



Department
of Energy &
Climate Change

Guide to Energy Performance Contracting Best Practices

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Any enquiries regarding this publication should be sent to us at the Department of Energy and Climate Change.

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1. Overview

This Best Practices Guide is aimed at helping identifying some points for consideration by buying organisations in relation to Energy Performance Contracting, based upon experience from a number of such projects within the UK public sector. It is not intended to be a guide to running compliant procurement processes, or general project management, as these should be familiar processes to public sector organisations and guidance is available elsewhere. Buying organisations should ensure they have the relevant skills or seek expert advice where required when undertaking an Energy Performance Contract.

The Contract Guidance Note section to the DECC Model Contract has already covered some introductory areas to help organisations understand the overall structure and certain areas of the Model Contract.

This guide to Energy Performance Contracting best practices is intended only for use by public sector bodies within England and Wales. It provides general and background information only and does not constitute advice and neither is the information set out in this guide exhaustive or relevant for every case. DECC excludes any liability, to the fullest extent permitted by law, arising from the use of the general and background information provided in the guide. It is accordingly essential that public sector bodies obtain specialist advice from appropriate professionals prior to considering their own needs, specifying any works or services required and/or entering into any contract. In particular, it is important that public sector bodies ensure that they comply with all requirements of procurement law and with all other legal or regulatory requirements. In addition, the DECC Model Contract is published, and can only be used, subject to the disclaimers set out in the “Important Information” section at the introduction to the published Model Contract.

1.1 Potential Benefits of an Energy Performance Contract (EPC)

The use of EPC is growing in the UK with a number of public sector organisations having already successfully implemented projects and more planning to undertake them. EPCs have been delivered across a wide range of building types and different sectors including local authorities, the NHS, schools, further education, and universities.

EPC can potentially provide a strong business case and offer organisations a range of attractive benefits including:

Financial Benefits:

- Guaranteed energy savings
- Reduction in backlog maintenance levels, maintenance costs and other running costs

- Reduction in CRC Scheme costs
- Creating the opportunity for renewable energy generation and income from the Feed-In-Tariff and Renewable Heat Incentive schemes
- Reducing the impact of future energy price rises through significantly reducing energy use

Wider benefits:

- Delivering CO₂ reductions and helping to achieve corporate CO₂ reduction targets
- Improving the building environment and comfort for occupants through upgraded and more efficient heating and cooling systems. An important benefit, as a growing body of evidence suggests, is that improved building environments can improve productivity and reduce absenteeism¹
- Creating a safer environment through improved lighting, reduced equipment failures and better building management systems to help identify issues
- Investment in buildings and green technologies to help generate local jobs and improve local skills

1.2 Overview of a Typical EPC Process

Key steps in a typical EPC project:

The following is a quick summary of a typical EPC process. Many of the stages are covered in more detail later in the guide. It is emphasised that this is a generic guide, however, and there may be different or additional considerations relevant for your particular project.

Stage 1 – Identify Requirements, Resources and Funding Approach

It is important to know a number of key parts of your potential project to ensure you have a robust basis for commencing a project, getting approvals, communicating requirements to bidders, and ultimately implementation of your EPC. Key questions to answer include:

- Why you are doing the project (e.g. cost savings, CO₂ reduction and/or wider benefits)?
- What your requirements are (e.g. technical, financial, and/or strategic)?
- How you will resource the project through the whole process?
- How the project will be funded?

¹ The Business Case for Green Building – World Green Business Council The Business Case for Green Building – World Green Business Council web 04-11-2013 and Study proves classroom design does matter (2012). University of Salford, accessed 22 March 2013, <<http://www.salford.ac.uk/home-page/news/2012/study-proves-classroom-design-really-does-matter>>

- Has the project got management buy-in and do you understand all the approvals required for the project?

Stage 2 – Tender Phase

Good preparation is critical to a successful tender. You need to understand how you are planning to procure your EPC - you may be undertaking your own OJEU based tender or using an EPC framework - as this will help on defining what information is required and how that information should be presented.

Gathering information on the properties within the scope of your project will be important to convey to bidders the basis of the opportunity. Bidders will be keen to understand areas such as energy use, current building condition, recent and future planned improvements and operational use. This information will also help them prepare for site visits during the tender phase and help in developing proposals.

Good tender documents will articulate requirements, identify how bids will be assessed and provide relevant information. A good competitive tender process to select the energy service company (commonly referred to as ESCO), should enable a solid foundation for the following stages.

Timescales for the tender phase will depend upon the procurement route taken and the complexity of the project. OJEU based tenders can typically take between 6 and 12 months.

