for natural gas. It doesn't take much imagination to understand just how much work goes into parsing the various data and arriving at credible baseline utility rates. In a case like this, the ESCO should develop independent baseline rates for each individual utility which will be applied to their appropriate facilities. But it all needs to be described in detail so the owner knows how they

arrived at those initial Baseline rates and the utility rates that were used to calculate the baseline utility costs.

It's also really important to attach a sample copy of each of those different utilities bills and a description of what can be impacted by efficiency and what cannot. All of the utility data used to arrive at the baseline rates and the supporting demonstration and explanation of math applied should be presented as an exhibit to the investment-grade audit. Once again simply providing credibility and transparency to the entire process.

In a previous lesson we also discussed the work involved in the utility bill analysis and how important it is to reconcile the end-use consumption for the energy using equipment -- such as lighting, cooling, heating fans, and plug loads, with base-year information including the discussion of any unusual findings. So, this is where the measure-by-measure baseline end-use consumption and cost is presented using those previously derived cost and use metrics.

Occasionally there may be a temptation to only focus on the measures that are going to be included in a proposed project and therefore shortcut this reconciliation. But it is ever so important that the reconciliation illustrates the amount of savings that can be attributed to each of the different measure categories and demonstrate a reasonableness to the estimation of savings. While it takes a lot of work to create, a graphical representation, like a pie or bar chart, it can bring significant clarity to the existing and planned energy and dollar impact of these projects.

Exactly how any detailed data is presented is important -- whether it is included into the body of the report or provided as an appendix or an exhibit to the report. Either works but it is a lot of data and a lot of detail and is a good use of appendices or exhibits to the report.

Along with all this information collected and applied regarding the utility demand and consumption and the variables that impact it, there also needs to be included a discussion of the facility operations and maintenance procedures that will be affected by the installation. Discussions like how this will solve the problem of not being able to acquire parts, or get service for the existing devices. Equally important is the necessary presentation of the operation and maintenance requirements of the new or retrofit devices and systems.

While new devices and systems are likely accompanied by at a minimum a first year of warranty coverage for parts and labor should they fail, who will be operating the equipment and systems and who will be responsible for the appropriate level of maintenance must be considered along with any staffing impacts or needs for specialty operation or operation training. Those roles and responsibilities become increasingly important for the owner to understand as they're making these big decisions

Now we've arrived at the point where the full description of each energy and water savings measure is provided and of course, as you would expect, a written description of the specific existing condition for the system or unit. Again, a little more detail on why they might even be considering a measure for this particular system or unit and then a description of the equipment to be installed and how it's going to function.

If the rooftop HVAC unit is being replaced – the report should first describe what are the issues with the existing one – maybe its 35 years old and you can't get parts, or the dampers are broken and you can't repair them anymore -- and then follow the recommendation to replace that HVAC unit and whether it's a one-for-one exchange. This will all be described in this section.

It's also important to present the plan for installing or implementing the recommendation to the extent possible without having a Construction contract with all of its detail which we will definitely be diving into in a future lesson. The report should include an overview of how each particular measure is going to be implemented.

Let's just use lighting as an example -- typically lighting contractors work off-hours such that they're not standing on people's desks and working in the ceilings overhead while people are working in or using the building. This needs to be disclosed at this point in time. Another example, with a cooling unit – the implementation usually must be done during unoccupied times such that the ESCO doesn't turn important equipment off during the middle of the summer -- that's another issue that should be discussed and disclosed here as well.

While all parties are generally excited about what might be able to be completed during construction -- it's always good to identify the plan for implementation. All implementation plans have to consider how the occupants are to be impacted from any installation.

What all this illustrates is that the report should provide the owner a pretty good understanding how these measures are going to be implemented in general -- with all the specifics yet to come in a final Construction contract because as we all know things still may shift a bit as details continue to get tightened up. But a preliminary Gantt or Implementation Chart should also reveal a first cut at the amount of time planned for the full project implementation.

We've come to the end of another big step in the investigation, assessment, planning and diligence required to complete an Investment Grade Audit and its report working through project development.

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](mailto:reid.conway@ncdenr.gov). If you have additional questions, feel free to include them as well.

## Lesson 14 Quiz

1. What items are typically included in the description and analysis of utilities?
2. True or False; all costs associated with a utility bill are included in the calculation of the rate.
3. Why is it important to illustrate the math applied in the work of the IGA?
4. Why reconcile the utility loads to the actual utility bills?

5. True or False; the operation and maintenance of new devices and systems need not be disclosed in the IGA as it will be described in the implementation contract.
6. What operation and maintenance considerations should be described in an IGA?
7. The planning of when systems and devices will be installed impacts the owner in many ways. Name two challenges that should be avoided during the installation of a measure.
8. What is a GANTT chart?

## Terms and Acronyms

3 <sup>rd</sup> Party	3 <sup>rd</sup> 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