U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Financing and Pricing Evaluation for Federal ESPCs

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Part 1: Costs, Schedules, and Financing

Introductions

Cost Elements of ESPCs

The Financial Schedules of the Delivery Order

Questions and Answers

Private-Sector Financing

Components of the Interest Rate and Financing Procurement Price

Minimizing Financing Costs

Questions and Answers

Part 2: Fair and Reasonable Pricing for Federal ESPCs

Application of Federal Acquisition Regulations to ESPCs

FAR Price Analysis Techniques

Pricing Review Strategy

Questions and Answers

Part 1

Costs, Schedules, and Financing

Where the Money Comes from and Where it Goes

Savings repay ESCO

ESCO pays for project (with financing)

Improvements create savings

Agency Energy and O&M Bills

Cost Savings

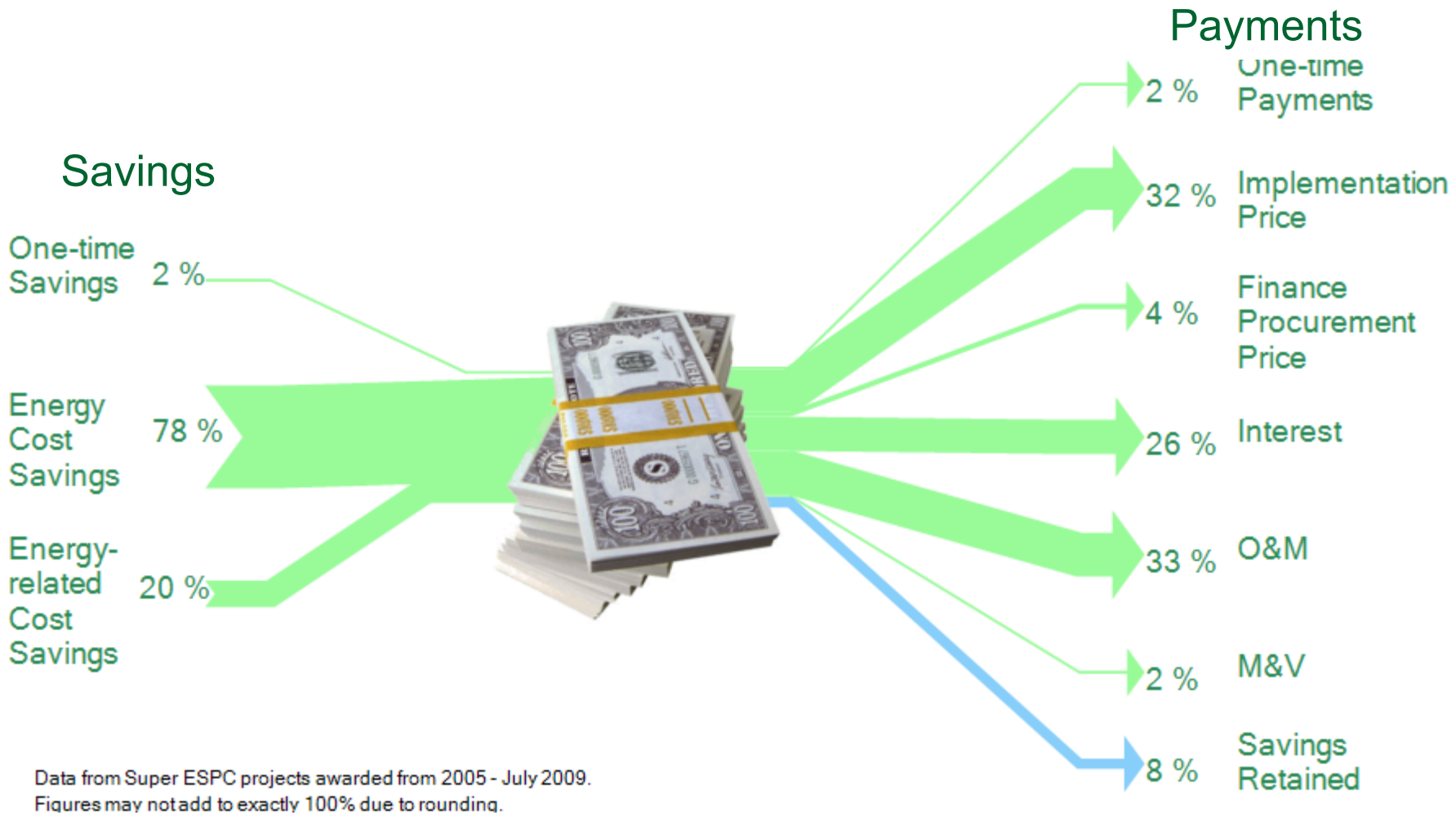
Appropriations for Energy and Related O&M

Cost Elements of ESPCs

- Project Development
  - Energy surveys, proposal development, etc.
- Energy Conservation Measures (ECMs)
  - Direct costs for design, installation/construction
- Energy Service Company (ESCO)
  - Indirect costs and profit
- Financing Costs
  - Interest rate
  - Finance procurement price
- Performance-period services

Total Payments

Percent of Agency Payments Over Term



Data from Super ESPC projects awarded from 2005 - July 2009.
Figures may not add to exactly 100% due to rounding.

(See Handouts page 2 for average ESPC costs and ranges.)

Task Order (TO) Schedules

TO-1, TO-2, TO-3, TO-4, TO-5

***All costs* appear in these schedules, and we will show you where.**

(Blank TO Schedules are shown in Handout pages 3 – 14.)

- TO-1 — Guaranteed Annual Cost Savings & Annual Contractor Payments
  (Savings and payments listed by year)
- TO-2 — Implementation Price for ECMs (Investment costs)
- TO-3 — Performance-Period Cash Flow (Financing info, annual cash flows)
- TO-4 — First-Year Energy & Cost Savings by ECM and Technology Category
  (Savings breakout by ECM)
- TO-5 — Annual cancellation ceilings

ESPC: Purchasing Savings

- In an ESPC, the government is buying a basket of savings at a fixed price, guaranteed (TO-1)
- The basket is detailed by ECM in TO-4, but the guarantee is for the total
- The government pays for savings as they accrue
- Investment/equipment is a means to get savings, but savings are what is purchased

SCHEDULE TO-1 (final)
GUARANTEED COST SAVINGS AND CONTRACTOR PAYMENTS

IMPORTANT INFORMATION

(1) This schedule is not to be altered or changed in any way. Please note any clarifications in the comments/explanations area below.

(2) The first year post-acceptance performance period estimated annual cost savings reflect technical proposal and engineering estimates as p TO-4.

(3) The guaranteed annual cost savings are based on the site-specific M&V plan.

(4) The total of contractor payments (columns c and f) represents the TO price and should be supported by information submitted in and provid Schedules TO-2 and TO-3.

(5) If applicable, prior to post-acceptance performance period, implementation period allowable payments and energy savings are one time amo

(6) If applicable, provide a separate table showing proposed energy rates (i.e., $/kWh, $kW, $/MBtu) for each post-acceptance performance pe derived using the National Institute of Standards and Technology Handbook 135 and Annual Supplement. Also, submit escalation rates ap energy-related O&M savings (including water and sewer):____% per year.

(7) [Reserved]

(8) [Reserved]

(9) [Reserved]

(10) If selected, the contractor shall complete the installation of all proposed ECMs not later than _____ months after TO award.

Task Order No.:	Contractor Name:	Project Site:

	(a) Estimated Cost Savings ($)	(b) Guaranteed Cost Savings ($)	(c) Contractor Payment ($)
Implementation Period	117,095	117,000	117,000
Post-Acceptance Performance Period Year	(d) Estimated Annual Cost Savings ($)	(e) Guaranteed Annual Cost Savings ($)	(f) Annual Contractor Payments ($)
One	285,640	276,384	276,383
Two	294,095 ~~294,596~~	284,572	284,571 ~~285,225~~
Three		285,226	
Four			
Five ~			
Totals	4,022,293	3,741,531	3,741,519

TO-4 Breaks out estimated savings (current year $)

SCHEDULE TO-4
Task Order Performance Period First Year Estimated Annual Cost Savings, by Energy Conservation Measure and Technology Category

IMPORTANT INFORMATION:

1) Project Square Footage (in 1000 SF) - Include only building square footage affected by installed ECMs in project.
2) For column (a) insert estimated energy baseline by ECM and total project in MBtu based on IGA, and proposal data.
3) For column (c1), annual electric demand savings (kW/yr) is the sum of the monthly demand savings
4) Energy conversion factors for MBtu: MBtu=10^6 Btu; Electricity — 0.003413 MBtu/kWh; Natural Gas — 0.1 MBtu/therm ; #2 Oil — 0.128 MBtu/gal.
5) Specify "Other" energy savings in (e)(1) and (e)(2) as applicable. Include energy type ____; energy units _____; and MBtu conversion factor _____ MBtu/ _____ (unit)
6) This schedule is not to be altered or adapted in any way. Please note any clarifications in the comments/explanations area below.

