



How to Review and Analyze ESPC/UESC Price Proposals

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Why Is This Even An Issue?

- ESPC/UESC backfills funding shortfalls
- Comparable LCC only if done quickly
- Umbrella contracts are used for speed
 - e.g., GSA Area-Wide, Super ESPC
- Project definition by contractor for speed
- Projects are defined late in the process
- If price review is slow, speed (LCC) is lost



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Life-Cycle Cost Refresher

- Agencies' ESPC programs have comparable LCC to their direct-funding programs when:
 - Cycle time is faster by a year or two
 - ECM prices are comparable
 - Financing is competitive
- Cycle time and price review work against each other
 - Important to strike a reasonable balance



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Price Review in a Nutshell

- Has some resemblance to buying a home
 - Scope what you want
 - Home: go see what is available
 - Project: set ground rules, send contractor forth to see what is feasible for pay-from-savings
 - Verify fair price of what you are buying
 - Home: compare to recent sales of similar properties
 - Project: host of options, some faster than others
 - Get the best financing you can



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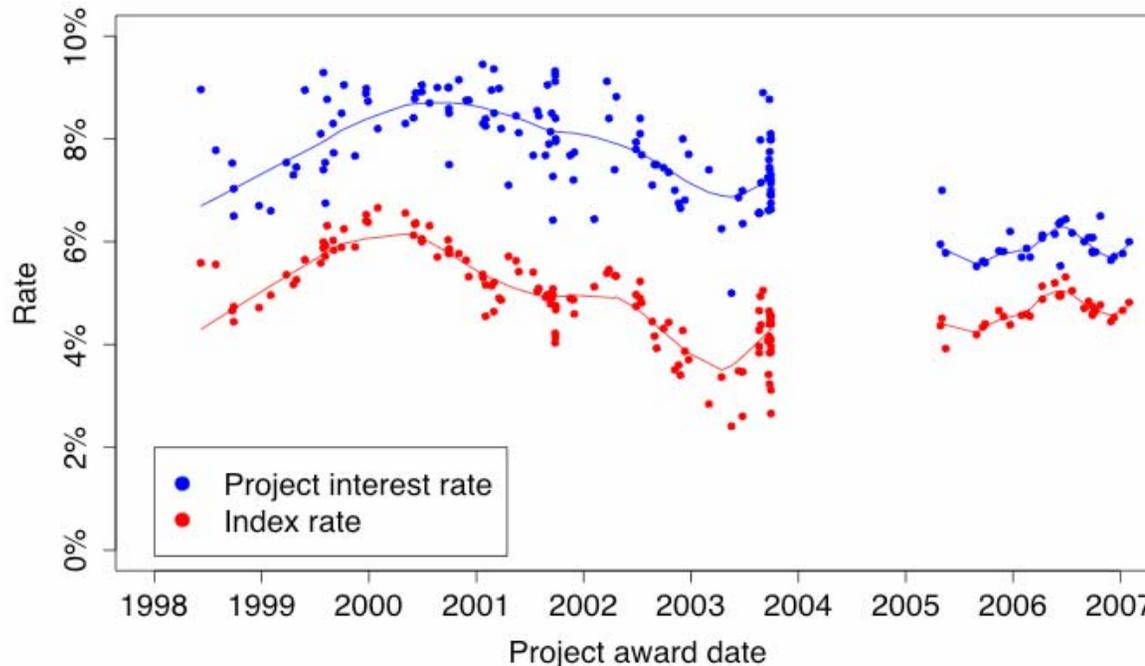


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With Financing, Competition Works

Competition has cut interest rate premiums in half



(Super ESPC data, but conclusion applies to UESC)



