

FEDERAL UTILITY PARTNERSHIP WORKING GROUP SEMINAR

November 7-8, 2018
Herndon, VA

Commissioning ***for*** ***Performance Contracts***

Hosted by:



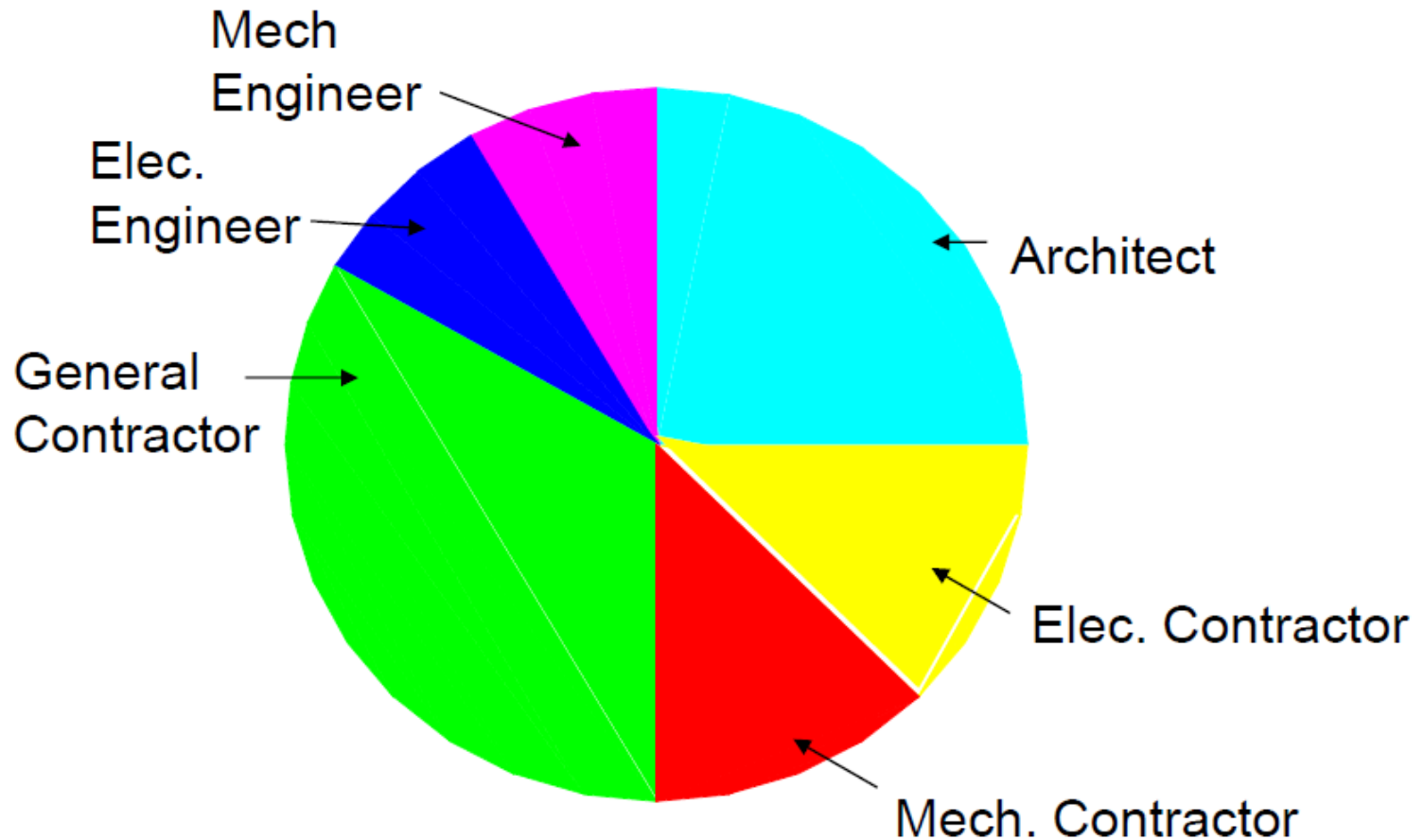
What is Commissioning?