Project Site: Task Order#: Contractor Name: Project Square Footage (KSF):

TC No. Att 2	ECM No.	a. ECM energy baseline (MBtu/yr)	b1. Electric energy savings (kWh/yr)	b2. Electric energy savings ($/yr)	c1. Electric demand savings (kW/yr)	c2. Electric demand savings ($/yr)	d1. Natural gas savings (MBtu/yr)	d2. Natural gas savings ($/yr)	e1. Other savings (MBtu/yr)	e2. Other savings ($/yr)	f. b1+d1+e1 Total energy savings (MBtu/yr)	g.=b2+c2+d2 +e2 Total energy cost savings ($/yr)	h. Other energy-related and O&M cost savings ($/yr)	i. Water savings (1000 gal/yr)	j. Water savings ($/yr)	k=g+h+-j Estimated annual cost savings ($yr)	l. Implementation price ($)	m=l/k Simple Payback (yrs.)
TOTALS																		

Explanations/Comments:

TO-2 shows total direct and indirect costs and profit by ECM
(*Just Like TO-4 Detailed Savings Per ECM*)

SCHEDULE TO-2
IMPLEMENTATION PRICE BY ENERGY CONSERVATION MEASURE

IMPORTANT INFORMATION:
1) This schedule is not to be altered or changed in any way. Please note any clarifications in the comments/explanations area below.
2) Implementation expense shall include only direct costs for each ECM and no post-acceptance performance period expenses. Indirect expenses and profit will be applied to the sum of direct expenses for all ECMs and project development to calculate total implementation price (d) for the project.
3) Contractor shall attach adequate supporting information detailing total implementation expenses.
4) Contractor shall propose bonded amount representing the basis of establishing performance and payment bonds per Section H of the contract, as required.
5) Attached supporting information shall be presented to identify portions of ECM or project expenses included in proposed bonded amount.
6) Proposed bonded amount is assumed to include indirect expenses and profit applied to implementation expenses above, unless otherwise specified by contractor.
7) For the following ECMs, enter the *total installed capacity of new equipment* in the units specified (e.g., chillers-150); chillers and packaged units in tons, VFDs in hp, boilers and furnaces in input Btu/hr, BAS/EMCS in number of points, transformers in kVA, generators in kW. For lighting ECMs, specify baseline kW treated.
8) M&V expense shall not include any performance-period expenses.

Project Site:	Task Order No.:	Contractor Name:

Tech Category (TC)	ECM No.	Equipment Description — Title	ECM Size	M&V Expense	Implementation Expense		(c) Profit $	(d)
					(a) Direct	(b) Indirect		Implementation Price: Totals (a)+(b)+(c) = (d)
n/a	n/a	Project Development	n/a	$	$			
					$			
					$			
					$			
					$			
					$			
					$			
					$			
					$			
					$			
					$			
					$			
					$			
TOTALS					$	$	$	$
Bonded Amount ($)								

Explanations/Comments:

Variations in TO-2 Schedules You May Encounter

- Schedule TO-2 lists ECM prices
- ESCOs sometimes break their prices down in ways that make it difficult to know what the real price is and whether you're getting a good deal
- They're not hard to spot with careful review
- Things to watch for in TO-2

A GHP by any other name . . . ?

Charge for GHP equipment

SCHEDULE TO-2
IMPLEMENTATION PRICE BY ENERGY CONSERVATION MEASURE

More charges for GHP equipment and warranty??

Project Site: Task Order No.: Contractor Name:

Tech Category (TC)	ECM No.	Equipment Description — Title	ECM Size	M&V Expense	Implementation Expense		(c) Profit $	(d) Implementation Price: Totals (a)+(b)+(c) = (d)
					(a) Direct	(b) Indirect		
n/a	n/a	Project Development	n/a	$	$			
C.2.1		Geothermal heat pump	1055 tons	21,462	$5,017,134			
C.2.3		HVAC/Mechanical	1446 tons	3,912	$5,046,784			
C.2.4		Building automation systems/EMCS	80 bldgs; 8414 pts	2,608	$3,198,030			
C.2.5		Lighting improvements in 32 buildings	2322 units	652	$1,111,830			
C.2.6		Steam pipe demolition	8703 ft		$572,531			
C.2.7		Electric motors and drives			$			
C.2.8		Appliance/plug load reductions			$			
C.2.9		Central utilities modifications			$661,150			
C.2.10		Water conserve 126 bldgs	3441 fixtures	652	$302,401			
C.2.11		Proposal development energy surveys			877,446			
C.2.12		Post-award engineering design			600,664			
C.2.13		Acme equipment			$1,403,959			
C.2.14		Acme extended warranty			$22,620			
					$			
TOTALS				29,286	$19,169,863	$	$	$
Bonded Amount ($)								

Explanations/Comments:

Why are "Direct Costs" an additional, separate item?

"Project Direct Cost (less Proposal Development Energy Surveys)"

SCHEDULE TO-2
IMPLEMENTATION PRICE BY ECM

Tech Category	ECM No.	Equipment Description—Title	M&V Expense	ECM Size	(a) Total Implementation Expense	(b) Mark-up (%)	(c) = (a) x (b) Implementation Price
C.2.17	19.1	Proposal Development Energy Surveys			$336,866		
C.2.3	3.1	Energy Management Control System Upgrade	$36,564	823,151 sf in 24 buildings	$986,522		
C.2.4	4.1	Ground-Coupled Heat Pump Upgrade	$17,024	205,908 sf in 10 buildings, 210 Tons Cooling Load	$1,655,686		
C.2.5	5.1	Energy-Efficient Lighting Upgrade	$7,254	25,112 kW, 5,890,446 kWh baseline, 15 buildings	$689,531		
C.2.5	5.2	Lighting Controls Upgrade	$7,254	1,780,127 kWh baseline, 9 buildings	$106,608		
		Project Direct Cost (less Proposal Development Energy Surveys)			$488,353		
		Total Capital Investment	$ 68,095		$4,263,566		
Bonded Amount ($)							$5,500,000

<u>To find true cost of ECM 4.1, Ground-Coupled Heat Pump Upgrade (GCHP):</u>

Total of all marked-up ECM prices = $4,870,024

GCHP price is 43.9% of total prices ($2,135,834 / $4,870,024)

True cost of GCHP is 43.9% of "Project Direct Cost" [(43.9%)($629,976)= ($276,289)] + $2,135,834 = $2,412,121

What is "Service During Construction" and why does it cost $1,534,600?

