

The following text provides a transcription of Financing and Pricing Evaluation for Federal ESPCs webinar. The text is taken verbatim from audio presented by Scott Wolf of the Federal Energy Management Program (FEMP), Joyce Ziesler of Energetics, Inc. and Ed Bills of the National Energy and Technology Lab. Introduction provided by Bill Raup of the Federal Energy Management Program (FEMP).

Introduction – Bill Raup

Hello and welcome to the Energy Savings Performance Contracts on demand training. My name is Bill Raup and I am the DOE/FEMP Program Lead for the Energy Savings Performance Contact Program. ESPCs allow Federal agencies to accomplish energy savings projects without up-front capital costs and without special Congressional appropriations. More than 550 ESPC projects worth \$3.6 billion were awarded to 25 Federal agencies and organizations in 49 states and D.C. as of March 2010. DOE/FEMP offers a series of ESPC on demand training – Introduction to ESPC, ESPC Pricing and Financing and ESPC Contracting and Negotiations. We also offer a three-day ESPC Comprehensive Workshop in several locations throughout the year. Please check the FEMP website for dates and locations. Additional resources are available on the website to help Federal agencies of all familiarity levels evaluate and implement ESPC projects. We hope you will utilize the convenience of this training method to its fullest intent. If you should need to ask a question or have issues of concern, please contact the Federal Finance Specialist in your region. Their contact information is provided for you during this training. Additional information and resources on all programs is also available on the website. After you have completed this training, you will have the opportunity to enter your contact information, answer a few training related questions and complete an evaluation form. Once you have completed these steps you will automatically receive a training certificate for completion of the course and FEMP will have a record of your attendance. Thank you for your participation and we hope that you enjoy the training.

Slide 1 – Scott Wolf

Good morning! My name is Scott Wolf. Welcome to the ESPC Pricing and Financing Seminar. To get the most out of this training, I recommend you limit your multi-tasking. I'm no good at it, and I've never met anyone who is good at it.

Slide 2 – Scott Wolf

This training is sponsored by FEMP under the office of Energy Efficiency and Renewable Energy at the Department of Energy.

Slide 3 – Scott Wolf

The instructors today will be Joyce Ziesler. She is a consultant with Energetics, Incorporated, and Mr. Ed Bills, who is with our National Energy Technology Laboratory. My name is Scott Wolf. I will be your host. I am the federal finance specialist stationed out in the western states, and my job is to basically interface between agencies wishing to do an ESPC program and the energy service companies who are on our IDIQ contract.

Slide 4 – Scott Wolf

With regard to the agenda today, part 1 will cover the costs, the schedules and financing. We will begin with an introduction, and go through the cost elements, financial schedules, Q&A, private sector financing. We will talk about components of the interest rate and financing procurement price. We will discuss strategies to minimize financing costs, and then we'll have some questions and answers, and then we'll have a break after that.

Slide 5 – Scott Wolf

Part 2 we will talk about fair and reasonable pricing for ESPCs. We will discuss the application of the fair acquisition regulation to ESPCs, the fair price analysis techniques, and price review strategies, and then we will wrap up with a Q&A. I would like to add that you were provided a group of handouts. These will, more or less, will be supplements that you will be able to utilize during your ESPC project and throughout this discussion today, the instructors may, indeed, reference some of those handouts you do have. With that, I would like to turn the training over to Mr. Ed Bills.

Slide 6 – Ed Bills

Thank you, Scott. Welcome to the webinar! My name is Ed Bills, and I support the, the FEMP program for Department of Energy's National Energy Technology Laboratory in Morgantown, West Virginia. And it's hot here today! We're going to set records. Today we're going to cover ESPC costs, Task Order Schedules (that's TO Schedules), and financing. You have been given a packet with, there's a list of acronyms in there I think, and this would be helpful if you could have those acronyms handy. Your instructors use these daily. They're common language to us, but they're probably unfamiliar to you. Also, there are two acronyms that I will use quite often. One is ESCO, which stands for Energy Services Company, and I will really use that interchangeably with the word contract. The other one is the program in general, is ESPC and that stands for Energy Savings Performance Contracts.

Slide 7 – Ed Bills

Now, don't look at this slide just yet. Look at the wall or out the window, but I want you to think about something. You have a great idea for saving energy dollars, maybe millions, but you can't afford to build it. You just don't have the funding even though it'll save lots of dollars, but you don't have the money. ESPC allows you to do this. This has happened hundreds of times in the federal government; hundreds of times for that matter, in industry and in state government. But ESPC has provided a vehicle to build that project. Now let's review how ESPC works, where the money comes from, where it goes. Look at the slide. See the bar chart in the insert? That bar represents your utility bill. If you bill the project, you have so much cost savings. You can use these cost savings to pay for the project. Follow the green arrow. These savings will repay the contractor, the ESCO. The contractor's going to pay the bank. With the improvements, you create savings and this continues throughout the term of the contract. At the end of the contract term, all the savings are returned. You can use the savings then for your own

programs. The money comes from your normal appropriations for utility bills and related O&M – that’s operations and maintenance, and the costs savings created by the ESPC project pay for the project. That’s why we say that ESPCs are basically budget neutral because you’re using funds that are already appropriated for your utility bill and taking the cost savings out of those, paying back the project. The ESPC deal, or Task Order, TO, that you sign, it shows a firm, fixed price and a schedule of payments for the term of the contract. It also shows the guaranteed cost savings, which are at least as much as the payments. They must be as much as the payments. We’ll talk a little bit more about this later. The ESCO, or Energy Service Company – remember that acronym because I’ll call them contractors, they acquire the financing to install the energy conservation measures, and those improvements generate the guaranteed cost savings. Your costs are lower. You have the money to make those payments over the term of the contract.

Slide 8 – Ed Bills

Okay, the first thing we’re going to cover are ESPC cost elements. There are five types of cost elements in ESPCs – project development costs, and these are the costs you use to create the project – energy surveys, proposal developments; the energy conservation measures, or ECMs. These are the direct costs for the design and the installation and the construction of the project. The ESCO’s market, such as overhead and profit, the finance costs, interest and finance procurement price because, of course, if you’re going to fin – if you’re going to finance this, the bank has to get their, their share. This is the finance cost, the interest. And then performance period services, or to simplify it, it’s pretty much the cost of operating during the term of the contract.

Slide 9 – Ed Bills

Okay, what’s in the payments? There are two major components in government payments. You have your debt service, which is your principal and your interest which repays the financier for the upfront money used by the ESCO to develop and implement the project. The other part of the payments are for performance period services. Now this is your operations, your maintenance, your M&V, your repairs. Now, you see here that the cost of performance period services is not financed. You pay for these as they occur.