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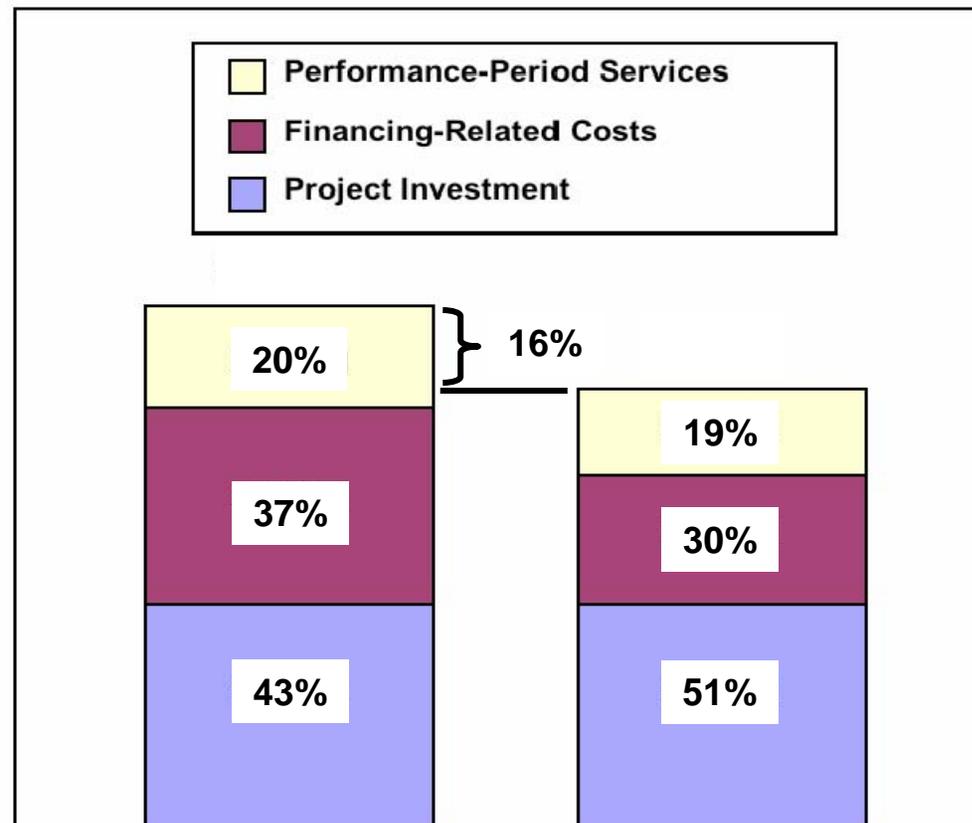
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Same Projects for 16% Less

Using post-reform financing rates, the sum of payments for the average project is 16% lower than with pre-reform rates.

(“Average project” is calculated from all Super ESPC awards, but conclusion applies to UESC too.)

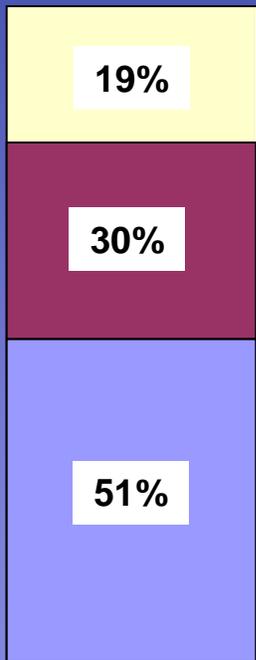


Before-Reform Rates

After-Reform Rates



Verifying Fair Pricing of ECMs is Important

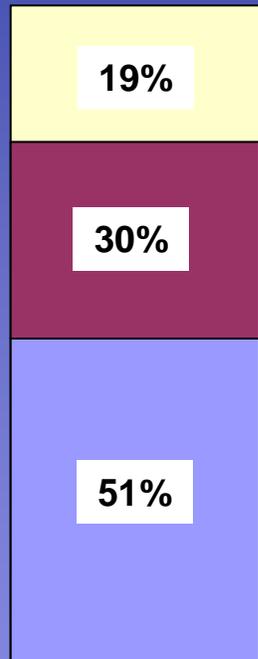


ECM price is the largest cost in ESPC

Financing magnifies pricing ~3x



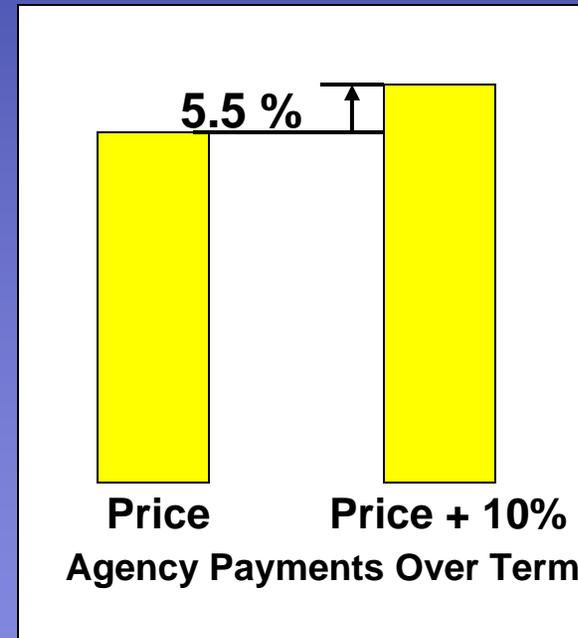
Also Important—Fair Pricing of Performance-Period Services



PPS is also a significant cost



Financing magnifies pricing ~2x



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If Competition Works So Well, Why Isn't It The Holy Grail for Pricing?