SCHEDULE TO-2
IMPLEMENTATION PRICE BY ECM

ECM No.	Equipment Description - Title	ECM Size	M&V Expense ($)	(a) Total Implementation Expense ($)	(b) Mark-up (%)	(c) = (a) x (b) Implementation Price ($)
3.1	EMCS – Utility metering		39,338	1,285,840	29.0%	1.658,734
12	Electric substation upgrade		2,241	24,219	29.0%	1,064,136
14	Thermal energy storage system repair		4,233	1,241,599	29.0%	1,601,663
17	Continuous Cx/energy management		3,237	106,691	29.0%	137,632
18	Central energy plant optimization study			169,705	29.0%	218,920
	Feasibility & design cost			292,248	29.0%	377,000
	Service during construction					1,534,600
	Totals			3,920,996		6,392,684

SCHEDULE TO-3 — POST-ACCEPTANCE PERFORMANCE PERIOD CASH FLOW		
Project Site:	**Task Order No:**	**Contractor Name:**

Project Capitalization		Applicable Financial Index: US Treasuries	Issue Date: 3/15/2003
Total Implementation Price (from TO-2 Total)	2,036,037	Term (Years): 13	Source: Treasury Web
Plus Financing Procurement Price ($)	187,702	Index Rate: 5.10%	Effective Through: COB 4/1/03
Less Implementation Period Payments (from TO-1 (final) (c))*(If proposed, must be fully documented)*	117,095	Added Premium (adjusted for tax incentives): 1.90%	
Total Amount Financed (Principal)	2,106,644	Project Interest Rate: 7.00%	

Term	1	2	3	4	5
Annual Cash Flow (Post-Acceptance Performance Period)					
Debt Service					
Principal Repayment ($)	$ 84,805	$ 98,021	$ 123,453	$ 140,205	$ 158,400
Less incentives (i.e., REC, White Tag, etc.)					
Net principal repayment before interest					
Interest ($)	$ 146,793	$ 140,399	$ 132,629	$ 123,412	$ 112,976
Total Debt Service (a)	$ 231,598	$ 238,420	$ 256,082	$ 263,617	$ 271,376
Post-Acceptance Performance Period Expenses	1.00	1.0305	1.0619	1.0943	1.1277
Management/Administration	$ 4,080	$ 4,204	$ 4,333	$ 4,465	$ 4,601
Operation					
Maintenance	$ 1,600	1,649	1,699	1,751	1,804
Repair and Replacement	5000	5,153	5,310	5,472	5,638

TO-5

- Annual cancellation ceiling listing (final proposal only)
- Should be ~ 110% of outstanding debt for that year (should not include lost profit or service costs)
- The exact principal balance of the loan (by month) is often attached to expedite loan payoff in the event of termination for convenience (T for C)
- Per Federal Acquisition Regulations (FAR), T for C would be negotiated

Termination for Convenience/ Modifications

- Partial Termination for Convenience
  - Terminated by ECM or facility
  - Recommend terminating longer-payback ECMs
  - Otherwise, partial termination may extend TO term

- Complete Termination for Convenience
  - Negotiated settlement not to exceed Annual Cancellation Ceiling in Schedule TO-5

SCHEDULE TO-5

ANNUAL CANCELLATION CEILING SCHEDULE

IMPORTANT INFORMATION:

(1) Cancellation Ceilings for each time period specified below establish the maximum termination liability for that time period, and includes the remaining unamortized principal on total amount financed for each time period specified above plus any prepayment charges. Actual total termination costs will be negotiated.

(2) The contractor may attach a monthly Financing Termination Liability Schedule.

(3) In the event of TO cancellation or termination for convenience, FAR 52.217-2 or 52.249.2 will apply.

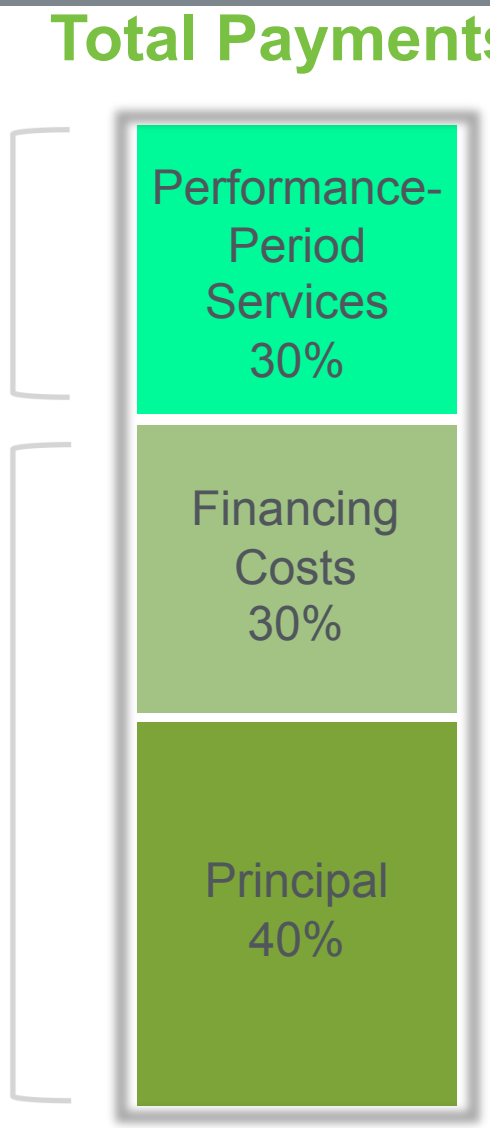
Project Site:	Task Order No:	Contractor Name:

Time Period	Cancellation Ceiling
Installation Acceptance	
End of Year One	
End of Year Two	
End of Year Three	
End of Year Four	
End of Year Five	
End of Year Six	
End of Year Seven	
End of Year Eight	
End of Year Nine	
End of Year Ten	
End of Year Eleven	
End of Year Twelve	
End of Year Thirteen	
End of Year Fourteen	
End of Year Fifteen	
End of Year Sixteen	
End of Year Seventeen	
End of Year Eighteen	
End of Year Nineteen	
End of Year Twenty	
End of Year Twenty-one	
End of Year Twenty-two	
End of Year Twenty-three	
End of Year Twenty-four	
End of Year Twenty-five	

Private-Sector Financing

What's in the payments?

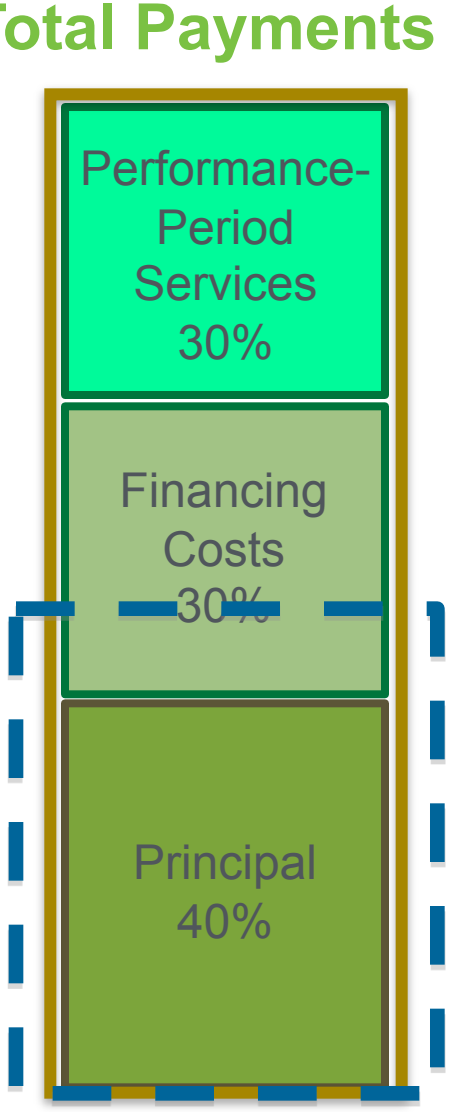
- Performance-period services
  - M&V, O&M, R&R
- Debt service
  - Principal
  - Interest (financing costs)



What is financed?