Slide 10 – Ed Bills

Now, this is my most favorite slide in the presentation, and it is because it shows all the payments and where they come from. It comes from savings. It shows our experience with the make-up of the payments on projects over several years. So you’re looking at actual cases here that are translated into a statistic. First of all, it is important to understand that the percentages on this slide are the percentages of total payments over term. The average project term, by the way, it’s about 18 years. Typically a term ranges from 16 to 21 years. Thirty-two percent of the total payments are project investment. This is the cost of equipment – the actual stuff that’s being installed at the site. Thirty percent of the payments are financed-related costs – interest payments and finance procurement price. Thirty-five percent of the total payments over term are from performance period services. Again, that’s operation and maintenance, repair,

measurement and verification. But as you look from the left to the right, it's obvious then. If you're going to have a payment, you have to have savings. That's key in ESPC.

Slide 11 – Joyce Ziesler

So this is Joyce, and good morning from me as well, and prior to being a consultant at Energetics, I was the contracting officer for the ESPC IDIQs and for the FEMP program. I was at the Golden Field Office, and prior that I was the contracting officer at the Defense Energy Support Center where I was sitting in the same kind of seat that you are; meaning that I was doing orders under the IDIQs. So I want to share with you something about these finance schedules today. We have five of them that are an attachment to the IDIQ, and all of the costs of your project will appear on these schedules. So you do have a copy of these that are probably going to be easier for you to see the details that we do have some samples.

Slide 12 – Joyce Ziesler

So, of the five: The Task Order Schedule is Number 1, is the guaranteed annual cost savings and the annual contractor payments. Number 2 is the implementation price for each of the ECMs and the investment costs. Three has the performance period cash flow, or the financing info and the annual cash flows of your project. Number 4 is the first year energy and cost savings by each of the ECMs being installed, and this is probably a very important one for your facilities manager or your energy managers because this is where your baseline is going to be identified. So last and certainly not least is Schedule Number 5, which is the annual cancellation ceilings.

Slide 13 – Joyce Ziesler

So in the ESPC, the government is buying a basket of savings at a fixed price, if you can envision that. So this basket is detailed by the ECMs in Task Order Schedule Number 4, but the guarantee is for the total project, so you're going to have a breakdown of each of the ECMs and their related savings. Your baseline is your current usage of your utility, and then as you go across the columns of the Task Order Schedule Number 5, you're going to be able to see what the ESCO is offering in terms of the guaranteed savings per ECM. The government pays for the savings as they accrue, meaning that the lion's share of your saving's guarantee goes to pay for the contractor investment of the ECMs and other costs of your project as it has described to you. And then the investment, or the equipment, is a means to get the savings, but the savings are what is purchased. If you can visualize his favorite slide that he addressed first of the flow of this money, your equipment is installed, the guaranteed savings then in turn pays for the investment costs.

Slide 14 – Joyce Ziesler

If you notice up top this says, "Task Order Schedule 1" as a final, but you're going to also be getting a set of Schedules 1 through 4 in your preliminary assessment, as you learned in our intro webinar. So here it is again, just to describe in this whole scenario of the pricing and financing webinar, as to the impact that these Schedules have on your analysis. So if you look up top, you may consider this the fine print, so don't ignore the fine print up top in your notes. For instance,

Note 6 shows the commodity escalation rate per year, so you need to pay particular attention to that. And by the way, these Schedules, as I said before, are an attachment to the IDIQ. They are not to be altered or changed in any way. They are a part of the contract. If there are additional tables or, such as your escalation rate for instance, then that can be an attachment, but this schedule should stay as its current form and as it is attached to the IDIQ. In Note 10, pay attention to the fact that that's your installation period or your construction period. Your contractor or your ESCO is going to tell you how many months after it's going to take to install all of the equipment. Now this findings is going to be as a result of the investment grade audit, so the construction period is going to be listed there on this Schedule. So, just take note of that for right now because if you remember that your construction period goes along with your performance period in terms not exceeding the 25-year term for the ESPC contract. And moving down to the implementation period line there, notice that we have a dollar amount entered into that. That's going to, perhaps, be appropriated dollars that are going to be married up with your private financing. It can result in additional savings to your project and needs to be explained as a backup for that payment, your appropriated dollars and all related savings. Moving down to the next section, notice that we have just 5 years noted here, but this Schedule would go from year 1 through year 25 to reflect the years that your projects are in a performance period and contractor payment to be sent to the ESCO. So in Column D, we have an estimated annual cost savings. That's what your escrow is going to estimate that the equipment that's being installed, how much money or dollar savings is going to be estimated for that piece of equipment. You're going to be seeing that on another Schedule, remember on Task Order Schedule Number 4, so just keep that in mind as we move through these Schedules that they – that this Schedule Number 1 is a summary, but as we go along, components of the cost and pricing elements will be listed.

So move over to Column E. That is the guaranteed annual cost savings. Typically, what we see is 85 to 90 percent of the estimated savings that the contractor is comfortable in guaranteeing for your project, and then notice in Column F that we have \$1.00 less than the guaranteed savings because again, to the law and legislation, the contractor payments cannot exceed the guaranteed savings. And again, typically what we see are the sites – we do see the contractor payments by \$1.00 in order to pay off the investment costs as quickly as possible.

Slide 15 – Joyce Ziesler

This is a very difficult slide to see on the presentation, but again, in your hand out you have a better copy, but just know that this is the slide or the, excuse me, Schedule that I mentioned that your engineers, facility managers are going to be particularly interested in because it sets your baseline. If you can go to the left column there, you would see that your technology category, the ECM number is going to be listed there. And then following across, you would see your current usage of the energy for that ECM, ending up with a total energy savings and then your simple payback per ECM. The bottom line totals is what you need to be concerned with in terms of your total savings, your total contractor payments, and the total simple payback because we bundled the ECMs together to look at the total project in those terms.

Slide 16 – Joyce Ziesler

Task Order Schedule Number 2 is going to be a breakdown of your ECM costs, for instance your project development cost is listed there, your – and notice that you have direct costs associated with your ECMs that – on the Schedule. For instance, if you had geo-thermal heat pump, the tech category would be listed, your ECM number would be listed, and then equipment descriptions, such as the tonnage that’s going to be required to do your project in terms of the size. If there’s any M&V expense associated with that particular ECM, that cost is going to be listed in the next column. Another important note to this particular Schedule is down at the totals, the indirect and profits are assessed on the total direct costs of the project that equates to the total implementation price.

Slide 17 – Joyce Ziesler and Ed Bills

Here at slide 17, I’m going to turn it back over to Ed to explain some variations in some of these Schedules.

Thank you, Joyce. Let me just say that the TO Schedules are very important. When I get a proposal, the first thing I open to is the TO Schedules. You may have 200 pages of narrative, but when you have a TO Schedule, you have the same TO Schedule that was probably on a project maybe 2 or 3 years ago, so you can, you can look at the TO Schedule, and the information there is the same from project to project. Now let’s look at some examples of how maybe an ESCO might take liberties with a TO Schedule, and look at TO-2 Schedules. When the ESCO puts everything in the right place, the TO Schedule saves you a lot of time in your pricing analysis. All your information is right here, and you can tell exactly what you’re paying for, and exactly what you’re getting. But ESCOs sometimes do strange things and you have to be careful in your review. In the next few slides, I’m going to give you some examples of things we’ve seen in actual projects.