Stage 3 – Full Investment Grade Proposals

The investment grade proposal (IGP) is produced by the ESCO and should detail key information including the Energy Conservation Measures (ECMs) to be installed, guaranteed energy savings, tonnes of CO₂ to be saved each year, capital costs, maximum payback period and a measurement and verification (M&V) plan. The IGP should also detail how and when the ESCO proposes to install the identified ECMs.

The IGP process involves a thorough survey of buildings and it is important that clients engage with the appointed ESCO during the IGP creation time so that the ESCO can develop a better understanding of building use. It may be sensible to have reviews to discuss ECMs being considered so that the final proposal is more likely to fit with requirements and be acceptable.

Timescales for producing IGPs will depend on the size and complexity of the property portfolio and the types of ECMs being considered. They can typically take around 40-90 working days.

Stage 4 – Install Energy Conservation Measures

If the IGP is completed and agreed, the ESCO can be appointed under the implementation contract (e.g Call-Off Contract Phase 2 of the Model Contract) to proceed with the installation of ECMs. It is at this point that works commence on site, in line with the agreed IGP.

Timescales for installation will depend on the size and complexity of the property portfolio and the types of ECMs being installed. It may also depend on when certain ECMs can be installed, since there may be restrictions on when major improvements can be undertaken (e.g. needing to avoid major building work during school exam periods or only being able to install new heating systems during summer months). Smaller projects could take a matter of weeks if the ECMs are quick to obtain and install, whilst larger capital investment projects across multiple buildings could take over a year.

Stage 5 – Service Delivery / Monitor Performance

Once installation is complete the project should move into the service delivery phase. The specific nature of service provided will depend upon the contract. Energy savings are a key benefit that should be achieved and it may be that operational and maintenance services are also provided by the ESCO.

As energy savings are a central focus of an EPC, it is important that these savings are monitored through an appropriate measurement and verification plan (which should have been agreed as part of the IGP). This should enable changes in operational and external factors to be accounted for in demonstrating overall performance. If underperformance does occur remedies may be applied in line with the agreed contract.

2. Getting Started

2.1 Identify Objectives and Scope

It is important to understand the reasons for undertaking an EPC project. Objectives should feed directly into the tender phase (potentially as must-have or desired requirements) and the ability to meet them should form part of the evaluation criteria, hence it is worth detailing them early in the process and getting an understanding of the relative importance of different requirements (to help with the evaluation approach later).

Objectives could come from a wide range, whether they are building improvement needs, financial returns or wider strategic goals. There may be a single objective (e.g. financial returns) or a range of requirements. Examples could include:

- Priority equipment replacement e.g. replacing end-of-life / failing boilers
- Improved resilience of building systems
- Renewable energy generation
- Reduction in CO₂ emissions
- Cost savings / financial returns
- Improved building environment

EPC can be about more than just being energy efficient. Additional benefits can include:

- Improving the comfort for patients, staff and visitors through better heating controls and air quality
- Creating a safer and better working environment through improved lighting and reduced equipment failures
- Stimulating activity in the local economy through investment in buildings and renewable energy generation

It is therefore important to understand what the objectives of the programme are. Given the potential range of benefits and types of improvements, it is important to understand the importance and priority of the objectives and clearly show the “must have” and the “nice to have” areas. This helps to set clear criteria in tenders so that bidders understand your requirements). For example, CO₂ reduction may be a critical objective but the greatest cost savings may not necessarily give the largest CO₂ savings, and vice-versa, hence the need to be clear across potentially conflicting requirements.

Project Scope

It is vital to understand and explain what is in scope for the project. This may predominantly relate to the premises that are included, but it could also relate to other areas such as specific technologies or financing options that may be in or out of scope.

In terms of buildings / premises there will be a number of questions to address to help set the scope:

- Have you included all buildings that could benefit from an EPC rather than just those in the initial phase?
 - If the initial phase goes well you may want to incorporate further buildings without necessarily having to run a new tender
 - It may be that the ESCO identifies better opportunities in other buildings and therefore you want to alter the buildings in the first phase. Or some ECMs, such as district heating, may provide better returns if linked across more buildings than originally anticipated
 - Have you included all premises that could have energy generation measures e.g. car parks, disused areas and landfill sites?
- Do you have a priority of order for improvements e.g. prioritise owned rather than long lease buildings and those buildings that are most likely to be retained?
- Are some buildings due for disposal or a significant change in use that would mean investment through an EPC may not make sense?

In terms of potential ECMs:

- Are there some measures you are keen to have such as renewable energy generation?
- Are there some measures you don't want due to impacts, potential planning requirements, or restrictions due to listed building status?

EPC is essentially an output based approach, therefore it can be important to understand the means that will be used to generate say the electricity output e.g. will it be through a gas powered CHP or through renewables? Clarifying what features you do or don't want included can help ensure bidders have a clear and common understanding of requirements.