Amount financed =

- (ECM project development expense)
  + (Indirects and profit)
- (ECM design/construction expense)
  + (Markup)
- Financing procurement price (FPP)
- *Minus* any one-time payments from savings (usually in year zero)



Financing Procurement Price (FPP)

- Pass-through fee from financier
  - No profit for the ESCO
- Includes costs for:
  - Effort to arrange financing
  - Payment and performance bonds
  - Hedges to lock rates in advance of financial closing (hedges are not recommended)
- Biggest part of FPP is capitalized construction-period interest

The total financed amount is deposited into an escrow account during construction

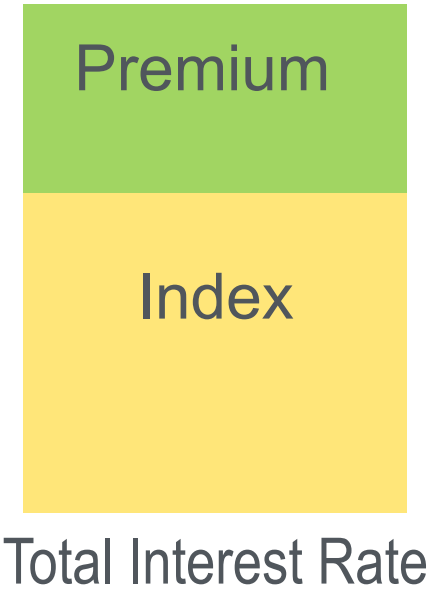
- Generally administered by trustee
- ESCO takes draw-downs
- Account yields interest
- ESCO pays interest on entire financed amount to the financier
- The difference between the interest earned and interest paid is the capitalized construction-period interest in the financing procurement price

Financing Procurement Price (FPP)

- Includes costs for:
  - Effort to arrange financing
  - Payment and performance bonds
  - Primarily capitalized construction-period interest
  - Hedges to lock rates in advance of financial closings
    - Hedge costs may be included in premium on interest rate instead
    - In either case, we do not recommend the use of hedges!
- Note: These are pass-through fees that do not include profit for the ESCO

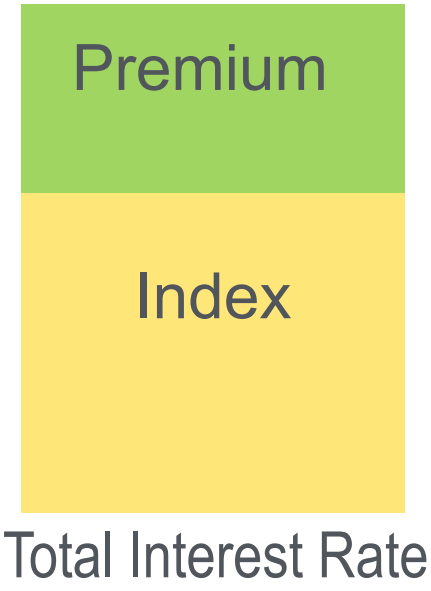
Components of the Interest Rate

- Index interest rate — usually largest component
  - Represents the prevailing cost of money in the financial markets
  - Changes day to day
  - Any standard index can be used (i.e., like-term U.S. Treasury Securities)
- Web sources for rates
  - www.bloomberg.com
  - www.federalreserve.gov/releases/h15/current



The Premium

- Premium — Basis points added to index rate (1% = 100 basis points)
- Premium covers
  - Lender's costs (legal fees, administration, etc.)
  - Hedges to lock rate in advance of closing (or in FPP instead)
  - Lender's perception of risk

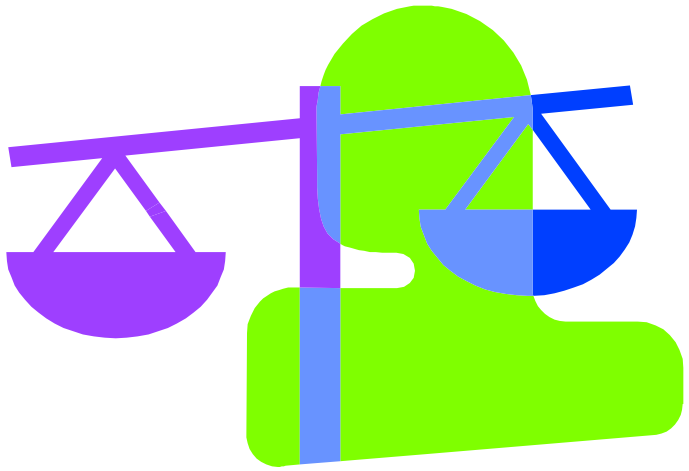


Lender's Perception of Risk

- Lender's perception of risk is influenced by:
  - ESCO's credit rating
  - ESCO's track record (past performance)
  - Technical risk of the project
    - Level of M&V, complexity, etc.

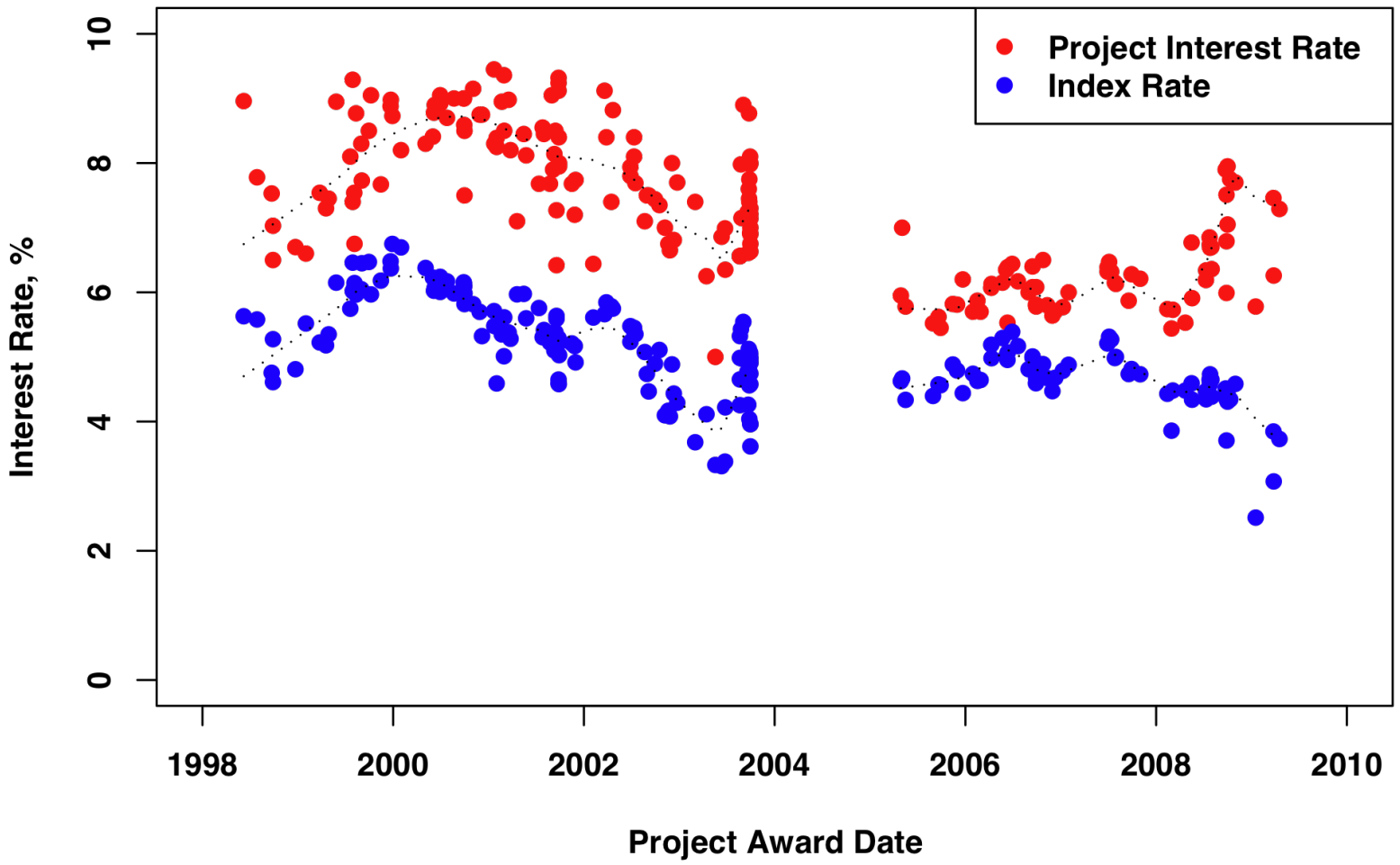
Competition in Super ESPC Financing

- Super ESPC ESCOs are required to solicit competitive financing offers
- Process and templates are defined in the contract
- Financing costs declined significantly with competition
- Selection of financing is still the ESCO's responsibility