- “Price competitions” require defined projects to price
- We use contractors to define projects for speed
- If the government defines them, we lose speed
- Losing speed means also losing comparable LCC
- Government defined projects also lead to duplication
 - Contractors must re-work projects so they are guarantee-able
- Guarantee-able what? – cost savings, firm fixed price
 - Typically requires ~30% design completion (or spending ~5-15% of total ECM price)



Bad Idea—Consolidating “Fair Opportunity” and “Fair Price”

- Must give “fair opportunity” for orders to the multiple umbrella contract holders *and price must be considered*
 - Get over it, nothing is defined yet so why waste time and money on a phony price competition?
- The important work of verifying “fair price” comes after contractor project definition
 - ECM prices
 - Performance-period service (PPS) prices



The ECM Prices Discussed Here are All-Inclusive

ECM Price =

- (ECM design/construction expense)
+ (Markup)



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PPS Prices Discussed Here Are All-Inclusive by Category

- Categories are determined by responsibilities assigned to the contractor during the performance-period
 - Project management (labor)
 - Operations (labor)
 - Maintenance (labor and materials)
 - Repair and replacement (labor and materials)
 - M&V (labor and materials)
 - Training (labor)



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FAR Provides Options

- FAR 15.404-1 specifies three main proposal analysis techniques
 - Price analysis
 - Cost analysis
 - Technical analysis

“The objective of proposal analysis is to ensure that the final agreed-to price is fair and reasonable.” -- FAR 15.404-1



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FAR defines the following

- **Price analysis** is the process of examining and evaluating a proposed price without evaluating its separate cost elements and proposed profit
- **Cost analysis** is the review and evaluation of the separate cost elements and profit in an offeror's or contractor's proposal
 - Moot CO option for ESPC/UESC because technical expertise would be required (“Technical Analysis”)



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FAR—"Technical Analysis"

- Contracting Officer seeks the opinion of individuals with specialized knowledge of the equipment or services being procured
 - Professional construction/service cost estimators
 - Site-level engineering staff
 - Technology experts from Labs
- Technical experts review and evaluate the separate cost elements



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FAR “Price Analysis” Options

- Parametric estimating methods (ECM benchmarks)
 - Speedy, but gaps remain
- Comparison with previously proposed and/or awarded prices (ECM locator)
 - Relatively quick, but gaps still remain
- Price competition
 - Slow, occasionally used as a gap-filler
- Comparison with published prices
 - Moot for ESPC/UESC



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FAR “Technical Analysis” Options

- Review the separate cost elements and detailed backup
 - Most common gap-filler (require backup submittal and budget and schedule the cost estimator early on)
- Develop an independent government estimate (IGE)
 - Slow, rarely used as a gap-filler



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What Is Parametric Estimating?

*“Application of rough yardsticks to highlight significant inconsistencies that warrant additional pricing inquiry”
FAR 15.404-1*

- “ECM price benchmarks” are an example
- A benchmark is a statistical relationship between ECM *price* and some measure(s) of *size*
- Data from past Super ESPC and direct-funded projects has permitted development of benchmarks



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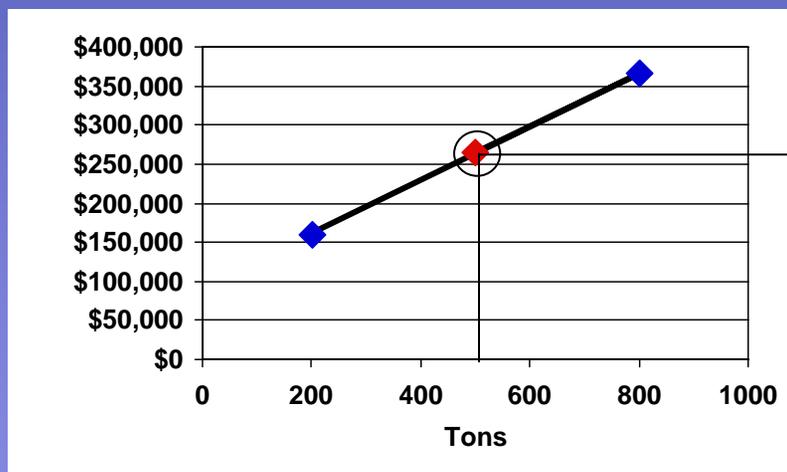