Design, supply and installation of ECMs will be central to an EPC and thought needs to be given to other elements of the service scope including:

- Maintenance of new or existing equipment – it has been common for EPC projects in the UK public sector to retain existing maintenance arrangements to maintain the newly installed ECMs. It is often due to the desire for wanting a single contract covering FM and/or it being more cost effective to have the existing provider (where staff may already be present on site), retain the responsibility. The exceptions to this may be for bespoke items such as biomass boilers (where perhaps there is no existing/in house capability), or where output services are procured and the buying organisation has no responsibility for maintenance.

- Measurement and verification of savings – this will often be undertaken by the ESCO but you may want to have this undertaken, or the approach and outputs reviewed, by an independent third party organisation (note that this may be more expensive as the ESCO may still want to undertake their own monitoring due to the savings guarantee liability they have and / or the ability to provide real time monitoring of systems and energy use to identify issues).

2.2 Identify Resources and Funding

Appropriate resourcing of the project by the buying organisation will be central to its success and is likely to impact on the delivery timescales, especially if a large property portfolio is being addressed. In many ways an EPC is similar to having a wide-ranging property improvement project in terms of internal resources and the level of their involvement.

Typical resources:

- Project lead – to manage the project / programme
- Senior sponsor – to help with approvals and ensure senior engagement
- Estates / facilities lead – to gather information on buildings, help define requirements and act as the main lead for ESCOs to engage with during assessments, technical proposals and subsequent project implementation
- Procurement – for the tendering activity
- Legal – to identify contracting requirements and then agree the contracts
- Finance – to cover requirements and decisions on funding approach
- EPC expert – someone with strong knowledge and experience of EPC projects to help support and guide the project

Funding Approach

EPC can create a strong basis for a “spend-to-save” project with the savings stream being used to repay the initial project investment.

It is recognised that different buying organisations may require different approaches to financing projects. It is therefore important to understand your planned funding approach and state this in the tender documentation, and include funding assumptions that should be incorporated into payback models. DECC have published a guide to financing energy efficiency in the public sector.

The main funding options are:

- **Self-financed** – either funding direct from budgets or reserves may be the cheapest financing method.
- **Supplier arranged finance** – typically ESCOs can provide full or part funded solutions.
- **Third party finance** – you may already have a loan facility in place at preferential rates, be able to access the Salix Finance public sector energy efficiency loan scheme, or may want to go out to the wider financing market to help achieve optimal funding arrangements.

- **A mix of the above** - The overall financing solution may include a mix of different approaches to cover different elements of the project. For example some aspects may be directly funded by the buyer, some elements funded through third party finance linked to the contract, and some elements funded through the supplier.

3. Information Gathering and Initial Appraisal(s)

3.1 Potential Technical Solutions and Requirements

EPC provides the opportunity to access expert assessment and design skills across a wide range of potential technical solutions to create an optimal approach for a particular property.

Some of the most common ECM categories are listed below and each can contain a huge range of different types of specific measures, hence it would not be uncommon to have 20 or more improvements made to a building under an EPC:

- Lighting
- Heating, ventilation and air-conditioning
- Building management system
- Combined heat and power (CHP)
- Renewable energy and heat generation
- Building fabric (including insulation)
- Metering and monitoring
- Computer system controls

Estate teams and building managers will typically have an important role in helping to identify issues and opportunities based upon their knowledge and experience of a building. EPCs can provide an opportune time to tackle building problems and therefore requirements could include addressing:

- End-of-life or failing equipment that needs replacement
- Poor performing equipment
- Common buildings complaints such as overly hot or cold areas

3.2 Identify Baseline Data

EPC is focused on identifying and implementing measures to reduce energy costs. It is therefore important to provide good quality information on properties as it will help ESCOs to understand them and develop solutions more quickly.

ESCOs should undertake an assessment of buildings and therefore develop an understanding of key equipment, however, many important areas will not be visible from initial site visits and therefore it is important to provide information at the start of the process to help ensure solutions are appropriate. Some examples of key information include:

- Planned investment (outside of EPC) – if for example Solar PV is due to be installed but not through the EPC, then the relevant details should be provided to help understand the planned change. Note that it may be more effective and efficient to consider incorporating such investment within the EPC)

- Planned changes in building use or operation – if the hours of operation or the number of people are about to change (either increase or decrease), then it may alter the ECMs that are proposed. Longer hours are likely to increase energy consumption (important for understanding the true baseline) and this could make some improvements more financially viable, whilst reduced operating hours may make some improvements less financially viable.
- Known building issues – if certain areas tend to have excess heating or cooling problems this may not be easy to identify on a site visit, but it could indicate an opportunity to improve efficiency as well as improving building comfort levels for occupants.
- Recent events that could have significantly affected the usage in the period for which energy data has been provided e.g. if a building was unoccupied for 2 days due to a heating failure during the winter, it is likely to mean that energy use for that month is significantly understated.