With Financing, Competition Works

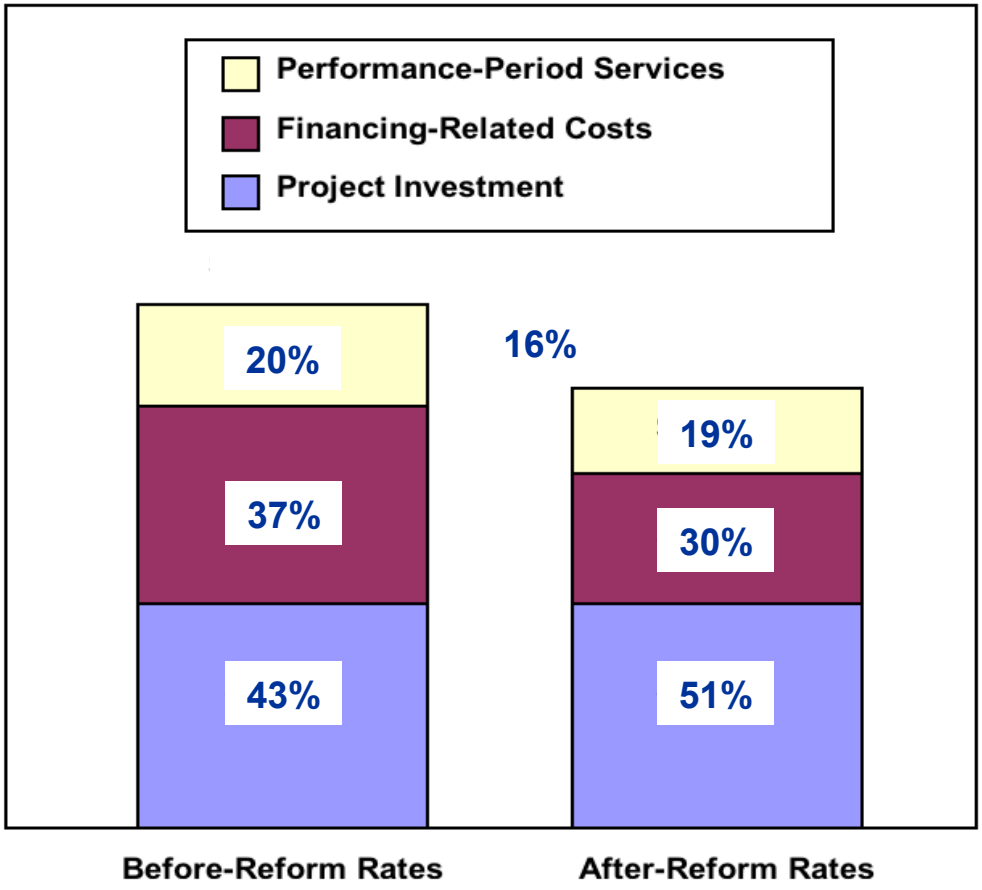
Competition cut interest rate premiums in half



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.

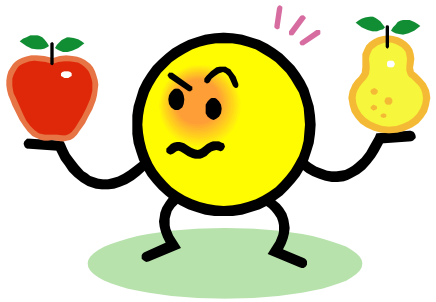
("Average project" is calculated from all Super ESPC awards)



Competitive Financing Process

- ESCO prepares Investor's Deal Summary (IDS) and sends it to financiers to solicit offers
- IDS establishes a common basis for solicitations
- Required content
  - All financial info
  - RRPM
  - Key target dates
  - M&V info

IDS and SFO Ensure that Offers are Directly Comparable



- Financiers make offers using Standard Financing Offer (SFO)
- Required contents:
  - Narrative description of financing package
  - Itemization of total amount financed
  - Period of time that offer will be honored
  - Other terms

Selection and Certification

- ESCO selects financing and provides a certified selection memo documenting process and rationale for selection
- Final proposal (and TO schedules) are based on selected offer
- Final proposal includes IDS, SFO for the selected offer, and Certified Selection Memorandum
- Selected financing offer in final proposal is evaluated by TO Contracting Officer and FEMP ESPC Team

How can you minimize financing costs?

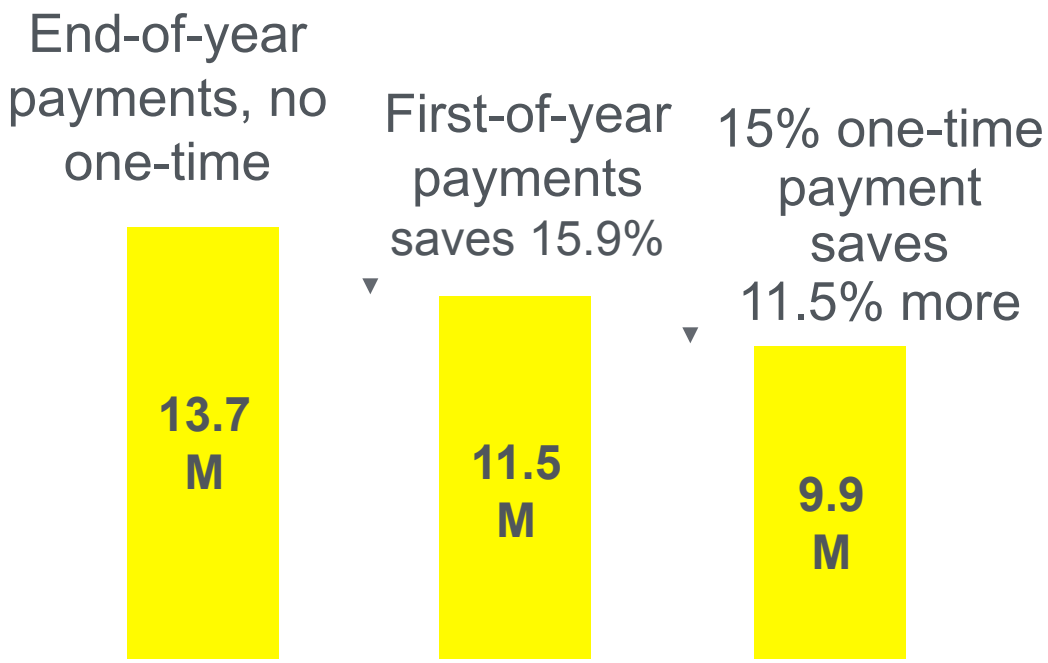
Borrow less and pay it off sooner.

- State-based energy-efficiency and renewable energy incentives (utility rebates)
  - FEMP profiles incentives available to agencies: www1.eere.energy.gov/femp/financing/energyincentiveprograms.html
  - Per EPACT-92 agencies are “authorized and encouraged to participate” in these programs
  - ESCOs are required by IDIQ contract to pursue all available incentives

More ways to borrow less and pay it off sooner

- Investigate potential for one-time payments to reduce amount financed
  - One-time savings from avoided expenditures
  - Construction-period savings
- Make annual payments at beginning of the year

Paying out savings earlier can significantly reduce financing costs



Also: Pre-negotiation of Agency Liability for Termination

- Government's liability if the contract is terminated for any reason
  - Make-whole: At termination government pays principal plus interest from last payment to payoff date plus a yield maintenance amount (algorithm defined) if rates are now lower than at origination
  - Monthly schedule: Some financiers have been content with a supplemental schedule showing the financing termination payoff amount for every month of the performance period.

Take advantage of FEMP's services and experience

- Extensive experience with Super ESPC financing
- Access to comparisons with other Super ESPC awards
- Capability to analyze the financial schedules
  - Double-check the math
  - See that appropriate costs are entered where they should be
- Further education from FEMP
  - Comprehensive ESPC Workshops

Questions and Answers

Blank TO schedules, the IDS, the SFO, and many other ESPC tools and resources are posted on FEMP's Web site at:
www1.eere.energy.gov/femp/financing/espcs_resources.html

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Part 2
Fair and Reasonable Pricing for Federal ESPCs

For greater detail on this information, see “Determining Price Reasonableness in Federal ESPCs” in the Handout for this Webinar.