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Parametric Estimating—Example

- A site recently paid the following:
 - \$162,000 to replace a 200-ton chiller
 - \$366,000 to replace an 800-ton chiller
- Given these prices, what is a reasonable price to replace a 500-ton chiller?



**Answer:
About \$264,000**

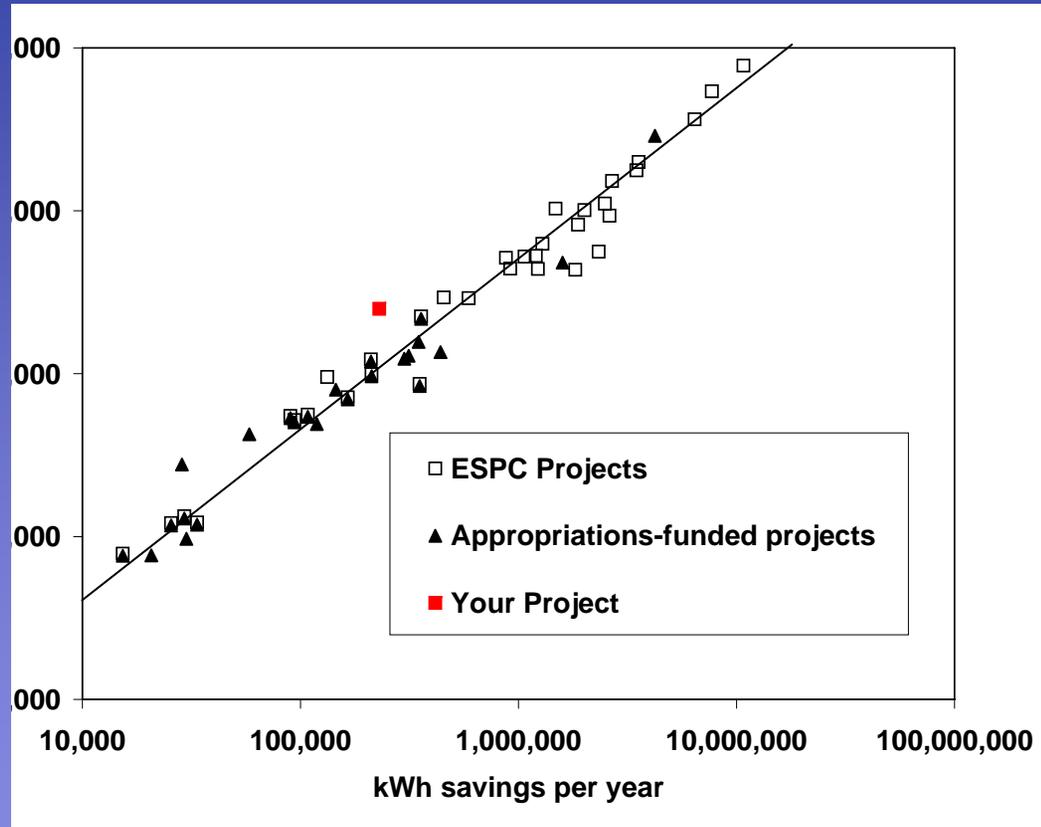




Lighting Retrofit Benchmark Tool

Price scale omitted to preserve integrity of benchmarks

Note: tool adjusts past prices for inflation to the current date and location for comparison to the offered price on your project



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“Point Comparison” Tool

- Not all ECMs lend themselves to benchmarks
- For these we have the “ECM Locator” tool
- Based on all past Super ESPC ECMs
 - No direct-funded ECMs currently in the dataset
- Search on ECM name, receive list of projects, click “view” for the details on any project
- Tool adjusts past prices for location and inflation
- Generally also need to examine ECM descriptions to build a small sample having scope comparable to the offer



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Example of Building A Small Comparative Sample