Historic energy and water usage data is extremely important as part of the analysis phase and to create an appropriate baseline from which to assess the performance of the EPC. Ideally a minimum of 2 years' data should be provided (a spread sheet format will help speed the analysis work). If you don't have data then this should be obtainable from your energy provider. It can also be helpful to explain how your energy is procured.

Appendix 1 contains a set of information areas that can be helpful to ESCOs and are therefore useful to capture and include as information in tender documents.

3.3 Determining Key Performance Requirements

As an EPC is essentially an output based approach, it is important to understand the minimum performance levels that are acceptable.

In terms of financial focused performance it can be helpful to set:

- Minimum financial returns:
 - Minimum payback periods (e.g. 10 years) are a common method. This should include clarity on how this is being calculated e.g. is it simple payback? Does it include assumed energy inflation or loans charges?
 - Alternatively you could set a more complex method to identify financial returns on investment, potentially requiring different returns depending upon the investment value or even the type of ECM.
- Financial limits, such as the maximum total investment levels.

From a strategic perspective, you may want to set minimum performance targets such as CO₂ savings, energy savings and / or the generation of certain kWh level of renewable energy per annum.

When setting energy savings it is important to understand the impact of different types of performance target. Using direct energy cost savings, in £s, can be the simplest method and help ensure that cost savings are the focus. If kWh savings are stated this may discourage some cost savings measures. An example is gas fuelled combined heat and power, which may increase total kWh (if more kWh of natural gas is used than kWh of electricity saved), but reduce total energy costs (as a kWh of electricity is typically much more expensive than a kWh of natural gas). If % energy savings are stated then it should be made clear as to what this relates to in terms of units (e.g. £ or kWh) and the baseline (all buildings in a portfolio or just the subset that are retrofitted through the project).

Stating minimum performance requirements in a tender can help avoid receiving bids that would be unacceptable to the buying organisation. Through a competitive tender, bidders should be looking to go above your stated requirements as a key part of the competition to select the best ESCO. Care should be taken to ensure that minimum performance parameters are realistic or you may end up with no bidders.

Clear Assumptions

Providing clear assumptions is important to help understand ESCO proposals and ensure consistency and fairness in evaluation. All performance targets should be clearly stated and the methodology for calculating understood e.g.

- Are CO₂ savings calculated on a baseline of your total building portfolio, just the buildings addressed in the EPC, or just those addressed in the initial phase of the EPC?
- What emission conversion factors are being used to calculate CO₂ savings?

There are a number of areas that it is important to provide assumptions on including:

- Energy and water prices – what current energy unit price and future inflation rate should bidders use when proposing solutions? This has a direct relationship to assumed value of future energy savings and therefore can have a significant impact on the ECMs proposed. Incorporating differences for peak and off-peak prices (rather than just a blended average rate) can add complexity but it helps to ensure that cash savings reflect the time (and hence correct unit cost) when those savings are made.
- Guaranteed energy savings are standard to include, but what about allowing other benefits e.g.
 - Feed-in-Tariff or Renewable Heat Incentive payments - these are commonly included, but their value may alter depending upon when the relevant ECM is installed and therefore clarity on assumptions (including future inflation increases), should be provided.
 - If CRC Scheme cost savings are allowed then the approach for calculating them should be clear.
 - Maintenance savings may need back-to-back agreement with other organisations, especially if you have an outsourced FM contract. Hence you may decide these are not

allowable in the business case / payback calculations, but potential maintenance savings are still a benefit and hence may form part of the evaluation criteria.

4. Procurement

4.1 Creation of Tender Documents

The importance of gathering good information on properties and identifying your requirements has already been noted above. These elements form the core basis of your tender documents.

Compliance with public procurement regulations is required for all public sector organisations and it should be noted that interest in EPC opportunities may come from organisations outside the UK.

The following series of questions are designed as a checklist to help identify some areas that may need covering in the tender documentation and, if required, could be part of the tender evaluation but we emphasise that you must obtain legal and other professional advice in designing the procurement exercise and documentation:

- Technical requirements

- Are there any specific technology types that you are keen to include (such as renewables) or avoid (perhaps IT system related changes)?
- Are there current problem areas to be addressed (or avoided)?
- Will maintenance be included? – is that a definite yes/no or is it optional?
- Are there any specific measurement and verification requirements to include?
- How is service continuity / interruption to be covered? Do you have any must avoid event or periods of the year that should be identified?