Part 2
Fair and Reasonable Pricing for Federal ESPCs

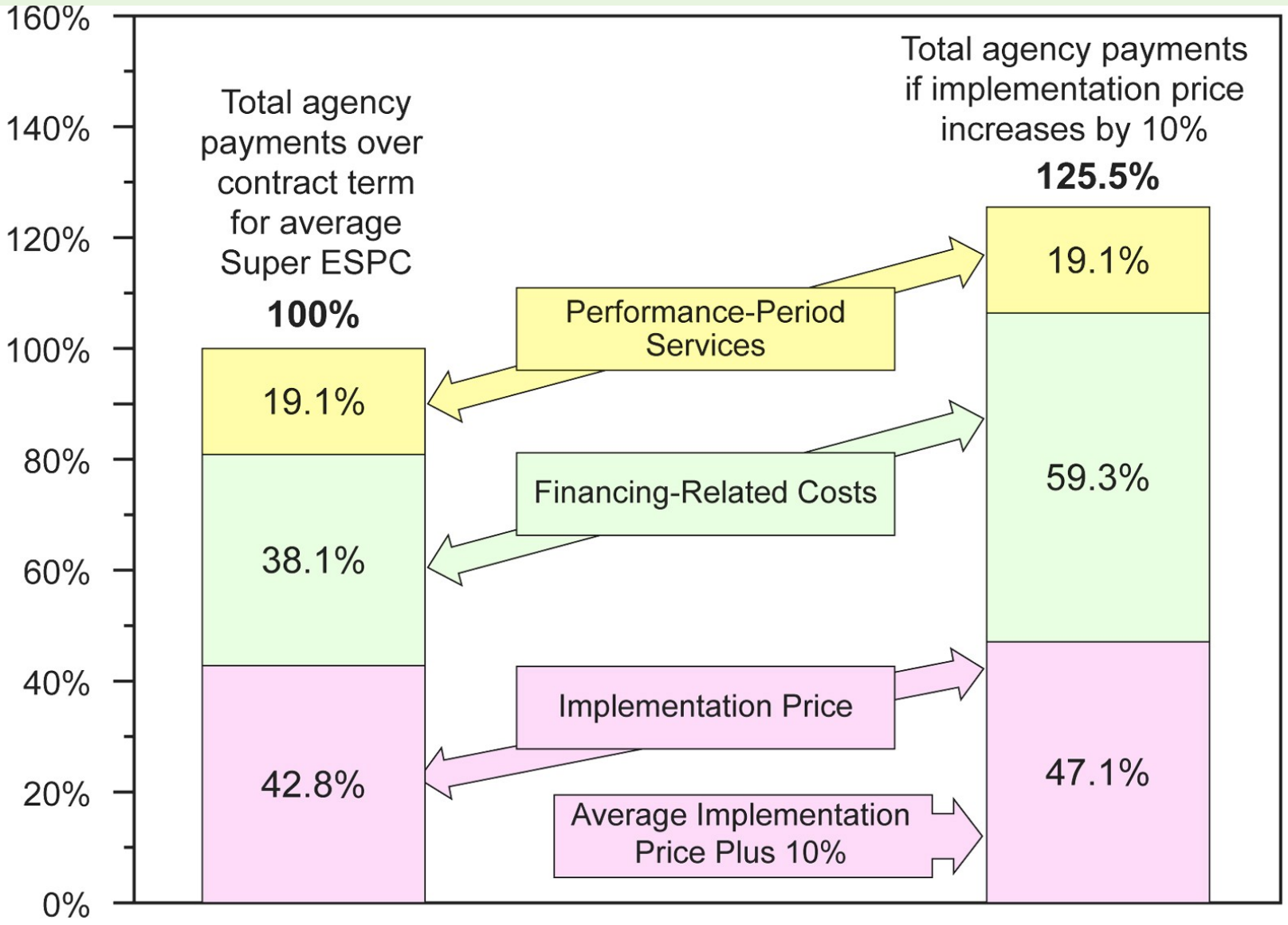
- Application of Federal Acquisition Regulations to ESPCs
- FAR Price Analysis Techniques
- Pricing Review Strategy
- Questions and Answers

Contracting Officers….

- You must be as careful in your analyses of purchases under the ESPC contract as any other.
- Paying fair and reasonable prices is critical in ESPCs where procurement is financed over time.
- Next slide demonstrates the result of careful evaluation of your project costs.

Why Verifying ECM Prices is Important

Increasing implementation price by 10% raises total payments over term by 20%.



Another Reason to Verify: Regulations and Guidance

- ESPC authorizing legislation stresses life-cycle cost-effectiveness, but does not exempt agencies from assuring price reasonableness
- DOE Rule, 10 CFR 436
  - Waives requirement for submission of certified cost data
  - States that offerors must nevertheless provide information requested by federal agencies
  - Did not specify how agencies are to assure price reasonableness

Federal Acquisition Regulations (FAR) Apply to Federal ESPCs:

- Subpart 15.4, “Contract Pricing”
- In case of conflicts, EPAct or the DOE Final Rule take precedence
- There are no conflicts between FAR Subpart 15.4 and ESPC regulations regarding price reasonableness determination
- (More on FAR guidance later)

Planning Ahead

- Agency contracting officer and site tech representative are key acquisition team members
- Find out who will review (whole proposal as well as pricing) and set aside time
- Focus in ESPCs is often on the payment-from-savings feature and guarantees – Make sure acquisition team knows that price reasonableness requirements apply

Focus of Price Review — Preliminary Assessment vs. Final Proposal

- Process is basically the same for each, but goals are different
- Preliminary Assessment (PA)
  - PA establishes viability of project and general scope, supports go/no-go decision
  - Pricing is based on preliminary estimates, assumptions, ESCO's own benchmarks and previous prices
- Final Proposal and Investment-Grade Audit
  - Defines the deal — is the true object of FAR requirements to determine fair and reasonable prices

Preliminary Assessment Price Review

- Consider –
- Are prices:
  - Unrealistically low: May find later that high-priority ECMs must be dropped
  - Unrealistically high: High-priority ECMs may not appear to be feasible
- After review agency should:
  - send comments and questions on price review to ESCO
  - require answers
  - document the answers and the review process

Evaluating the Price Proposal

- Start with the TO schedules
- Look for reasonableness, consistency, and back-up documentation on
  - ECM implementation price
  - Performance-period expenses
- Make sure total price is complete and reflects appropriate implementation costs

Guidance: FAR 15.404-1, "Proposal Analysis Techniques"

- The main techniques:
  - Price analysis
  - Cost analysis
  - Technical analysis
- These techniques overlap in many areas and may be used singly or in combination

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

FAR Definitions

- 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
- Technical analysis

Next slide

Price Analysis Methods

- Price competition
  - First preference, but not generally applicable
  - ESCOs usually compete subcontracts
- Comparison with previously proposed government and commercial contract prices IAW the FAR.
  - Good option if data is available, quick when using the FEMP ECM Locator Tool
- Parametric estimating methods
  - An extension of comparing past prices – cost-estimating relationships
  - FEMP Benchmarking tools, site or agency data
  - Speedy, but don't cover everything

More Price Analysis Methods:

- Comparison with published prices
  - Not valid for ESPC without significant adjustments/ normalizations
  - more applicable to cost analysis
- Market research
  - Not generally useful or valid comparisons, more applicable to cost analysis
- Analysis of pricing information provided by offeror
  - Using government information preferable to using information from offeror

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

Cost Analysis and Technical Analysis

- Review the separate cost elements and detailed backup
  - Most common means of analyzing ECMs for which you have no comparable price data
    - Require backup submittal and budget and schedule the cost estimator early-on

- Since FAR says to require minimum information, price analysis is preferred.

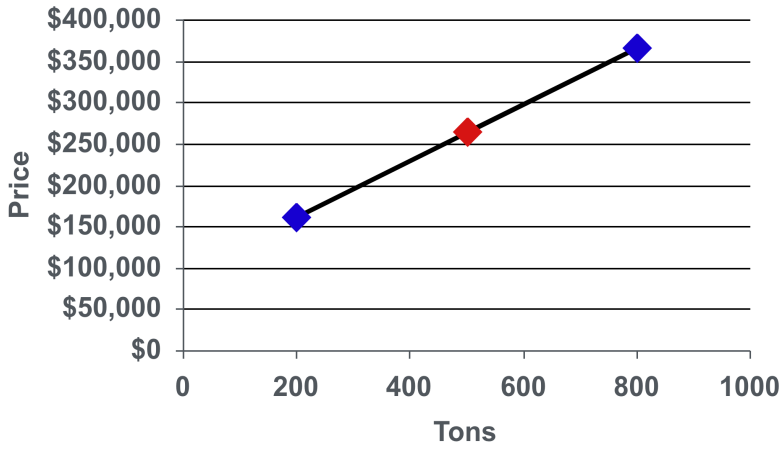
What Is Parametric Estimating?