ECM Description per DO Schedule	ECM price (\$k)	No. of traps replaced	Price (\$/trap)
Steam trap replacements	872	1243	702
Replace steam traps	60	83	723
Steam trap replacements	46	54	852
Replace steam traps	477	500	953
Steam traps	307	285	1077
Average			861
Steam trap replacements (PROPOSED)	1376	1191	1155



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Lessons Learned from Billions Worth of Projects

- Focus “price review” where it matters
- Initial proposal (IP) submittal
 - IP is a project “sketch”, supports “proceed or not”
 - Nothing more than quick & dirty review is warranted
- Detailed energy survey (DES) & final proposal (FP) submittal
 - Important work of verifying “fair price” occurs here



More Lessons Learned

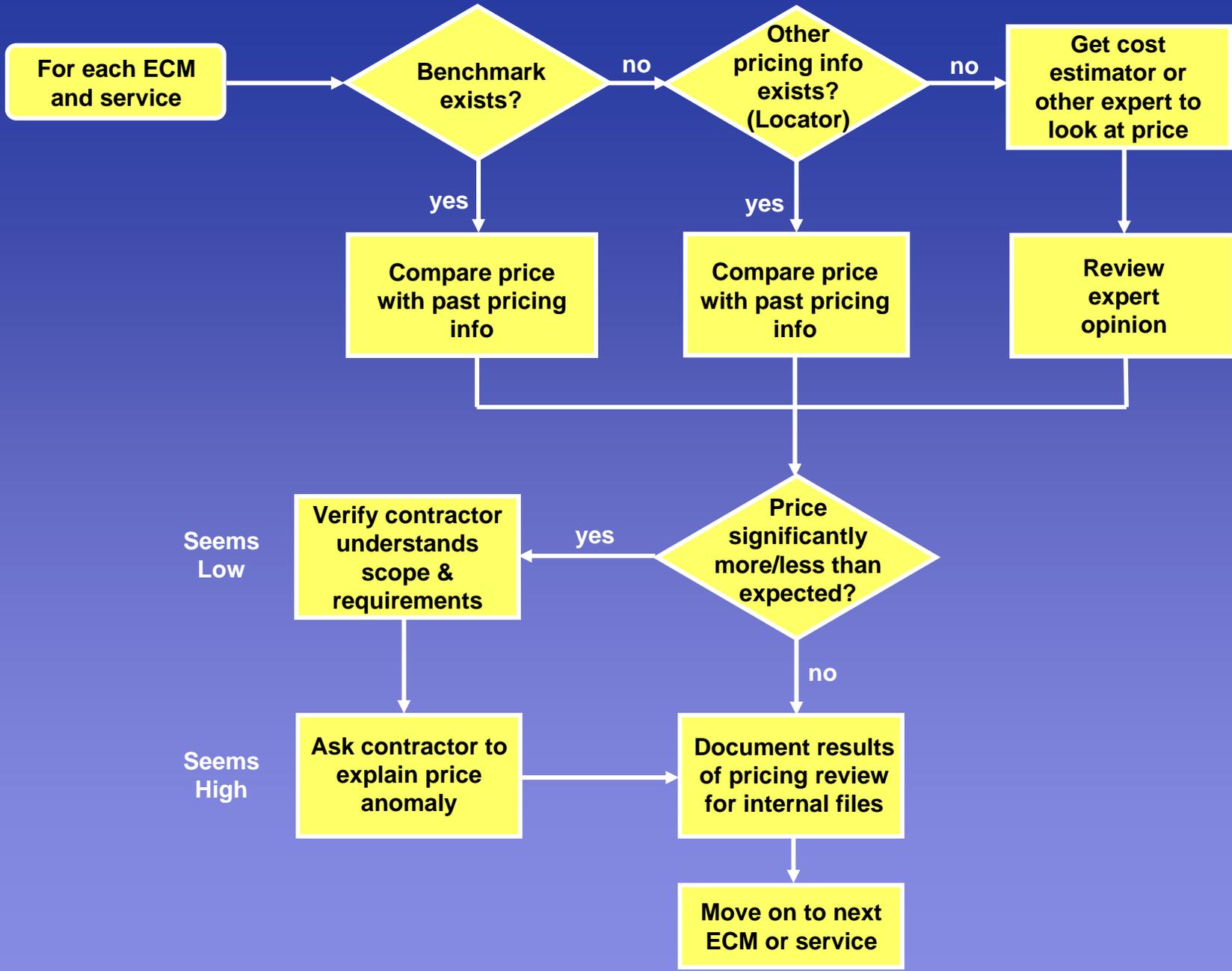
- Plan to review what you can with the speedy methods
- Identify gaps at the “out-brief meeting” after the detailed energy survey (DES)
- Immediately select your “gap-filler” strategies and find, budget, & schedule the expertise
- Immediately inform contractor of any special “gap filler” DES/FP submittal requirements
 - Common: ECM’s/PPS’s requiring detailed cost element backup