Slide 18 – Ed Bills

We have several ESCOs in the DOE program that have equipment manufacturing as one of their business entities, and this is an advantage for you, because as a federal customer, they don’t charge a markup on their equipment. But that can also cause some confusion. Look at this Schedule, this TO-2. There’s an ECM called Geo-Thermal Heat Pumps, that’s GHP. It looks like the site’s paying oh, about 5 million dollars for a geo-thermal heat pump. That’s probably not a bad price for a commercial pump. But then you look down further, and you can see that there is 1.4 million for ACME equipment. By the way the names have been changed on this to protect the innocent. Okay, these are the ESCO’s heat pumps. But since the ACME Company also manufactures other HVAC equipment, and there’s an HVAC ECM in this contract, you don’t know how much of the ACME equipment goes toward this ECM or the other ECM, and then there’s the additional warranty costs. Well, what do you do here? Well, you really have to ask for more information. Don’t ever be afraid to ask for more information from an ESCO. Another trick that sometimes works is to look at the TO Schedules. Sometimes, but not always, they’ll divide the prices up correctly on the TO-4s. On TO-4, even if it’s correct, I mean even if it’s incorrect on the TO-2, you might be able to fair it out, the differences. But get in the habit of asking a lot of questions.

Slide 19 – Ed Bills

Okay. Why are direct costs an additional, separate item in this slide? Notice the item called “Project Direct Costs.” This is something that only appears in one ESCO’s proposals. Presumably, it covers costs that all ESCOs charge, but others include it in their markups. If you want to compare this ESCO’s prices with the prices of another ESCO, you have to add in the cost. To do this, we use apportioning. It’s described above in the slide, but it’s basically just distributing this proportionally to each ECM.

Slide 20 – Ed Bills

Okay, here’s a strange one. There’s a separate line item devoted to services during construction. What in the world is that? Is it related to any specific ECM? If so, which one? You won’t find out unless you ask the ESCO. Now, these are not the only funny things you’re going to see on TO-2 Schedules, just a few examples. But even though the Schedules are the same for every project, the ESCOs will get creative with it. The lesson here is to take a hard look. You want to know what you’re paying for each ECM. That’s the basic question. If you can’t figure out from what you’re given, then ask for more information. Now, I’m going to turn it back to Joyce again to talk about the other TO Schedules.

Slide 21 – Joyce Ziesler

Okay, and before we go into an explanation of this slide, let me just add one more comment to Ed’s in terms of your price proposal is going – the narrative, is going to be probably very lengthy. And while these Schedules do summarize that price proposal, it’s important to know that the narrative match these Schedules, meaning that are there any ambiguities? Is there anything in the narrative that you need to be concerned with and need to understand where that price actually is in the Schedules. Because these Schedules, again, are an attachment of the IDIQ, and the order of precedence, in accordance with the the FAR does apply to what the Schedules versus the price proposal written word would mean in terms of the contract and also your – and any disputes that they may incur as a result of any ambiguities between the written word and the Schedule. So then taking a look here at this Task Order Schedule Number 3, this is actually the first Schedule that I started with when I was going over for my price analysis. As I said before, engineers, facility managers, are probably more concerned in their review of looking at that Task Order Schedule Number 4 first to establish the baseline and the utility costs, etc. But let’s just take a look at this, and remember I said something to the effect that these Schedules are married up in terms of, you know, sums of money being transferred from one to the other, and an example of that – remember that Task Order Schedule Number 2, the – is up on the top line under Project Capitalization. That’s the total implementation price. Then you have a finance procurement price in the next line, and we’re going to have some slides as an explanation of just what a finance procurement price is, later on in the briefing. But just briefly know that that is a representative of your construction period, financing costs, your performance, and payment bonds; in other words, the insurance during the construction period. So remember on Schedule Number 1 we had the \$117,000.00 implementation price? So it’s going to be calculated in with the other two, meaning that you have your implementation price, plus your finance procurement price, less that implementation price that’s going to be your total amount, or your principal of

your project, as the bottom line. Moving over to the next set of columns is demonstrated your term of your finance index rate quote, the index rate itself, or the current index rate, and it is what it is. This is not anything that the ESCO or you have control over. The index rate is the one that's published. But this added premium then is a bit different. Remember that this is a fixed price contract. This added premium is assessed by the financier, and they assist that on the profile of your project, meaning the complexity, the term, so forth, and we will have more explanation in detail about that. But just know that this added premium then is added and assessed by the financier, which will make that, plus the index rate, for the total project interest rate. Over in the third column, the issue date of the quote, the source is the treasury web, and there – the ESCO's going to give you an effective date, a close of business date there. Now, why is this important to you? It's important to know that scheduling the resources to review this final proposal and all of its cost elements, is going to be very important in terms of not exceeding this effective date. We have had projects fail before because the government took such an en-longed time to review and to be able to come to negotiations and task order award that the effective date of their interest rate or their index rate was ex – you know, exceeded, and so it wound up costing the project more money than it would have if you had reviewed it and come to task order award in advance. So looking down below in the other sections, notice that the debt service portion is there. The net principal repayment, the interest rates, are all calculated from year 1 through year 25 or 17 or whatever your project term is. Also, the post-acceptance performance period expenses are listed there, management and administration by your ESCO, all in this example. The ESCO is not responsible or pricing out anything under operations, so that tells me that the government site is actually doing the operation, but the maintenance of the equipment is the contractor's responsibility, so that is listed out over the term. Repair and replacement is also calculated into the deal here.

Slide 22 – Joyce Ziesler

We have a Task Order Schedule Number 5 that was required by Congress to be a part of the Finance Schedule. It's the annual cancellation ceiling and you're probably going to see this only in the final proposal because we know at this point then how many years the total costs of the investment for your project. So, it's only with the final proposal. The outstanding debt, plus a markup – or not a markup, perhaps, but a cost for your ESCO to actually do the close-out of the – through a termination on the part of the government. So it's a part of their costs for doing this, but it does not include any lost profit or service costs. The exact principal balance of the loan sometimes is often attached to expedite any loan payoff in the event of a T for C on the part of the government. And all of this is conducted and utilized the FAR term or clauses for the termination for convenience and how it's to be negotiated.

Slide 23 – Joyce Ziesler

So in the termination for convenience or any modifications along that line, you can have partial termination for convenience. And what does that mean? That means that you can terminate by ECM or by facility. Very often we have large campuses that the government has multiple sites for projects. So, you could terminate by an ECM in each of the buildings, or you could just terminate that ECM for the entire facility. We don't recommend terminating longer payback ECMs. This should be a consideration before you do that, because otherwise if you terminate the

longer payback ECM, it may extend the term of the Task Order; meaning that, you know, you can – if you have an ECM, let's say lighting that has the lion's share of the savings for your project, if you were to terminate that particular ECM, you may, in fact, extend the term of your Task Order. So that's what I meant by that. So any complete termination for convenience again is negotiated and settled in accordance with the FAR but it cannot exceed the annual cancellation filling on this Task Order Schedule Number 5.