- Strategic requirements

- Are there wider goals to be achieved such as environmental or economic ones?
- Is a full business case required including savings other than energy? Is this required now (and if so to what level?) or just at IGP stage?
- Impact on resource levels - will TUPE apply?

- Contract points

- What is the liability cap (does it change at different stages of the project e.g. a higher level for implementation than at IGP stage)?
- Has a works contract been specified, if so, have any amendments to standard forms been highlighted (if you normally have amendments)?
- Will there be contractual timescales for key stages of the project?
- Is a performance bond or parent company guarantee required?
- Have the insurance requirements been reviewed by your specialist and clearly stated in the documents?

- Are there other contractual obligations you want to include as standard?
 - Will the bid response be easy to turn into a contract once the ESCO is selected?
- Financing requirements / approach
- Is financing required (is that a yes / no / maybe)?
 - What is the basis of the financing – client arrangement, supplier finance etc...?
 - Is there a single financing approach or could it potentially be a mixed funding approach depending on the ECMs, capital investment and level of savings proposed?
 - Are there specific accounting or tax treatment considerations?
 - What business case information do you need now and at IGP stage and is this clearly laid out?
 - If you are providing some or all the funding, is there a cap? If planning a number of phases, is this the budget for all phases or just the first?
- General requirements
- What are your general requirements such as site policies and have these been explained to bidders? Are these standard or do key elements need specifically highlighting?
 - Do any client processes / dependencies need incorporating (e.g. approval timescales incorporated into delivery plans)?
- Supplier tender instructions and explanation of tendering approach
- Have you explained the tender process and key dates in the tender (including site visits)?
 - Have you explained the questions and the response format and evaluation approach for each question?
 - Have you included tender response forms including capturing any information required to help organise site visits?
- General information
- Is building information and other associated data all included and/or easily accessible by bidders?
 - Have minimum IGP requirements been stated?

Questions, Evaluation Criteria and Weighting

It is important that you obtain full legal advice in designing evaluation criteria for any procurement exercise. This section of the best practice guide focuses on the considerations relevant to energy performance contracting that you might consider taking into account (subject to the appropriate legal advice) in developing award criteria. Some benefits and key performance areas have already been noted above and may form questions and hence criteria for evaluation and weighting, these include financial returns / overall business case,

CO₂ reduction, Improved building environment, upgrading specific equipment and reducing backlog maintenance levels.

Other ideas for questions could cover detailed methods to make proposed approach part of contractual bid offer, examples of areas you may consider include:

- Project management
 - Ability to achieve desired timescales
 - Approach to project management
- Analysis and design
 - Quality of approach and resources used
 - Approach to meeting specific client requirements
- Implementation / construction
 - How work is managed on site and disruption minimised
 - Methodology for commissioning and handover
- Funding approach
 - Appropriateness of financing solution to buyer requirements
 - Cost of funding approach
- Service delivery
 - How requirements are covered including any maintenance services
 - Ongoing support and training provision
- Measurement and verification
 - Approach to determining the baseline and adjustments to the baseline
 - Robustness of systems, including meters, to support monitoring and M&V approach

Price is likely to be a key element of any evaluation and questions around this could cover a number of different areas including:

- Overall business case (e.g. net present value, internal rate of return, or cashflow profile)
- Fixed price for the proposal
- Pricing for the IGPs
-

Understanding the proposed savings and costs in detail can be critical to determining the cost of a proposal. It may therefore be appropriate to request information covering:

- A breakdown of all ECM installation costs including material, labour, fee rates and mark ups, overheads and profit (including any associated costs required for the successful installation).
- A breakdown of all ECM savings for each individual ECM (proposals should be asked to indicate key links between the ECMs e.g. if any ECM is dependent upon another).

- Project costs should include design, project management, project development, IGPs, commissioning, Measurement & Verification services, metering, contingency, bonding, permits and training costs.
- All on-going service costs including M&V (including all associated costs), and any additional maintenance costs for ECMs. ECMs with associated ongoing additional maintenance for costs should be clearly identified.
- Any other costs and any other savings.

It is suggested that proposals also identify:

- Day and hourly rates for all identified resources
- Overhead and profit (including separate overhead and profit on sub-contracted costs)

Having these rates bid at the competitive stage of the process can help to reduce costs for changes and unforeseen circumstances (e.g. work around solutions due to asbestos being found) and support open-book principles.

Selling the Opportunity

It is important to make your project attractive to potential bidders to help ensure interest and a good competition.

Any organisation should be able to include in their tender documents:

- Clear and logical requirements
- Clarity on funding approach (agreed budget or agreed funding approach)
- Strong buy-in at a senior level which includes a clear commitment to the funding approach and appropriate approvals secured
- Good quality and well-presented supporting information such as historic energy data (in a spread sheet if possible to help with analysis) and building details – condition, issues, previous energy savings measures, planned improvement, DEC ratings etc...