- “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

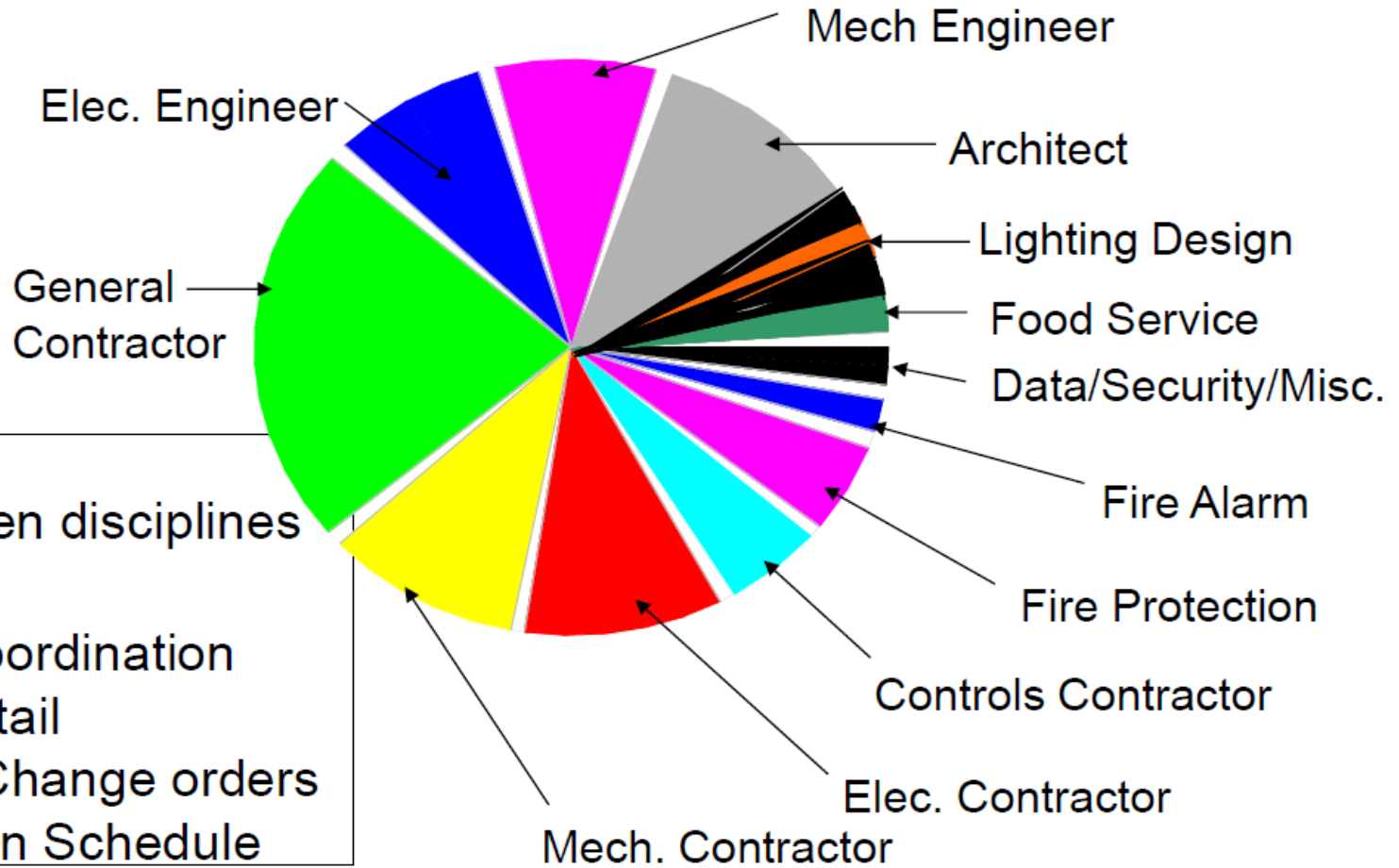
Commissioning Buzz Words

- **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 Last Century



Project Team of This Century



Camp Lejeune Cx Program

- 2014 FSRM Projects
- 2015 FSRM
- Infrastructure Reset
- Milcon
- Mix of Cx and Cx oversight