Slide 24 – Joyce Ziesler

Okay, this is a snapshot of what the Task Order Schedule Number 5 would look like. This is, again, the investment costs for any given year, plus any type of fee that the government or the financier may assess on any termination for convenience. So let's go to the next slide and I'll turn it back to Ed for the private sector financing.

Slide 25 – Ed Bills

Thank you, Joyce. Now we're going to switch gears here and we're going to talk about private financing.

Slide 26 – Ed Bills

Traditional government projects are funded normally by appropriated dollars, but ESPCs are financed by the contractor through a lender of some sort that is through the private sector. Now a lot of engineers, and even some contractor folks, are unfamiliar with this aspect of ESPC. And I can personally tell you I remember one facility engineer on a project that I was working on became very angry when he found out that his project was to be funded through financed money, as if it were a dirty word. So we want to spend a little bit of time talking about this. Now, this slide you've seen before already. The two major components in the government payments are debt service, which repays the financier the upfront money used by the ESCO to develop a project, and the – we're paying back, then, the principal. The other part of the payments is for performance period services. It's assigned to the ESCO in a delivery order contract. This is the M&V, the measurement verification and the operations and maintenance. Once again, you see that the costs of the performance period services is not financed. You're paying for that as you go along. There's no interest on it.

Slide 27 – Ed Bills

Okay, the chart here shows very simply, which components of the payments are financed. The amount financed for a super ESPC project is about 40 percent of the total payments, and it includes the project development expense for each ECM, surveys, audits, developing the proposals, plus a markup. Implementation or design and construction expense for each ECM, the Financing Procurement Price, the FPP, which we're going to talk about with the next slide. The Financing Procurement Price is a mystery to some.

Slide 28 – Ed Bills

Okay, the financing procurement price is a pass-through from the financier that includes no profit for the ESCO. It's about 4 percent of the total payment. The FPP includes the cost of procuring the financing, and the cost of payment and performance bonds, but the majority is the interest on your money during construction, minus any interested earn. So, what is capitalized construction period interested in? It's the bottom line on the next slide. To understand this, let's look.

Slide 29 – Ed Bills

After the ESPC Task Order is signed, the financing is made available to the ESCO to fund project design and construction, but that also means that interest begins to accrue. Remember, the money is loaned to the ESCO, but the agency's payment to the ESCO doesn't begin until the project is finished and accepted. Construction typically takes one to two years. We found that generally the least expensive way to structure the financing is for the ESCO to deposit the proceeds of the financing into an interest-bearing escrow account. Now, this happens during construction. The ESCO pays the interest on the entire financed amount during the construction, but the ESCO account then yields some interest too. The difference between those amounts is the total interest on the loan for the construction period, which is capitalized. That is, it's included in the principal to be repaid over the term of the contract. So you're getting interest on the dollars in the account, and you're paying interest, and the difference between the two of those then is part of the principal.

Slide 30 – Ed Bills

Okay, so let's review this. The financing procurement price is a pass-through fee that includes no profit for the ESCO. It includes the costs for the effort to arrange financing, payment performance bonds, capitalize construction period interest, which we went over on the last slide, and then there are some hedges to lock rates in advance of financial closes. Hedge costs may be included in the interest premium or the finance procurement price, but it can't be included in both. Since we just mentioned the interest premium, let's look at what exactly this is and cover the components of the interest rate in the next slide, please.

Slide 31 – Ed Bills

Okay, the components of the interest rate – the interest rate is made up, basically, of two things – index and premium. The interest rate depends mostly on the prevailing cost of money in the financial marketplace. It's reflected in the index interest rate – that's the cost of money that varies day to day. Financiers of ESPC projects generally lock in the permanent financing the day before the award of the Delivery Order – Task Order. The like-term index interest rate obtained for the project is whatever is available on that day. U.S. Treasury Securities are commonly used as the index because they're a large volume – the market's really liquid, and historically they've been stable as an indicator as the cost of money, and their terms are 5, 7, 10, 20, and 30 years. The lenders typically price the like-term treasury securities interpolating, if necessary, or to the one whose term is closest to the delivery order term so they can compare. Other indexes can be used, and they do, but whichever index is acceptable to all parties may be the referenced index. You can see on this slide there are some web sources for rates.

Slide 32 – Ed Bills

Okay, what is the premium? The premium is measured in basis points, and this doesn't need to be confusing. One percent equals 100 basis points, and a premium is added to the index interest to cover the lender's transaction costs, such as legal fees and administration. The premium is usually measured in basis points. Super ESPC loan premiums have been in the range of somewhere between 100 to 250 basis points, or 1 to 2-1/2 percent. Hedge costs to lock in the interest rate in advance of the financial closing on the loan may be included in the premium or again, it may be included in the FPP, but it can't be included in both, as I said in the other slide. Maximum allowable premiums are given in Schedule B-2 of the IDIQ contract. A premium also reflects any special risk in the project perceived by the lender.

Slide 33 – Ed Bills

Okay, the lender has this perception of risk. It evaluates this risk of financing an ESPC project based on the potential for the ESCO and the agency to carry out their obligations under the contract and the potential for anything to interfere with the government's obligation or willingness to pay. Principal indicators are the ESCO's credit ratings, the ESCO's track record, the term of the loan. Certainly, a 20-year loan is going to be more risky than a 3-year loan; the technical complexity of the ECMs. If you're going to change out some lights, that's not very complex. But if you're going to install a \$180 million boiler and steam lines through a large complex, that's technically complex. And then there's the technical risk in a project – level of the measurement and verification, for example.

Slide 34 – Ed Bills

Okay, the competition in super ESPC financing is a must. We were talking about the lender as if they had already been chosen, but they have not been. In the course of the project, the financing for an ESPC project is required to be competed, and this has made a big difference in DOE's ESPC program. Since our requirement for the ESCOs to solicit competitive bids for their financing, premiums have dropped, and financing costs have been reduced.

Slide 35 – Ed Bills

The blue dots are the index rate. Here we use like-term treasury securities, that is, the yield of a theoretical T-bill with a term equal to the project term. The red dots represent the interest rate. The premium is the difference between the two. Premiums drop from 2.4 percent, or 240 basis points, to about 1.2 percent, or 120 basis points, on the average. And so, pre-competition is 2004 and back as you're looking at the slide. And the competed rates, then, are from 2006 forward.

Slide 36 – Ed Bills

This reduced the price – and this is payments over term of the average project by 16 percent. That's a lot of money. Let's look at the process for competing the financing.