"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.

An Example of Parametric Estimating

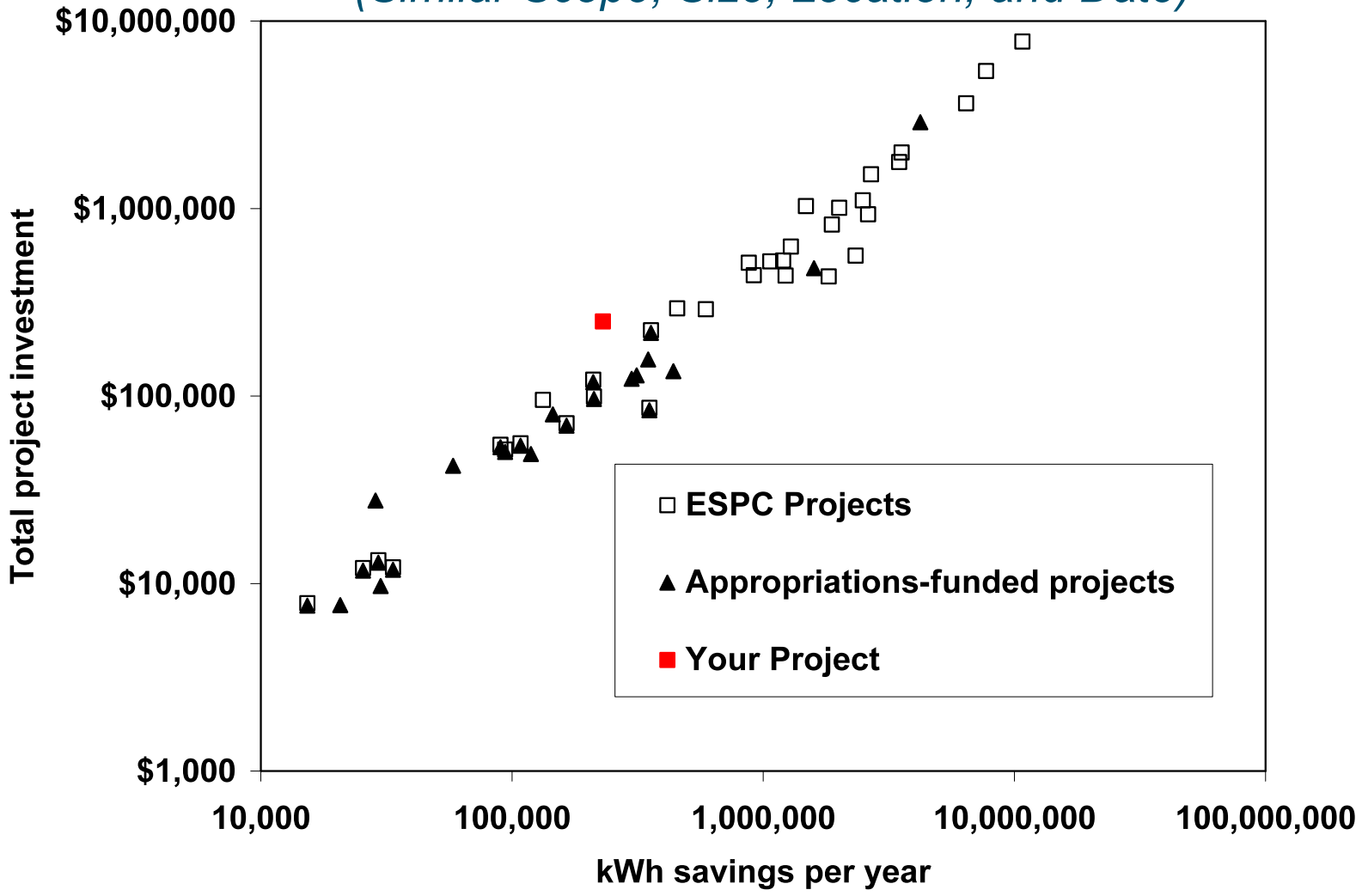
- A site recently paid the following:
  - $162,000 to replace a 200-ton chiller
  - $366,000 to replace an 800-ton chiller
- Given these prices, what is a reasonable price to replace a 500-ton chiller?



Answer:
About $264,000

Example: Lighting Retrofits

(Similar Scope, Size, Location, and Date)



"Point Comparison" Tool — A Searchable Database

- "ECM Locator" tool for ECMs that don't lend themselves to benchmarks
- Based on all past Super ESPC ECMs
  - Prices are adjusted for location and inflation.
- Search on ECM name, receive list of projects, click "view" for the details

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

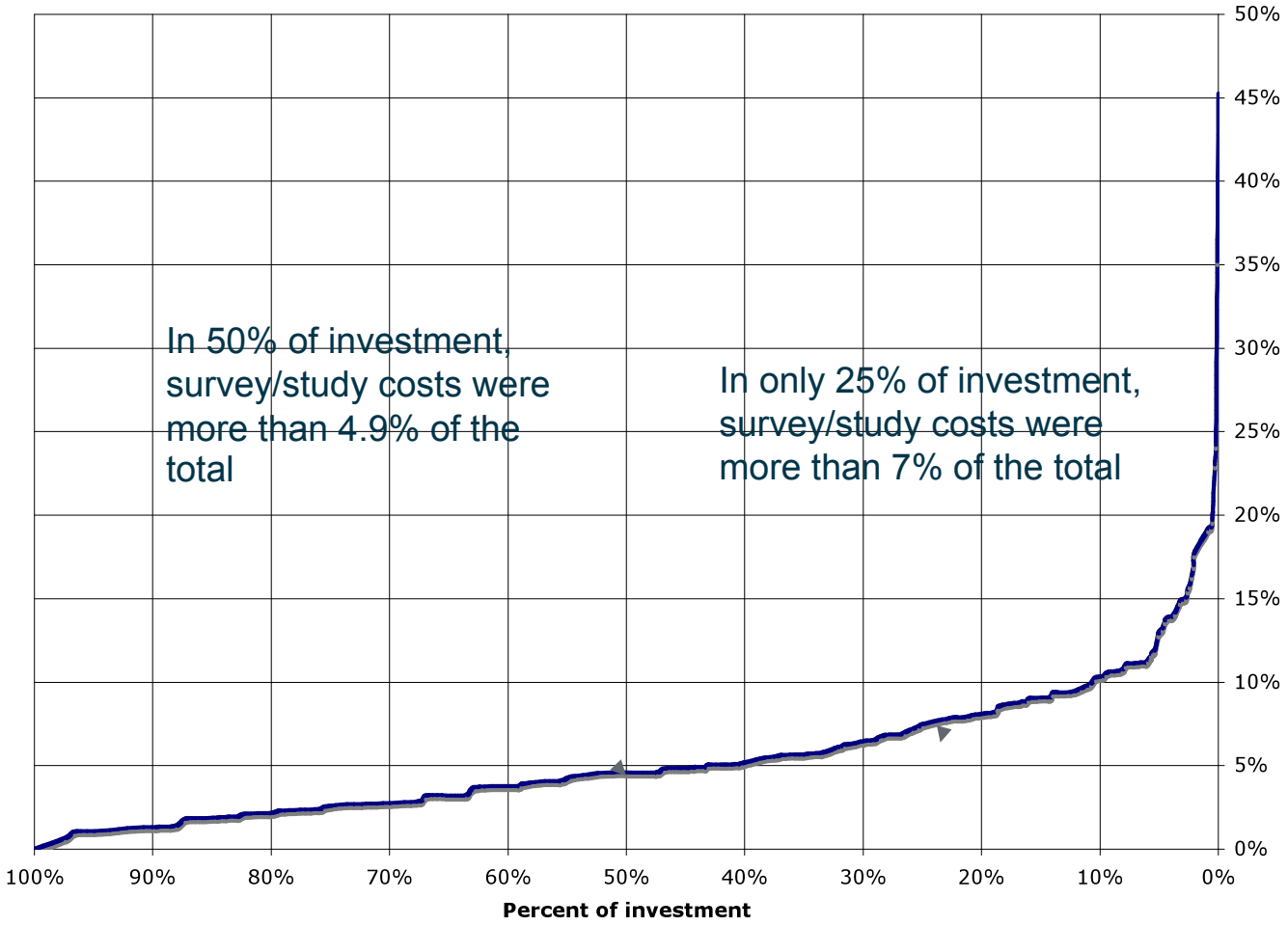
Supporting Information on Pricing

- Agency specifies required level of detail in TO RFP
- FEMP recommendations

Project Development Costs

- Summary of expenses for project development through award of delivery order
  - Field work for Investment-Grade Audie (IGA)
  - Pre-design activities and proposal preparation
  - Project management
  - Subcontracts (i.e. metering, measurements)
  - Travel and expenses

