

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.



GESPC-U Lesson #124:

Final Considerations

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

Summary: The final hurdle of a project goes beyond implementation to include commissioning and post construction M&V. In this lesson we offer insights into what you may expect post-construction.

Some final considerations about commissioning and post construction measurement and verification to wrap up the implementation phase of a project.

For every measure in your performance contract, there are some final hurdles beyond installation that are critical to the success of your project. Commissioning, as we reviewed in lesson 117, is the process of validating the functional performance of the measures. This should be accomplished by following the detailed plan of action submitted by the ESCO and agreed to as a part of the Investment Grade Audit and Project Proposal. Do the measures do what they were intended to do and when they're supposed to do it?

We strongly urge the use of Commissioning Witness forms that specify the actions of commissioning the measure and documents by signature and date who performed the commissioning and who from the owner's staff witnessed it. This simple step confirms beyond any shadow of

doubt that the measure is installed and working just as was planned, proposed, and authorized. Walking through this process for every measure provides the best assurance that final work of implementation has been accomplished.

And of course, if commissioning reveals something that's not quite working the way it should, an accurate description should be noted on the commissioning form along with what's required to resolve the issue. The item should be added to the punch list for appropriate attention with a plan to return to it when the remedy is complete. It's not uncommon for commissioning to uncover a few incomplete or not quite right issues that require attention and correction, and then a follow-up visit for final commissioning and signoff. There's a big difference between merely making programming changes on a building management system screen and field verifying the valves and dampers actuate when the programming calls for it.

Over the years commissioning has grown into an essential part of every construction and renovation project ensuring that devices and systems not only get installed as planned but they function in the way envisioned. What's unique to GESPC is the activity of measurement and verification. It's one thing to plan a project well, manage the implementation, coordinate with existing systems and devices, you know, build a great project, but M&V is all about proving that the savings projected are being realized. M&V should be an activity of science, proving, and validating the amount of savings being achieved.

And post construction M&V sets a pattern for the work that may be repeated for a specified number of years and may continue through the full-term of the performance contract. As measures are completed

during the construction phase, the ESCO may want to wrap up activities particular to that measure by completing the post construction M&V as each measure is commissioned and signed off as complete. As an example, for many projects, the first measure completed is the lighting and lighting systems upgrades. So, when the work is complete, the punch list created, the commissioning has ensured installation parameters have been followed, and all fixtures listed have been attended to, it's common to have an M&V team show up to measure the light output and power consumption of the devices and fixtures. The M&V plan created and approved as a part of the IGA should specify which and how many of the same type of fixtures to measure to validate savings achieved. Once again, this process should include a witness and the appropriate documentation illustrating the planned energy consumption and the actual measured consumption.

The challenge is what and when to measure for devices and systems that are interactive across several technologies, or that only are used during a specific season. This may mean that your post construction M&V plan has activities that are delayed until that season is in full swing operationally, all a part of what should have been detailed in your M&V plan.

We've touched on commissioning and measurement and verification in previous lessons, but as a reminder this work really is essential to a successful project. How the taking of actual field measurements and walking through the math of how those measurements combine with the M&V assumptions agreed to in the plan, truly illustrate savings. And finally, reconciling this information to the post construction utility bills.

These are the steps that prove beyond doubt, that the paid for by savings concept is for real!

Just to clarify, start up only ensures that devices and systems are installed per the manufacturer's recommendations and as planned. Commissioning, on the other hand, is the functional performance validation that the measures are working as intended. M&V is proving that the savings projected are achieved. These services and processes are different and the lines between them should not be blurred but be distinct activities and services with specific and separate outcomes.

When folks talk about performance contracting being a single source, paid for by savings project methodology, there is no better realization of those claims than when the ESCO surveys the potential for savings, plans and fulfills the implementation, and then illustrates and documents that performance and savings are being achieved as planned. The partnership between the ESCO and the Owner is real, the guarantee removes the owner's risk and we're all better stewards of our investments and our resources.

Rolled up into final post construction and subsequent annual reports and likely memorialized in eProject Xpress the evidence that projects are built right and performing well is a testament to the public support that avails the opportunity for Guaranteed Energy Savings Performance Contracting.

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 24 Quiz

1. Define Commissioning.
2. What is included in a Commissioning Witness form?
3. True or False; commissioning may reveal unfinished, incomplete, or unacceptable work which should be added to the punch list.
4. How do commissioning and measurement and verification differ?
5. What are interactive savings and provide examples of interactive savings?
6. True or false: M&V is not necessary and drives up the cost of the overall project to the owner and may eliminate other important work that could be completed with the project savings.
7. Name a free, web based, secure, centralized, standardized national repository for project summary and measurement and verification results reporting.

Terms and Acronyms

3 rd Party	3 rd 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