Defining the Partnership Between the Federal Government and the Cx Industry

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Learning Objectives

1. What challenges does the Federal Government present to the Cx community?
2. What are the Government’s, Design Teams’ and Contractors’ expectations of the Cx Authority?
3. Where do they see weakness (or have had problems) with the Cx process? Where do they see the greatest value?
4. What are the attributes of a strong, pro-active CxA? How are these accomplished without incurring additional liability on the part of the CxA?
5. Case studies of Pro-active Cx efforts
Cx Challenges Posed by the Federal Government

- Largest Energy Consumer – with over 1/3 attributed to buildings
- Over 500,000 buildings with majority of stock over 40 years old
  - Control and trending constraints
- Legislation and Executive orders, like EO 13514
  - 30 percent reduction by 2015
  - Net-zero goal by 2030
- Agency mandates for periodic Audits / RetroCx / M&V
  - Limited implementation
Cx Challenges Posed by the Federal Government

• Building Operators – aging demographic, skills limited to conventional systems

• Increased sophistication of control systems and strategies
  ○ Systems not operated as intended

• Addition of technically challenging renewable energy systems
  ○ Solar – photovoltaic & heating
  ○ CoGen – Bio-mass and Bio-gas
  ○ Fuel Cell
  ○ Wind Turbine
Cx Challenges Posed by the Federal Government

- Defining ‘Partnership’ through method of procurement
- When procurement method equates to lowest cost, minimum scope and level of service (Design/Build)
- Lack of understanding between procurement groups, various departments / COTRs
- Budget constraints – lack of $$$
- How does government maximize Cx benefits and ROI
Common Cx Expectations from the Project Team

**Owner**

- **No** Change Orders or Project Delays
- Systems Tested and Work **Perfectly**
- **No** complaints from Users
- O&M Personnel Trained **completely**
- Get our **LEED points** for certification

**Architect**

- Back Check the Engineer
- Keep an eye on the Contractors
- Get the Owner’s **LEED points**
Common Cx Expectations of the Project Team

Engineer
- Stay out of my way
- Keep an eye on the Contractors
- Get the Architect’s LEED points

Contractor
- Stay out of my way
- Straighten out the Engineer
- Get the ‘D—n’ LEED points
Why Commission (i.e. beyond LEED points)

Improve project delivery and quality of final product (building and systems)

• Experienced Cx Authorities are professionals – often with diverse backgrounds

• Expertise and experience
  ○ System design and controls
  ○ Testing, adjusting and calibration procedures
  ○ Evaluating schedule and project progress
  ○ Insight to O&M staff’s concerns

Owner’s advocate sitting at the table
Goals for a Successful Project

**Government / Owner**
- Delivered on time (within schedule)
- Delivered within (or under) budget
- Meets Users Needs
- O&M personnel satisfied
- Meet (or exceed) performance / energy targets

**Architect / Engineer/ Contractor**
- Perform within negotiated fee (profit)
- Happy Client (see above)
- Future work
What about Commissioning?

CxA shares all of these goals and should be instrumental in their achievement!

......However, the Cx industry continues to hear complaints from Clients!
Overheard Complaint – (at a Pre-proposal Mtg!)

“After 5 years of Cx, have not seen benefits”

- Why not, what were your expectations?
- How was the CxA selected?
- What was his/her scope and fee?
- Did you get references?
- Did you ask for sample deliverables?
- How did the CxA inject himself into the project?
- Who reviewed the CxA’s documentation?

*Why are you still commissioning?*

(...because we have to for the LEED points!)*
Common Cx Complaints – Perceived Weaknesses

Specifically, what are your complaints?

- No reduction in C.O. or improvement in schedule
- CxA participation limited, seldom seen
- Not active participant, passive / takes notes
- Communication (‘few and far between’)
- Why didn’t he/she see (or catch) that?
- Isn’t the CxA supposed to solve any (all) issues?
- Why is the CxA at odds with the A/E (contractor)?
- My O&M staff continues to ‘find’ issues
- The Users are complaining to my boss
Be a **Pro-active** member of the Team

- Get engaged and understand the ‘**project**’, not just the ‘**systems**’
- Build **working** relationships with the team members
- **Participate** in OAC meetings – in person, by conference call (or review mtg. minutes)
- Demonstrate importance of properly completing and documenting **all** Cx tasks, share experiences
Defining the Partnership
(or The ‘Art’ of Commissioning)

Be a **Pro-active** member of the Team

- Question and **challenge** the design team, contractors and Owner, as necessary
- Demand all team members meet their **Cx responsibilities**
- Document and disseminate Cx information quickly (within 24 hours)
- CxA can not “direct work”, but you can make strong suggestions and recommendations
- **CxA** should have the Owner’s ear, **use it!!!**
Pro-active Case Studies

1. Never too late to review OPR / Program
   • Owners and A/Es don’t always communicate

2. Don’t compartmentalize design review
   • Architects and engineers don’t always communicate (or coordinate)
3. In an era of High Performance buildings why do we see ‘over-sized’ systems?
   • Pay attention to load calculation assumptions and equipment sizes

4. Why a second set of eyes on shop drawing submittals is a good thing
   • Don’t assume, missing information is trouble
5. Often the CxA can best evaluate the schedule; and ‘system readiness’
   • Evaluation for TAB, start-up and testing

6. Establish tight criteria for training, and test O&M’s comprehension afterwards
   • Ensure the ‘right training’ for the ‘right people’
Summary / Take Aways

• The Cx industry can help meet the Government’s requirements (executive orders, legislation, etc.) to reduce energy consumption and improve quality of their systems and facilities

• Procure third party Cx …don’t allow conflict of interest to occur

• Select CxA based upon qualifications and references

• Ensure the CxA is integrated into the project team early, and is an active participant in meetings
Summary / Take Aways

- Require (and review) ongoing Cx documentation throughout the project
- Conduct Lessons Learned workshops and refine processes for procurement and implementation

- Cx is NOT a ‘commodity’ service:
  - Selection and procurement should be based upon experience and scope of services
  - The diverse backgrounds of many CxAs help other team members execute their roles.
  - Experienced CxAs provide recommendations for system adjustments to improve performance and efficiency
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Thank You
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