Slide 37 – Ed Bills

The ESCO prepares an Investor's Deal Summary – that's the IDS – and sends it to the financiers to solicit offers. The IDS really establishes a common basis for solicitations. Everyone's bidding on the same parameters. And there's required content in this IDS. All the financial information, the, in the proposal will be a risk responsibility matrix to see who handles the risk and how they handle it, and then there's key target dates, and measurement and verification information.

Slide 38 – Ed Bills

The financiers are required to submit their offers back using another standard form – Standard Financing Offer – or, SFO. Now the IDS and the SFO were designed to make sure that these offers are directly comparable.

Slide 39 – Ed Bills

The ESCO reviews the SFOs and they make a selection. They then compose a certification memo documenting their process and the rationality used. The final proposal includes a package of the IDS, the SFO, and the certified selection memorandum. The package is evaluated by the FEMP ESPC team prior to award.

Slide 40 – Ed Bills

Since financing costs are such a large part of your project, I think 30 percent is what we saw in one of the previous slides. It's really important to manage these things. So how do you manage financing costs? Well, simply, you can borrow less and you can pay it off sooner. The most important thing to do is to explore any opportunity to bring the financed amount down and to pay it off. There are a couple of legal ways to buy down the project up front.

Slide 41 – Ed Bills

Utility rebate state incentives are available in many places, and your ESCO is required to research what's available and to take advantage of it. They're good at this. They know how to do this, so they'll probably do it as part of their investigation. Buy-downs can also be done in the form of one-time payments from expenditures that are avoided because of the contract – ESPC. For example, if an agency site was planning to use funds for a chiller replacement, let's say, it was done through an ESPC instead of a stand-alone project, the money that was programmed for the chiller can be applied as a one-time payment on the ESPC, usually before the project is accepted, and then you reduce the amount that's financed by the amount of the chiller. There are also opportunities in some projects to pay the ESCO for energy savings that accrue before project acceptance. I think the best example of this, and one we see most often, is lighting ECMs are often the first ECMs to be completed because, as I said earlier, they're easy to install and they generate savings right away, while the rest of the ECMs are being built. So, these payments can be applied as pre-performance period. Also, making a payment at the

beginning of the year to avoid the year's interest costs is another great way. Most ESCOs will recommend this, but not all of them.

Slide 42 – Ed Bills

Paying out savings earlier, as I said, can reduce financing costs significantly, and this slide shows how much your total costs can be reduced. Now, when you look at these three bars, the first one is if you were making end-of-the-year payments and no one-time payment. The second bar represents a savings of 15.9 percent if you pay at the beginning of the year and therefor avoid the interest costs for that year on the principal. And then the last one – let's say you take that 15 percent that you just saved from paying at the beginning of the year, and let's say you put it against principal. Then you can save another 11-1/2 percent all because you can pay off at the beginning of the year. But it also then represents what you can save if you do make a one-time payment.

Slide 43 – Ed Bills

Now, if the government terminates early, and Joyce mentioned this when she was discussing the TO-5, at the termination it will pay principal plus interest from the last payment to the payoff date, plus a yield maintenance amount if the rates are now lower than at origination. This is defined by a formula – they call it an algorithm, and some financiers are satisfied with the TO-5. Others require a list of monthly termination payoff amounts.

Slide 44 – Ed Bills

I would like to say that FEMP, their job is to help. We have, we have a lot of experience and a lot of expertise. We can review proposals, provide comments, check figures. We have a lot of statistics, and we can help you analyze proposal numbers and, of course, we have webinars and we have our face-to-face workshops that we can educate you all and your team. I also, I want to put a plug in for the FEMP project facilitators and the financing specialists. You heard Scott earlier. Scott's a financing specialist. But let's say I'm a member of the Army – these guys are the special forces. They're the Green Berets of the Seals of ESPC. They have a tremendous wealth of experience and knowledge and can solve a lot of the problems that you might think are insurmountable.

Slide 45 – [No audio]

Slide 46 – Joyce Ziesler

So for this Part Two, we have a fair and reasonable pricing for the federal ESPCs. Many questions that were asked from time to time are, "Exactly what am I negotiating? What do I need to do to go into negotiations, do my price-reasonableness determination?" So in this next part, we're going to try and impart some of our experiences and some methodologies, if you will, of going through that process.

Slide 47 – Joyce Ziesler

So here's the outline. Application of the Federal Acquisition Regulations as they pertain to ESPC, the FAR price analysis technique, the pricing review strategy. And then at the bottom line or the end of the briefings, we'll have another Q&A opportunity for you.

Slide 48 – Joyce Ziesler

So the onus is on the contracting officers to do their pre-negotiation memorandums and the price-reasonable determination prior to the award of the task order. So whether the contracting officer does it or whether you have a price analyst to do it, your careful analysis of the purchase under the ESPC contract is just as important as any other procurement that you would be engaging in. So the pay, the fair and reasonable prices on your ECMs or your equipment for your services is critical for the finance or where the procurement is financed over a long period of time. The next slide demonstrates the results of careful evaluation of your project costs.

Slide 49 – Joyce Ziesler

This explains why verifying the ECM prices is important, because, as you can see, from the first bar chart there, total agency payments over the contract term for an average super ESPC column is demonstrated there. So the second or the right-hand column shows that agency payments, if the implementation price increases by just 10 percent. So looking down at the very bottom, the mauve or pink-shaded areas, you see that 42.8 percent of the implementation price and that is on your total project, then if that is increased by 10 percent, you can see the effect the bottom line or up top would be a total payment over term of 125.5 percent increase of your project cost.

Slide 50 – Joyce Ziesler

Another reason to verify regulations and guidance is in the ESPC legislation, it stresses mandatory to consider lifecycle cost effectiveness. But it doesn't exempt you, the agency or the contracting officer, from assuring a price reasonableness. This is explained in more detail in the DOE final rule 10 CFR 436 and it waives the requirement for the submission of certified cost data, which is also provided in the ESPC legislation and it states that offers or the contractors or ESCOs must, nevertheless, provide information requested by the federal agency. As Ed pointed out, ask the questions. Transparency is very important, especially if you're unfamiliar with the type of equipment that's going to be installed for your project. You're going to need to ask a lot of questions. You may need a lot of support data. And by the way, the amount of support data that you would like to have or think is necessary to offer up in this stage is quoted or stated in your Task Order RFP. So the level of detail that you're going to need to make your price-reasonable determination can be stated there. So the 10 CFR 436 didn't specify how agencies are to assure the price-reasonable determination, so that's pretty much up to you. However, we do have additional guidance.

Slide 51 – Joyce Ziesler

Let's refer to the FAR Subpart 15.4, Title Contract Pricing. In the event of conflicts of the EPAC or the DOE final rule would take precedence and to our knowledge and right now, there

are no conflicts between the Subpart 15.4 and any other ESPC regulations relative to price-reasonable determination. We're going to talk a little bit more about additional FAR guidance, as it marries up with ESPC legislation, in future slides.