The potential project value is normally a significant factor in generating interest. The potential value can be optimised by allowing energy generation options to be included as well as just energy reduction measures. Collaborative procurement with other organisations can also boost the value of the opportunity, albeit this can also increase the number of stakeholders and hence the complexity, therefore clearly explaining any interactions or dependencies between collaborating organisations can help.

4.2 Run Compliant Procurement and Select ESCO

The Cabinet Office and Crown Commercial Service website contains policy and guidance regarding public sector procurement. Compliance to all relevant public procurement regulations is required both during the tender and post tender.

As with any public procurement, rules on non-discrimination must be complied with. Care should be taken in how requirements are described, avoiding discriminatory technical standards and other references which would have the effect of favouring or eliminating particular providers, products or services.

An EPC is essentially an output based requirement where buying organisations state the outputs they want and the bidders propose technical solutions, costs and savings. The typical EPC process earlier in the document assumes that a higher level technical solution and minimum level of outputs may be bid at the tender stage, and that these are subsequently detailed by the winning ESCO in the IGP. It is important that post tender changes aren't made if such changes would be against public procurement regulations.

The Model Contract has been created so that it can be utilised as a single supplier framework agreement. This can make it easier for buying organisations to undertake a number of different phases. Clearly stating at the outset of the tender the scope and parameters of the call-offs is necessary to ensure compliance.

Site Visits during the Tender Phase

Site visits are important to help ESCOs gather the information they need in order to respond to your requirements. It is common to have a bidder event for shortlisted ESCOs to attend a presentation and a facilitated site visit. Providing good quality information on properties in the tender documentation will help bidders to prepare for and get the most out of site visits.

The site visits should be attended by your project manager and relevant technical staff – those who can answer questions regarding the operation and services of each building. Follow up questions are likely and should be responded to promptly.

It is advantageous to plan two sets of site visits, separated by at least a week but ideally longer. The first visits can often act as a general information gathering session for bidders and the second set may include more relevant specialists to help develop the solutions in more detail.

Contracting for Investment Grade Proposals and Selecting the ESCO

The expectation is that the outcome from the tender will be used to contract for the IGPs. Attachment 1 to the Call-Off Contract Phase 1 template (Model Contract Schedule 6A) contains the type of defined performance parameters the production of the IGP may provide (note if the agreed performance parameters are not met the ESCO may not be entitled to costs for the IGP under condition 5.4 of Schedule 2A of the Model Contract).

A number of potential performance parameters were listed in the template and the buying organisation should define their own list (including clarity on how targets are to be measured) and ensure that the information to populate the targets can be taken from the ESCO proposal.

5. The Investment Grade Proposal (IGP)

5.1 Undertaking a Full Appraisal

Once selected, your preferred ESCO is formally appointed under Model Contract Call-Off Contract Phase 1 to proceed with the IGP. This is the first stage of your EPC project at which you commit expenditure to the ESCO.

The IGP is an in-depth assessment and proposal phase and you will need to provide the ESCO with access to your buildings and support building information data requirements. The ESCO will need to be sure that the solutions are appropriate and that the savings and savings baseline are accurately calculated.

The IGP process involves a thorough survey of your buildings and normally takes around 40-60 working days, although this could be higher for large portfolios. It is important that you engage with the appointed ESCO during this time so that you understand the ECMs that are being considered and proposed, and you are content with the overall approach that the ESCO is pursuing. It may be appropriate for the ESCO to present outline proposals to you to enable review and discussion prior to the formal submission.

At the end of the IGP you will have received a firm proposal, in the form of the IGP, detailing the works required and subsequent guaranteed energy.

For large portfolios containing multiple buildings, it may be sensible for proposals to be produced for certain groups of buildings at a time to help avoid delay from the buying organisation's review and approval process.

It is clearly important to ensure that all reasonable opportunities have been explored and that proposed savings and costs seem reasonable. This is also why it can be important to have proposals reviewed by technical and commercial experts who can understand the quality and validity of proposals.

5.2 The Importance of Measurement and Verification (M&V)

When a client enters into an EPC they are effectively buying an energy saving – the saving equals the energy they would have been expected to use over a period of time minus the energy they did use.

Given that energy use varies depending upon factors such as external temperature and operational hours, it is critical to get M&V right so that the actual savings are clear. Unfortunately, given the variables, it is not a case of simply checking energy bills to see if the contracted 20% saving has occurred.

Factors such as the weather can have a significant impact on energy use. A cold winter and hot summer is likely to see much greater demand for both gas and electricity in air-conditioned buildings when compared to a mild winter and cool summer.