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Seems Low

Seems High



Benchmark Example #1

- ECM – GHPs in family housing
 - Scope – Install GHP systems in about 1300 family housing units, total installed capacity = 2911 tons
 - Proposed Implementation Price:
 - Design \$ 348,410
 - Construction \$6,797,180
 - Total Implementation Expense \$7,145,590
 - Implementation Markup (25%) \$1,786,397
 - Implementation Price \$8,931,987
 - Installed cost per ton = \$3,068



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Benchmark Example #1, Cont'd

- Residential GHP pricing from database was \$3,300 per ton
- Comparison
 - Proposed price per ton = \$3,068
 - GHP database price per ton = \$3,300
- Conclusion
 - Proposed ECM price is fair and reasonable



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Benchmark Example #2

- ECM – GHP installation in lodge
- Scope – Install GHP system in lodge-type facility, total installed capacity = 65 tons
 - Proposed Implementation Price:
 - Design \$ 16,298
 - Construction \$317,967
 - Total impl. expense \$334,265
 - Impl. markup (25%) \$ 83,566
 - Implementation price \$417,831
 - Installed price per ton = \$6,428



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Benchmark Example #2, Cont'd

- Commercial GHP pricing from DOE GHP database was \$5,500 per ton
- Comparison
 - Proposed price per ton = \$6,428
 - GHP database price per ton = \$5,500
- Proposed price was 17% higher than benchmark
- Red Flag! Further investigation required.



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Benchmark Example #2, Cont'd

- Analysis revealed an invalid comparison
- Lodge facility required additional condenser piping (inside building) to serve console-type GHP units
- Commercial systems in GHP database were central-station-type ducted systems (do not require significant amounts of internal piping)
- Cost of internal piping is the potential source of the cost difference





Benchmark Example #2, Cont'd

- Used contractor's cost estimating bill of materials and R.S. Means to establish basis for piping price
- Internal piping price estimate = \$55,479
- Deduct estimate from total implementation price
 - \$417,831 - \$55,479 = \$362,352
 - Resulting price per ton = \$5,574
 - GHP database price per ton = \$5,500
- Conclusion
 - Proposed ECM price is fair and reasonable





Prediction: Speedy Tools Will Leave Fewer Gaps In Future

- In recent years 30-50% of Super ESPC prices would have been reviewable with tools
- This could be expanded with access to sufficient data
- The new Energy Bill may solve data limitations
 - H.R. 3221 Sec. 9047(f)(6)(B)(i) “the Secretary shall develop and deploy the web-based tracking system required under this paragraph in a manner that tracks, at a minimum—”...“ (III) the estimated cost and savings for measures”
 - This section applies to direct-funded, ESPC & UESC ECMs
- DOE is funding ESC/NASEO/NAESCO to set up a web-based system and DOE will have access to the data
 - State & local ESPC exceeds federal by ~6x





Experience-Based Ranking

- Price Analysis
 - Parametric estimating methods
 - Comparisons to previous prices
 - Price competition
 - Comparison with published prices
- Cost Analysis
- Technical Analysis
 - Review detailed cost element backup
 - Independent government estimate
- Yes
 - Yes: 1
 - Yes: 2
 - Yes: 4
 - No
- No
- Yes
 - Yes: 3
 - Yes: 5





For More Information

Would you like to know more about this session?

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Don't forget to fill out and drop off your session evaluations!