Slide 52 – Joyce Ziesler

Planning ahead. Back at the formulation of your acquisition team, gathering your resources, who is going to be reviewing your documents, your technical price proposals and all of the attachments, then your key acquisition team members that are going to do that should have been planned ahead so that when you go into your review, the whole proposal, as well as the pricing is – there's adequate time set aside. Remember when I was talking about the Task Order Schedule 3 and the effective date of your finance or your index rate quote? It's important that your timeline for reviewing the projects fit within the parameters of that effective date so that at the end of the day, if you go beyond that and index rates go up, then it could damage or really affect your project in a significant way. So finding out who will review, setting the milestone in the timeline and that acquisition planning is very important. So you're going to need to focus on the ESPCs, the payment from savings feature and it's guarantee, making sure that the acquisition team knows that, early on, the price-reasonable determination and requirements do apply to these projects, just like they would for any other procurement. So with that, we'll go to the next slide, please, 53, and Ed will join us again to explain these.

Slide 53 – Ed Bills

Thanks, again, Joyce. In the next slides, we want to cover price review. Now in the two basic stages of ESPC, the preliminary assessment and the final proposal, not to say there are not other stages, but in these stages, we really have separate concerns for price review. The preliminary assessment, or the PA, is a walkthrough. It's an initial survey. It's not investment grade. It's more about feasibility. You just want to gather enough data to make a decision on whether to go forward with your energy savings performance contract. So know that it's preliminary. The final proposal defines a deal and it's the object of the FAR requirements on pricing. That being said, of course, we still want to review the pricing in the preliminary assessment.

Slide 54 – Ed Bills

So in the preliminary assessment price review, we want to consider if the prices are unrealistically low. If you find out later that they're too low, then you're going to have an effect on your project. The same thing with the unrealistic high. So you do want to look at the pricing. After you've reviewed the prices, you want to, again, ask questions to your ESCO. Make sure they answer them. There's a procedure for doing this in your preliminary assessment. Your project facilitator will lead you through it, but you want to document the answers and the review process.

Slide 55 – Ed Bills

Now when you evaluate your price proposal in either stage – but we're still talking more about the preliminary assessment – you always want to start with the TO schedules, as Joyce and I

have both mentioned. I go to TO3 first, also, probably because Joyce taught me. But I get the most information off of that. A total implementation price for each ECM is substantiated through backup, including subcontractor quotes, where appropriate. You see more of this in the final proposal than you would in the PA. Performance period expenses for each of the line items – they’re substantiated through backup, and the markups on the ECMs and finance premiums are with maximum allowed under the IDIQ. You’re looking for standard stuff here, and that the term of the TO is reasonable. The total proposal price is complete and reflects the appropriate costs for the project implementation.

Slide 56 – Ed Bills

FAR 15.404-1, the handouts contain additional detail on this and I know when I mentioned FAR, the contracting folks, like Joyce, their hearts start beating faster, but with most of us, our eyes start glossing over and don’t start tuning me out. This really is fairly simple. Here are the basics. All FAR is asking for is for you to confirm pricing. It gives you three ways to do this, but you won’t be on an island when you’re doing this. You have us. You have FEMP. You have the FFS and the project facilitators and there is a lot of support that comes from the labs. We had a lot of statistics that we can help you with. So don’t let it scare you.

Slide 57 – Ed Bills

I’m going to just go through a little bit of standard stuff, FAR definitions. The price analysis is a process of examining and evaluating a proposed price without evaluating its separate cost elements. Cost analysis is a review and evaluation of the separate cost elements and profit and in offers or contractor’s proposal. And then there is a technical analysis, which usually breaks down the number of nuts and bolts. I’m going to go over, in the next few slides, each one of these. I’m not going to be oversimplifying here, but the price analysis just uses project examples, rules of thumb, to confirm the pricing. The cost analysis takes a contractor’s proposal and attempts to price the items that they’ve listed. A technical analysis goes item for item and adds them up and in that way, comes up with a price to compare.

Slide 58 – Ed Bills

The price analysis method, this is really probably the best one for FAR. It means that you’re looking at the total price. It’s not a breakdown in the labor and materials, but the price analysis looks at the total price you’re paying for each ECM. The ESCOs usually compete subcontracts, so you’re going to have some of that information. You’re going to have a comparison with previously proposed government and commercial contracts and some of these statistics, we have in our databases. Then you have the parametric estimating methods and we’re going to talk about that a little more.

Slide 59 – Ed Bills

There are other price analysis methods. Some of these really don’t suit the ESPC well. Comparison with published prices, there’s not going to be a lot of ESPC prices that projects out here that you’re going to be able to go to a catalog and say, “This is what I want.” Market

research is really the same way. You can do all the market research you want. Again, most ESPC projects are different from project to project. Analysis of pricing information provided by the offer, well, we're really not making jet planes here. That may be a way to look at a large weapon system. It doesn't necessarily work well for ESPC.

Slide 60 – Ed Bills

On a technical analysis, you call in experts to do a review, either your own or contractors or consultants. These experts, they can be professional cost estimators or experts in a particular technology. I should say when we're talking about this and we'll, again, touch on this later, that a task order, when it's signed, is usually between a 30 and 50 percent design. A complete price review breakdown is difficult with a technical analysis, just because you don't have enough of a design yet.

Slide 61 – Ed Bills

Cost analysis and technical analysis. Where no previous prices are available, and there isn't any benchmark information that you can use, you may not be able to use a price analysis, so you have to turn to a cost analysis. A cost analysis is more expensive to perform, plus it's really not FAR's first preference, however, you may have to use it. You can ask the ESCO for a detailed breakdown of their pricing and then you can check that. Typically, this has to be reviewed by someone who is familiar with this type of analysis, a price estimator, maybe someone that is familiar with your particular ECM. The development of an independent government estimate is a technique that fits into the category of cost analysis. Another term for this is a cost reasonableness study. Again, remember that we're not working off of a 100 percent design. We're working with an under 50 percent design.

Slide 62 – Ed Bills

One of the price analysis techniques specified in FAR is the parametric analysis. This works for ECMs that have a definable size. One example is benchmarks, and FEMP used data from previously awarded ESPCs to develop price benchmarks or on some other popular ECMs, ground source heat pumps, chillers, lighting, retrofits. Our databases are really good.

Slide 63 – Ed Bills

Here's an example and it's a pretty simple example, but I think it will explain what a parametric estimating tool can do to help you. A site has a proposal to install a 500-ton chiller. The previous work at the site installed a 200-ton chiller and then an 800-ton chiller and the prices, they're well known. They're in the files. So under the right circumstances, you can use the cost of the 200-ton chiller and the 800-ton chiller to draw a straight line. Then you extrapolate your 500-ton chiller and since the price of chillers is related to tonnage, which is their capacity, you can plot the price versus the tonnage. Now in practice, this is probably more complicated. What if the 200-ton chiller was installed in '98 and the 800-ton chiller was installed in 2000? Well, you're going to have to use some price index to inflate to 2008 dollars. A further complication might be what if the 200-ton chiller was installed in Manhattan and the 800-ton chiller was

installed in Des Moines? The 500-ton chiller is to be installed in Birmingham. Well, that's another correction you're going to have to make, but you still are able to make some determination. This is just the situation we're in with the prices on ESPCs. Projects go back to 1998. They've been installed all over the country.