Generated energy is relatively straightforward to measure, but energy reduction can be much harder as it is essentially avoided energy use. If your costs are 20% lower after the EPC it is important to understand whether this has come from the ESCO actions or if it's just a factor of a mild winter and cool summer.

The savings baseline is therefore critical and will need to reflect a range of variable factors such as weather and occupancy. The weather in particular is subject to change, therefore adjustments will need making to the baseline and it will be important to ensure that these are done in a true and fair manner. M&V can create an assumed baseline and adjustment model that isolate EPC savings from other factors.

Given that M&V is so important it's critical that an acceptable M&V plan is produced before the implementation contract is signed (e.g. Call-Off Contract Phase 2). This should provide clear details on a range of areas as noted in this document and should not just be a "plan for a plan" proposal.

Good M&V is critical to having a good EPC and it can (along with on-going monitoring), help to maximise savings by identifying opportunities and indicating issues.

Metering to Support M&V

If not already installed, bidders should detail proposals of the number and type of meters to enable the measurement and verification of the energy savings. The costs of any metering or associated services should be included in the tender response.

The International Performance Measurement and Verification Protocol (IPMVP)

IPMVP is a framework of standard approaches produced by the Efficiency Valuation Organisation² to determine performance (e.g. savings achieved) and is commonly used as a basis for the M&V approach in EPCs within the UK. It identifies areas to be addressed within an M&V plan and also provides guidance on areas such as the trade-off between measurement accuracy and measurement cost.

² www.evo-world.org

IPMVP does help to standardise approaches to measuring savings, but each project is unique and therefore careful application is always needed. IPMVP does not cover all aspects of M&V in detail (e.g. metering systems or cost estimating), but does include a lot of useful guidance and it has a set of principles to adhere to including accuracy, completeness, relevance and transparency. A good IPMVP compliant M&V plan should help improve design, operations and maintenance, whilst ensuring savings persistence over time. However, on its own the IPMVP doesn't guarantee a good M&V approach for the client.

Selecting a Third Party M&V Support Service

An understanding of M&V, its pivotal role in the success of an energy efficiency project, and the practicalities of implementing an M&V Plan in a complex estate, could easily be overlooked by buying organisations until a project is up and running and issues begin to arise.

The M&V document is a key element of the contract. It is important to have good expertise in M&V to support your project. If this isn't available in house then it would be appropriate to get external support to ensure the M&V approach is appropriate to your requirements. It is recommended that the M&V support provider is independent from anyone involved in the EPC that may benefit from savings being overstated due to potentially inaccurate or poor M&V.

The ESCO will typically still undertake their own M&V work as part of the analysis and design phase and savings delivery phase to constantly monitor performance (so that issues are identified and addressed early and the ESCO understands how they are performing against the savings guarantee). The third party M&V support could just be used to review ESCO proposals to help ensure the client is being fairly treated, or they may undertake a more active role such as the full delivery of M&V reporting if required by the client.

When selecting your third party M&V provider there are some important requirements to check:

- They have a team of staff experienced in EPC review and analysis undertaken by Certified Measurement & Verification Professionals (CMVPs) with demonstrable experience.
- The size of the team can cope with multiple projects and multiple reviews. The M&V review is likely to be under time pressures, so the provider needs to be able to respond quickly (and therefore have capacity to cover all their clients).
- They fully understand your EPC contract to help ensure the M&V approach is both statistically and contractually robust.
- They can provide solutions, including proposed contract wording / requirements, to cover any identified issues from the M&V approach proposed by an ESCO.
- They are independent from any parties that could benefit from savings being overstated.

- Pricing is clear and complies with the funding route for the M&V services that you want (including fixed prices if required).

Creating a good M&V plan needs thorough technical and statistical analysis to help ensure that the calculations used for assessing performance are appropriate, and reflect the savings that the client has achieved and the ESCO has delivered.

Any underperformance by the ESCO is likely to mean contractual remedies will be used (or at least the threat of use) to ensure that performance improves. It is therefore important that any M&V approach proposed by the ESCO is also assessed from a contractual perspective.

As such, it can be important to make sure that the third party M&V provider can cover all your project requirements, including contractual as well as general elements of M&V. You may therefore want support in some or all of the following areas:

- Support at tender stage to define requirements
- Independent review of IGP / M&V proposals before the contract is agreed
- Review of annual reconciliation report to ensure fair measurement
- Audit of performance where concerns have been raised

6. Project Implementation

6.1 Agreeing the IGP and Progressing to Implementation

Before entering into the project implementation (Call-Off Contract Phase 2 in the Model Contract), the client should naturally ensure they agree with all aspects of the proposal including key outputs and how these are measured over the duration of the contract. Implementation should then be in line with the agreed contract.