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How to access web tools

- John Shonder, shonderja@ornl.gov
- <http://eber.ed.ornl.gov:8080/espcc/app>
- First thing you will want to do is request a signon
- Once you get the signon, there are tutorials available for each of the tools



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News

ESPC Web Tools Roadmap

Tool	Scheduled Release Date
Finance Procurement Price Calculator	3/16/06
ECM Locator	12/16/05
ECM Price Benchmark Calculator	11/23/05
Financial Value Calculator	10/21/05

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ECM Price Benchmark Calculator

Proposed ECM Description

ECM type	Lighting
Implementation price	1275000
Annual kWh savings	1250000
Price index state	MN
Price index city	Minneapolis

ECM Price Benchmark Results

08/06/07

Proposed ECM Description

ECM type	Lighting
Implementation price	\$1,275,000
Annual kWh savings	1,250,000
Price index state	MN
Price index city	Minneapolis

1. The expected price is \$1,015,000
2. The offered price is 26% above the expected price.
3. The offered price is within the 95% confidence interval of the mean

ECM Price Benchmark Calculator

Proposed ECM Description

ECM type	Lighting
Implementation price	1,275,000
Annual kWh savings	1,250,000
Price index state	NY
Price index city	New York

Calculate Cancel

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ECM Price Benchmark Results

08/06/07

Proposed ECM Description

ECM type	Lighting
Implementation price	\$1,275,000
Annual kWh savings	1,250,000
Price index state	NY
Price index city	New York

1. The expected price is \$1,185,000
2. The offered price is 8% above the expected price.
3. The offered price is within the 95% confidence interval of the mean



ECM Price Benchmark Calculator

Proposed ECM Description

ECM type	Chiller
Implementation price	720000
Tons	200
Price index state	NE
Price index city	Lincoln

Calculate Cancel

ECM Price Benchmark Results

08/06/07

Proposed ECM Description

ECM type	Chiller
Implementation price	\$720,000
Tons	200
Price index state	NE
Price index city	Lincoln

1. The expected price is \$590,000
2. The offered price is 22% above the expected price.
3. The offered price is within the 95% confidence interval of the mean

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ECM Locator

Price index state	TX
Price index city	Dallas
Search word	vending

ECM Locator Search Results

Description	FEMP Central Project Name	Details
Vending	Kansas City Regional Office - Wichita, Topeka, KS sites	view
Vending Machine Control	Des Moines Federal Bldg	view
Vending Machine Controls	Fort Drum	view
Vending Machine Controls	Ft. Hood	view
Vending	Job Corps various sites	view
Vending Misers	Oak Ridge National Laboratory	view
Cold Drink Vending Machine Controls	Fort Irwin	view
Lighting and Vending Machine Controls	Kodiak AK	view
Cold Drink Vending Machine Controls	CA National Guard JFTB Los Alamitos	view
Vending Machine Controls	Ft. Hood, TX Phase II	view
Install Vending	National Archives & Records Administration	view

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ECM Locator

Price index state	TX
Price index city	Dallas
Search word	controls

Search Help Cancel

ECM Locator Search Results

<< < 1 2 3 > >>

Description	FEMP Central Project Name	Details
HVAC Controls Upgrade Bldg. 70 E Wing	Iron Mountain	view
Kitchen Exhaust Hood Controls BAS	Des Moines VA Medical Center (VISN 14)	view
Preheat Coil Controls	Pantex Plant	view
Process Cooling Tower Controls	Hill AFB BAMF Project	view
Time of Day Controls	Yosemite NP	view
Snow Melt System Controls - Minneapolis	VA Medical Center (VISN 23) Phase II:	view
Vending Machine Controls	Fort Drum	view
New Rooftop Unit - Fort Meade 1 AHU,, and controls	VA Medical Center (VISN 23) Phase II:	view
Time of Day HVAC Controls	VA Medical Center (VISN 20) White City	view
Night Setback Controls	Denver Federal Center	view
Vending Machine Controls	Ft. Hood	view
Controls (9106)	Y-12	view
Controls (9109)	Y-12	view
AHU Controls Recommissioning and Optimization service	Denver Federal Center #2	view
HVAC Controls Upgrades DDC:	Reagan Library	view
Bldg 4508 Controls	Oak Ridge National Laboratory	view
Controls	Beaufort MCAS	view
Controls (9723-27)	Y-12	view
Pool Cover & Ventilation Controls	Sherman Indian High School	view
Controls (9711-1)	Y-12	view

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ECM Locator Record
08/06/07

Field	Value
FEMP Central project name	Beaufort MCAS
Description	Controls
Project Facilitator	Baugh
ESCO	Trane
Date awarded	09/28/2001
ECM location	Charleston, SC
Price index location	Dallas, TX
Adjusted implementation expense	
Mark up	
Adjusted implementation price	
MMBtu savings	19,130
ECM Size	--
Agency contracting officer (CO)	Chris Henschel
Agency CO Phone	(805) 982-6209
Agency CO Email	--