Slide 64 – Ed Bills

But we can correct for all this. RS Means publishes an annual construction price index. Many of you are probably familiar with this – for various cities. Here is some data for lighting retrofit projects. The price of each previous project is corrected to today's date and to a particular city. Note the nice correlation, by the way. It's a log-log scale, but still pretty uniform. So using benchmarks that we have, you can tell us where you are, the size of the project and it tells you the prices of all previous ESPC projects. Now a question that I've got on previous trainings is, "Where do I get this?" Your project facilitator can get this information for you.

Slide 65 – Ed Bills

Point comparison tool. It's a searchable database. The ECM locator tools for ECMs don't lend themselves to benchmarks. The tool is based on past task Super ESPC ECMs and you can search using the ECM name and list of projects. Again, this can be made available to you through your project facilitator.

Slide 66 – Ed Bills

Here is an example of how to build a comparative sample using a steam trap replacement. For those non-engineering types on the phone, a steam trap in a boiler system lets out – condensate, **not** letting out steam and thus losing energy that you've created in that steam. You can see that the average of the samples, in the far right-hand corner, next to the last line, is \$861.00 per trap. The proposal, as you can see in the bottom right-hand corner, you're quoting \$1155.00 per trap. This is 25 percent higher than the average. It gives you a point to analyze and you start asking questions. "Are your installations more complicated?" "Are these high-pressure traps?" I'm going to turn this back over to Joyce.

Slide 67 – Joyce Ziesler

Okay, thanks, Ed. If all of this sounds a bit daunting, especially for contracting officers who are hearing about these high-tech type of ECMs for the first time, don't be intimidated because you have your project facilitator and you have your experts, like Ed, to help you do a basis analysis for all of these cost components. We're just trying today to explain some of the differences, how we are in accordance with FAR and our approach and, ultimately, how to reach that price-reasonable determination. So your supporting information on the pricing, again, should be stated in your task order RFP, back at the investment-grade audit phase of the project development. Then we have some recommendations for you in preparing your pre-negotiation memorandums and approach to your analysis.

Slide 68 – Joyce Ziesler

In your project development costs, let's break some of these components down. The summary of the expenses for your project developments through the award of the task order is the fill work for the investment-grade audit, a pre-design activity and proposal, preparation. These are all costs for your ESCO's project development costs, keep in mind, their project management, the subcontractors as far as metering and measurement and installation of the equipment that's being purchased and then their travel and expenses. I used to refer to the government's travel regulation in all of my task orders and contracts that I expected the ESCOs or the contractors to be in compliance with that and they need to demonstrate that to you contracting officers in the event that they are outside the per diem cost of a government employee, for instance, traveling. Then they should justify as to why that was necessary for them to have a more expensive hotel or their flights and so forth. We shouldn't expect them to be sitting in first class, for instance, and paying that premium. They should be traveling the same as the rest of us, in economy, and charging the government for only that portion.

Slide 69 – Joyce Ziesler

This graph shows some energy surveys or proposal development that was taken from a data bank. We found that in 50 percent of the investment or the survey study cost, more than about a five percent portion of your total implementation price married up with this should be about where your proposal development costs should fall. Only 25 percent of the investment cost study or your implementation cost, more than seven percent of the total was demonstrated by that, so there's the range between 50 percent and 75 percent of the data that were assessed. It comes out to about a five percent that you would expect in relationship to your total implementation price. So remember the dollar bills that Ed said was his favorite slide or data. We have benchmarking tools that that data is taken from, so we're laying at about five percent. So for your project development cost, in other words, to summarize that, should be somewhere around five percent. Now some of this could be determined, if it's the upper, like the seven percent, then perhaps the ECMs or the development cost is assessed directly to the complexity of, let's say, a code generation plant compared to just more conventional types of ECMs, such as lighting and the steam traps and so forth. So that's kind of where your analysis would go toward as to if it's in the upper range, then what's the reason for it being in the upper range of the data.

Slide 70 – Joyce Ziesler

Implementation period pricing. A summary of the design and construction pricing is going to be on that Task Order Schedule #2. Remember that that's allocated per ECM. So what are the components of that? You have the equipment and material cost. You have the construction design. You, again, the project management, it's a direct cost. The installation labor. Probably your subcontractors. The start up with the commissioning of the equipment and any construction period measurement and verification.

Slide 71 – Joyce Ziesler

Performance period expenses. Remember the bottom section of that Task Order Schedule 3. There are some components of what you're going to find there; the project management, in terms

of labor; operations, in terms of labor; maintenance, labor and materials; repair and replacement. Remember the bottom line there? We had some repair and replacement costs in our sample Task Order Schedule 3 today. We have measurement to verification and materials that may apply to that measurement that the ESCO is going to be required to do. Periodic training to your staff, which is agreed to the frequency of that, in accordance to what you put in your task order RFP; some insurance and taxes also appear. So there's your breakdown of the performance period expenses. Just one keynote here in as far as the operation and maintenance, if the government is assuming either of those, either the operation or the maintenance or both, then in your price-reasonable determination, you need to do an assessment of what it's costing the government to do it versus what it would cost the ESCO to do it and why whichever one is – for instance, the government is taking on the operations, why that is the best value to the government for your resources to be doing that versus the ESCO's resources. Those are just a little bottom line thing there for operation and maintenance. And, too, let me just expand a little bit more on that. Military bases or Department of Defense very often have what we call the “base operation of maintenance contractors,” and with us at DOE, we have M&O contractors, which is just the flip of the term, which is maintenance and operations. So if I were going to provide this explanation, and I think your IG or your auditors would need that explanation, I would want to explain why my M&O contractor versus the ESCO doing the operation to maintenance, whichever one is doing that is the best deal or the best value for the government

Slide 72 – Joyce Ziesler

Concentrating on the year one pricing, that very first column on Task Order Schedule 3, in the bottom section, is making sure that the ESCO has provided the information supporting that year one pricing, which is what you're going to be concerned with in going forward with your price-reasonable determination and all the cost categories consistent with assignments in the risk responsibility and performance matrix. Now we haven't addressed that particular document. It is an attachment to the IDIQ, so if you've listened to previous webinars, you know that in this risk responsibility and performance matrix, there could be some cost components in there that if the government is taking the responsibility or the liability for some of the performance of the equipment or such as the operation and maintenance, then you need to refer to that risk responsibility and performance matrix to make sure that it makes sense in the way that it is priced. Again, I can't stress enough that ambiguities between multiple documents is not a good thing. You need to make sure that it makes sense, and your schedule, as well as your price proposal, and then this risk responsibility and performance matrix. Find out how the prices for your project compare to other ESPC range and averages for the performance period services. We do have some benchmarking data and tools that your project facilitator and your lab techs can offer up some assistance to help you make that particular comparison.