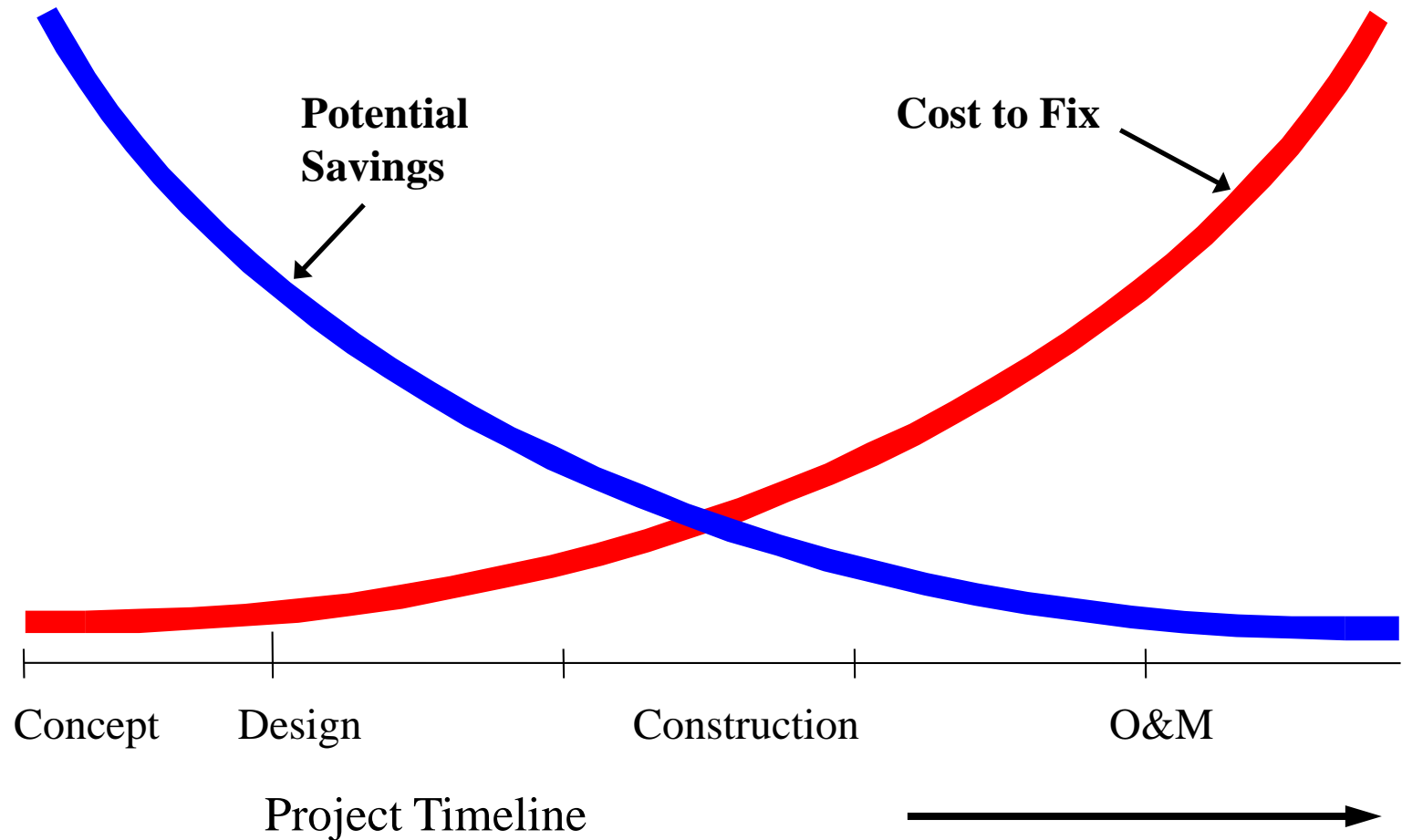


Lessons Learned

- 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

Preliminary Assessment

IGA / DES

Construction

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



Federal Utility Partnership Working Group
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Thank You

John Hickey, PE

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