EPCs deliver energy savings and will often deliver improved quality, such as greater luminescence from lighting enhancements, or improved air quality from better air handling. These improvements are likely to mean that energy savings are lower than if the current output / quality levels were maintained. This trade-off should be considered by the buying organisation.

If an ESCO specifies lighting that will increase the luminescence of a building whilst also delivering energy savings, then those guaranteed energy savings still need delivering regardless of the fact the building is now brighter – the improved light levels should not be an excuse to fail on achieving the contracted savings.

It is worth noting that if the ESCO is replacing all air handling units to ensure building air quality requirements are met, but 1 in 3 haven't worked for over a year (and requirements aren't currently being met), then it may be the case that new equipment increases the actual energy use as all the air handling units will now be working. This type of consideration should be recognised by the client and acknowledged appropriately in the M&V approach (before the Call-Off Contract Phase 2 covering implementation is signed).

6.2 Install Energy Conservation Measures

The implementation of the ECMs, commissioning and handover of the equipment should not be overlooked in terms of planning resources and the desired size and timescales for your programme. From a resourcing perspective this is typically the most resource intensive time for the project manager.

The project manager and your technical staff will need to work closely with the ESCO, so that all the practicalities of implementation can be planned and any issues resolved. In many ways the installation of ECMs will have similarities to typical capital improvement projects.

The approach to commission and handover may vary depending upon the ownership and maintenance of the ECMs. The ESCO should be required to provide any necessary training for the new equipment, although where just outputs are being purchased (e.g. from a CHP owned and maintained by the ESCO), standard commissioning and handover may not be appropriate.

6.3 Service Delivery and Performance Measurement and Verification

The ESCO is commonly responsible throughout the payback period for measuring and reporting the performance of the ECMs that have been installed in line with the M&V plan.

Reporting requirements should be stated in the tender document and contract and could include, amongst other areas:

- The performance of all installed ECMs and energy initiatives.
- Calculation and reporting in detail on energy and carbon reductions achieved over the reporting period
- Identification of any installations that are underperforming, distinguishing between those where a deficit is of a short-term nature and those where the deficit is likely to be longer-term and establishing the reasons for the shortfall.
- If applicable the preparation and issuing of proposals to rectify any shortfall in performance and agreeing programmes with you for the implementation of any such rectification measures.
- Identification of any external factors impacting on, or likely to impact on, the payback calculation.
- Annual Reconciliation Reports throughout the payback period and a Final Reconciliation Report at the end of the payback period detailing energy and carbon reduction over the annual reporting period.

To help support this period of the programme you should:

- Provide a management and technical point of contact for the ESCO
- Manage the ESCO access to the buildings.
- Review and approve (as appropriate) Reconciliation Reports and engage with the ESCO on any discrepancies in the savings or consumption information.
- Report any changes to the ESCO in building use, changes in occupancy, operational or any other changes that may impact upon energy consumption.

List of Key Terms and Abbreviations

ECM - Energy Conservation Measure meaning any service or technology that can reduce energy or water use

EPC - Energy Performance Contract

ESCO - Energy Service Company

IGP - Investment Grade Proposal

M&V - Measurement and Verification

Model Contract – the DECC Model Contract for EPC

Appendix 1 - Building Information

Note: It is important that this information is up-to-date and as accurate as possible.

Basic Information:

- Brief Description of the Building / premises
- Floor Area (m²)
- Occupancy (include occupancy by area / floor if possible)
- Address
- Lease expiry date (if applicable)
- Date last refurbished
- Approximate date of construction

Equipment upgrades / energy efficiency measures:

- Equipment upgrades and energy efficiency measures implemented within the last 5 years
- Equipment upgrades and energy efficiency measures planned but not under this EPC project
- Equipment upgrades required due to urgent replacement / maintenance needs
- Other maintenance or capital works projects (including non-energy efficiency work) - underway or planned
- Energy efficiency initiatives underway or planned including operational or behavioural changes

Building Use / Operation

- Current operation hours and any recent or planned changes in use or operational hours
- Building management system information available (e.g. time / temperature schedules)
- Any factors that may have had a significant impacted on energy use (shown in the energy data) such as equipment failures that resulted in lower energy use, building shut-downs
- Known building issues (e.g. hot / cold areas, fabric, water/draft ingress, operational, maintenance or energy waste)

Other Information

- Site plans and asset registers if available
- Previous building audits (e.g. energy efficiency audits or condition surveys)
- Asbestos Reports
- Security or Access Policy
- Disclosure and Barring Service (DBS) checks requirement

Energy data

- Ideally a minimum of 2 years data attached in a spread sheet format

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Department of Energy & Climate Change

3 Whitehall Place

London SW1A 2AW

www.gov.uk/decc