What you can expect to pay for Energy Surveys/Proposal Development



Implementation-Period Pricing

- Summary of design and construction pricing identified in Schedule TO-2, allocated per ECM
  - Equipment and material costs
  - Construction design
  - Project management
  - Installation labor
  - Startup and commissioning
  - M&V

Performance-Period Expenses

- Summary of performance-period expenses identified in Schedule TO-3
  - Project management (labor)
  - Operations (labor)
  - Maintenance (labor and materials)
  - Repair and replacement (labor and materials)
  - M&V (labor and materials)
  - Training (labor)
  - Insurance
  - Taxes

Reviewing Prices for Performance-Period Services

- Concentrate on Year-1 pricing (in Schedule TO-3).
- Make sure that ESCO has provided information supporting Year-1 pricing.
- Are cost categories consistent with assignments in Risk, Responsibility, and Performance Matrix?
- Find out how prices for your project compare to Super ESPC range and average for performance-period services.

Performance-Period Services

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

ECM Pricing Review Strategy — Step 1

- Agency and FEMP ESPC Team assess quality and completeness of data provided by ESCO

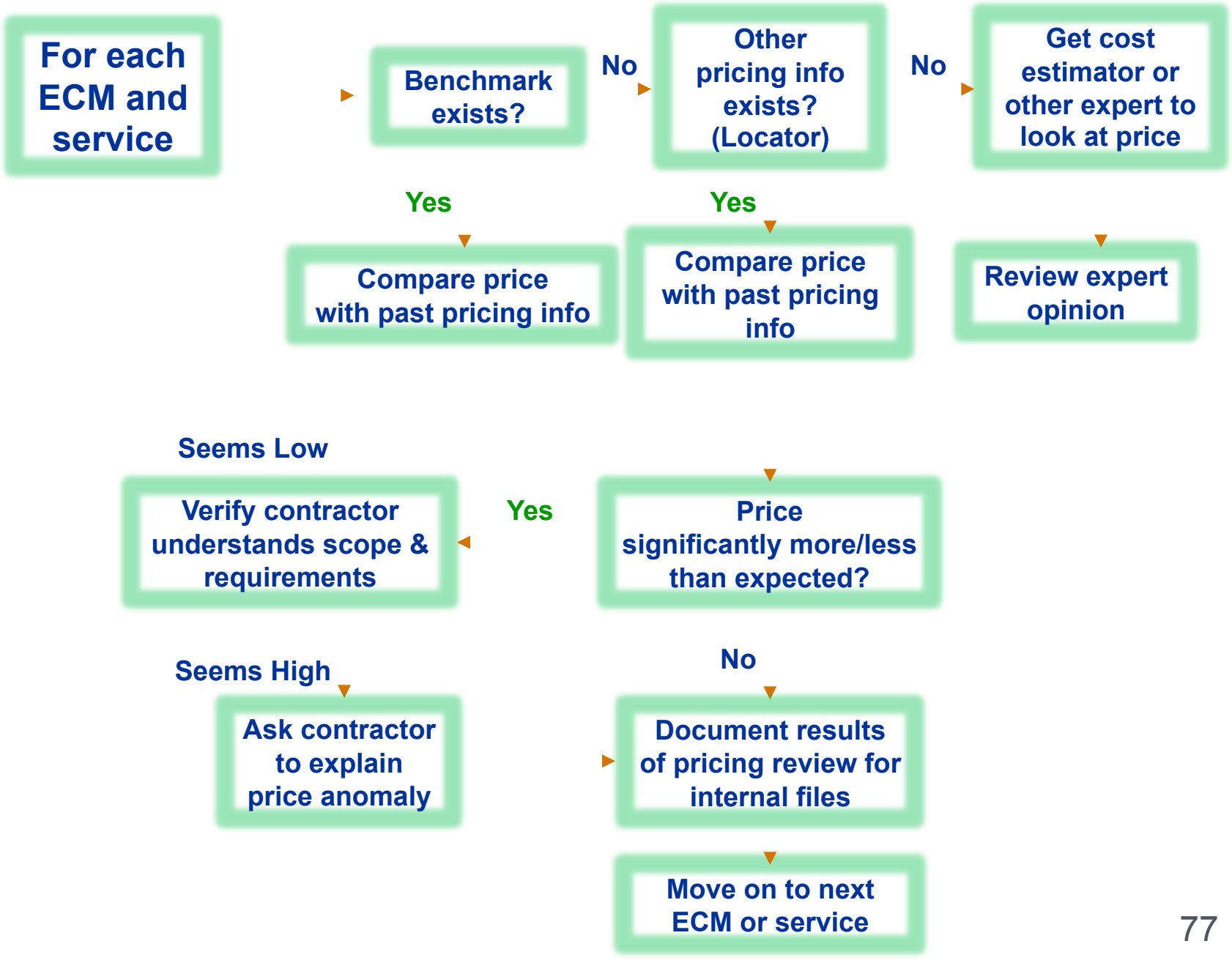
ECM Pricing Review Strategy — Step 2

- For cost-effective review, first use benchmarking data where possible
  - If within acceptable range, move on
  - If high/low, then flag for discussion with ESCO
- Next use ECM Locator to identify similar ECMs for comparison
  - If within acceptable range, move on
  - If high/low, then flag for discussion with ESCO

ECM Pricing Review Strategy — Step 3

- Benchmarks/locator make quick work of some ECMs — freeing up time for team to analyze prices of ECMs having no price comparison data.

- If no benchmarking or locator data exist, the team must independently assess the ECM price for reasonableness.


For each ECM and service
Benchmark exists?
No
Other pricing info exists? (Locator)
No
Get cost estimator or other expert to look at price
Yes
Compare price with past pricing info
Yes
Compare price with past pricing info
Review expert opinion
Seems Low
Verify contractor understands scope & requirements
Yes
Price significantly more/less than expected?
Seems High
Ask contractor to explain price anomaly
No
Document results of pricing review for internal files
Move on to next ECM or service

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 Indirect and Profit (25%) $1,786,397
  - Implementation Price $8,931,987
- Installed cost per ton = $3068

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Benchmark Example #1, Cont'd

- Residential GHP pricing from database was $3300 per ton
- Comparison
  - Proposed price per ton = $3068
  - GHP database price per ton = $3300
- Conclusion
  - Proposed ECM price is fair and reasonable

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. Indirect and profit (25%) $ 83,566
    - Implementation price $ 417,831
- Installed price per ton = $6428

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Benchmark Example #2, Cont'd

- Commercial GHP pricing from DOE GHP database was $5500 per ton
- Comparison
  - Proposed price per ton = $6428
  - GHP database price per ton = $5500
- 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 (which do not require significant amounts of internal piping).
- Cost of internal piping is the potential source of the cost difference.

Continued next slide

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.

Don’t forget that you have other resources as well:

- Project facilitator
- Site- and agency-level experts
- Site- and agency-level data
- National Laboratory experts
- Supporting information supplied by the ESCO (at whatever level you specify)
- Cost information from ESCO’s subcontracts

How to access web tools:

http://eber.ed.ornl.gov:8080/espc/app

First, request a sign-on —

then tutorials are available for each tool

Questions and Answers