Slide 73 – Joyce Ziesler

So there are services, not just the performance period, such as operation and the maintenance and so forth, but we do have some other categories. Through the performance period, there may be additional project management on some of the more sophisticated types of ECMs, meaning wind turbines, landfill gas, some of those types of things. The ESCO will need to provide more project management of those ECMs than they would the more conventional ones. Operation,

again, if it applies. Maintenance, again, if it applies. Repair and replacement, the labor and materials to do that, again, that should be in that same line item as we saw on Task Order Schedule 3, and then any additional training that's needed throughout the course of your project duration, 15, 17, 23 years, whatever, any additional training over that performance period, services would apply also. So the categories are determined by responsibilities, again, looking to that risk responsibility and performance matrix which have been assigned to the contractor and which have been assigned to the government.

Slide 74 – Joyce Ziesler

We have some steps here in approaching your price-reasonable determination. So the agency techs and the contracting officer marries up or partners with the ESPC team to assess the quality and completeness of the data provided by the ESCO. Back with this acquisition planning, with your investment-grade audit, your Task Order RFP, all of that flows into these final steps.

Slide 75 – Joyce Ziesler

Step Two for the cost-effective review. Using benchmarking data is my first approach and I'm sure it will be yours. If it's within an acceptable range, justify that, support that and then move on. If it's high or low, then flag for discussion with the ESCOs. This is going to go into a pre-negotiation memorandum. Remember some of the examples that Ed gave you back about the geothermal heat pumps and some steam traps, this would be a comment by your team then for you to enter into discussion with the ESCO, ask those questions as to what the items that have been red-flagged and the comments that had been made by your team. Our next step would be to use an ECM locator to identify similar ECMs for you to compare. Again, if it's within an acceptable range, you're wise to move on; don't get in the weeds, as we used to say, "Don't be dollar-wise and a pound-foolish" in making your assessment. We do want to be careful in planning. If you remember my chart about even 10 percent of implementation price, how that affects your project over a long term. Again, if it's high or low, make sure even if it's low, you think, "Oh, well, great." But, no, not necessarily. It could indicate or be an indicator that the ESCO has not done a very good job, perhaps, in understanding or assessing the risk of a particular ECM. So question the low as well as the high.

Slide 76 – Joyce Ziesler

So in our Step Three, the benchmarking tools or the ECM locators – make a quick work of some of those ECMs if they're within range, freeing up the time for the more complex or the items for your analysis where you have no price or comparison data. So if no benchmarking or locator data exists, then the team or you contracting officer must independently assess the ECM price for its reasonableness. So let's go to the next slide and just look at what I call the litmus test in doing this.

Slide 77 – Joyce Ziesler

For each of the ECMs in service – don't forget that you have some services and other costs embedded in some of the attachments and documents, so each cost element needs to be broken

out to that extent, so just following the arrows along, you can see that the benchmarking and the ECM locator provides the fastest track to getting to a price-reasonable determination and documenting the pricing review for your internal files, as well as going forward with your negotiations. The more time-consuming would be if there are no cost estimators or other experts to look for the price. Again, I say this may be a daunting task at first glance, but you do have a good support team in terms of what FEMP provides for you and your project facilitator in going through such as litmus test as this. With that, we'll turn it back to Ed.

Slide 78 – Ed Bills

Thank you, Joyce. We've talked about benchmarking and let's look at a couple examples. In this slide, we're looking at a ground source heat pump in family housing, and the scope of the project is to install this GHP system in about 1,300 family housing units and the total installed capacity is 2,911 tons. Here's the proposed implementation price. You have your design and your construction, which brings the total implementation price to a little over \$7 million. I don't think I need to go into the dollars and cents. You have implementation, indirect and profit 25 percent, which adds on another \$1.7 million or \$1.8 million and you come to an implementation price of about \$8.9 million and when you divide it by the total number of installed tons, you come up with a price, a unit price and that's \$3,068.00 per ton.

Slide 79 – Ed Bills

So from the database, we have a GHP price of \$3,300.00 per ton. Well, comparing the two of them, you're pretty close. You're really within 10 percent. So you can propose that the ECM is fair and reasonable.

Slide 80 – Ed Bills

All right, let's look at another example of a ground source heat pump; this one installed in a lodge. It's a large-type facility, but the total installed capacity is only 65 ton. Then you add your design and construction and your indirect and profit and come up with an implementation price of about \$417,000.00. Well, when you divide that by the 65 tons, you come up with an installed price per ton of \$6,428.00.

Slide 81 – Ed Bills

Now when you look at our database, the commercial GHP price is \$5,500.00 per ton. So you compare the two prices and find that, well, you're really 17 percent higher than the benchmark. Now this isn't reason to go off the deep end, it's just reason to ask more questions. By the way, when you're picking an ESCO, remember communication with them is so important. You have to feel free to ask all these questions. They're starting from a point of knowledge and you're starting, really, from a point of ignorance. So the thing that gets you from one point to another is questions, lots of questions.

Slide 82 – Ed Bills

All right, under further investigation, it turns out that the lodge facility required additional condenser piping because it's inside the building and you're serving console-type GHP units. Commercial systems and GHP database were central station type units, which are different. So the cost of the internal piping is the potential source of the cost difference.

Slide 83 – Ed Bills

So basically, what you're going to do is you're going to determine how much that internal pricing increased the cost and you subtract that from the total implementation price and that amounts to about \$362,00.00. That's subtracting the internal piping of \$55,000.00 from the \$417,000.00 price. The GHP database price per ton is \$5,500.00, from the database, compared to the resulting price per ton of \$5,574.00 once that the extra piping was deducted and you can conclude that the proposed ECM price really was fair and reasonable.

Slide 84 – Ed Bills

Once again, you're not on an island. You've got plenty of help out there. The FEMP resources are tremendous. They cover most of the questions. You have your project facilitator who, as I said, is the special sources of ESPC. You have your own agency and site experts. You've got DOE's FEMP site and agency experts. You've got data from our databases. And you've got national laboratory experts. You have supporting information supplied by the ESCO. They're going to try to help you as best they can, although they have their own interests at heart. You use them for the basis, and you're also going to get cost information from ESCO subcontractors, because they are going to show you how they're subcontractors are quoting on their projects. Lots of resources. It's a process. It's not a destination in itself. It's kind of a journey.

Slide 85 – Scott Wolf

Thanks, Bill. I appreciate it very much. We talked about web tools and, of course, you see the web tools website here. It requires a sign-on and so Oak Ridge, who administers this site, will provide you a sign-in password if you request this. But I'd mentioned some really important points. Folks in your agencies do have experience evaluating prices on proposals. Of course, the mandatory project facilitators who Ed pretty much made a similarity to, they're special sources. They've seen many of this stuff before, 30 or 40 projects in the past and they could certainly help you.

Slide 86 – Scott Wolf

Thank you, everyone. The training is adjourned.