FEDERAL UTILITY PARTNERSHIP WORKING GROUP SEMINAR

November 7-8, 2018
Herndon, VA

Commissioning
for
Performance Contracts

Hosted by:

FEMP
Federal Energy Management Program

Dominion Energy®
What is Commissioning?

- “A **quality**-focused process for enhancing the delivery of a project. The process focuses on **verifying** and **documenting** that the facility and all of its systems and assemblies are planned, designed, installed, tested, operated, and maintained to meet the Owner’s Project Requirements.”

- **Key Words:** Quality; Verifying; Documenting
Commissioning Buzz Words

• **Re-Commissioning**
  – Commissioning existing buildings that have been commissioned before

• **Retro-Commissioning (Existing Building)**
  – Commissioning existing buildings that have NOT been commissioned before

• **Continuing Commissioning**
  – Ongoing process to resolve operating problems, improve comfort, optimize energy use, and identify viable retrofits

• **Automated Commissioning**
  – Next generation based on control/BAS systems diagnostic capabilities; requires minimal operator intervention
Project Team of This Century

Gaps between disciplines resulting in:
- Poor Coordination
- Lost Detail
- Costly Change orders
- Delays in Schedule
Camp Lejeune Cx Program

• 2014 FSRM Projects
• 2015 FSRM
• Infrastructure Reset
• Milcon
• Mix of Cx and Cx oversight
Lessons Learned

• What does success look like?
• Focus on energy consumption, functionality, quality, certification, other owner priorities
• Tailor program to owner needs
• Start early
• Open/central records
• Team player not inspector
The commissioning process offers the greatest value and biggest savings when started EARLY!!
Performance Contracting 2018

• Energy Efficiency
• Water Conservation

Plus
• Resilience
• Deferred Maintenance
• Renewable Energy
• Energy Storage
• Fence to Fence
• Deep Retrofits
• Mission Support
Performance Contracting 2018

• Good scoping for good outcomes
• Clarify owner’s requirements
• Deep retrofits avoid revisiting
• Validation and quantification
Contract Vehicle

• Independent 3rd Party
• ESCO Staff
• Sub to ESCO
Benefits of Commissioning

• Customer satisfaction
• Validation that equipment can deliver savings
• Fewer call backs
• Less M&V issues
• Fewer battles
• Reliability/Resilience
• More wins!
What about RCx?

- Difficult to contract with appropriations
- Brooks Act AE Contracts
- Service Contracts
- Construction Contracts
- Performance Contracts!
RCx Process

Planning
- Review System Design Documentation
- Develop Utility Benchmarking
- Perform Energy Audit
- Identify Initial Energy Conservation Measures
- Generate Issues Log
- Develop Detailed Work Plan
- Perform Initial Site Survey

Investigation
- Implement Diagnostic Monitoring Plan
- Establish Current System Performance
- Engage Facility Mgmt Staff in Planned Changes
- Develop Detailed Testing Procedures
- Implement Functional Testing Program
- Perform Seasonal Testing
- Update Energy Conservation Measures
- Prepare Draft Report

Implementation & Turnover
- Provide Detailed Scope of Work for Capital Improvement Projects
- Develop Cost Estimates
- Implement Modifications
- Measurement and Verification
- Provide Operator Training
- Prepare Final Retro-Cx Report
- Prepare Re-Cx Manual
- Provide Recommendations for Future Initiatives

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RCx Opportunities

- Simultaneous heating and cooling
- BAS programming
- Air damper sequencing
- Chilled water bypasses and leaks
- Battery charging schedule changes
- Corroded condenser coils
- Incorrect head pressure control and hot gas bypass connections
- Poor equipment access
- Equipment not responding to control system
- Temperature and humidity sensors out of calibration
- Control sequence not operating correctly
- Electric duct heaters with incorrect wiring
- Incorrect cooling load calculations
Conclusion

• Projects are larger and more comprehensive
• Agencies need more than energy and water savings
• Commissioning can validate that agency requirements have been met
Thank You

John Hickey, PE