



# **Energy Performance Contracts Handbook**

**July 2014**

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## Introduction

As part of the National Energy Services Framework, (NESF) this comprehensive Energy Performance Contracts Handbook has been developed by the Department of Communications, Energy and Natural Resources (DCENR) and the Sustainable Energy Authority of Ireland (SEAI) in order to give practical assistance for the development of Energy Performance Contracts (EPCs).

This handbook should be read in conjunction with the National Energy Services Framework document (the Framework); in particular, Section 4: Routes to Project Development, and Appendix 2: Guide to Technical Assistance. The Framework also outlines the background policy context and information about choosing EPC as a project and contract development option. Information on supports available from SEAI to assist organisations through the EPC project development process is also included.

Apart from the Framework, general information on EPCs is available in A Guide to Energy Performance Contracts and Guarantees.<sup>1</sup> This document explains EPC in some detail and provides a helpful ladder and range of services for EPC and Energy Performance Related Payments (EPRP) and explains the generic shared savings versus guaranteed savings model concepts.

The Energy Performance Contracts Handbook (EPC Handbook) provides a standard, structured approach to developing an EPC project. Its target audience is client organisations in the public and private sector wishing to implement an EPC in their facilities. Although it is a Handbook for EPCs, the process involves you examining your alternatives – a traditional contract or EPRP – as well as EPC, and selecting at the end of Stage 2 which is best suited to your particular project.

The term 'facility' is used generally here; it may be a building, a site with several buildings, a water treatment or pumping facility, or even a public lighting installation. The process described herein is the same for all.

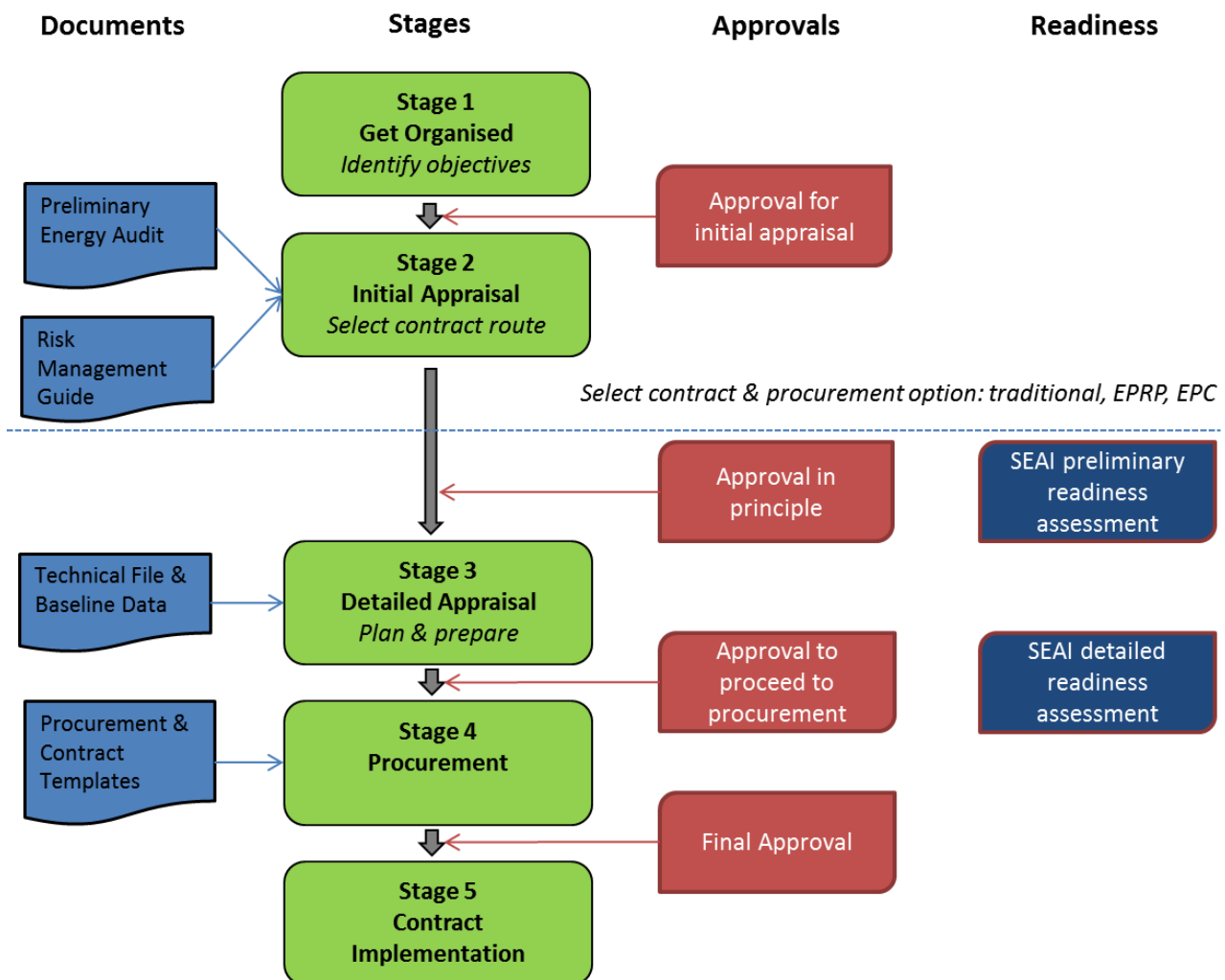
This EPC Handbook outlines a five-stage process for developing and procuring energy performance contracts which complies with public spending codes<sup>2</sup> and public procurement requirements in the public sector; private sector organisations, not bound by public procurement requirements, may choose their own procurement process but are likely to find much of this Handbook to be useful and relevant.

Workbooks are provided for all Stages to help the client gather and present the information required.

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<sup>1</sup> [http://www.seai.ie/Your\\_Business/Public\\_Sector/Energy\\_Performance\\_Contacts\\_and\\_Guarantees.pdf](http://www.seai.ie/Your_Business/Public_Sector/Energy_Performance_Contacts_and_Guarantees.pdf)

<sup>2</sup> <http://publicspendingcode.per.gov.ie/>

**Figure 0.1: Five-stage Project Development Process**

The EPC Handbook is a working document for you, the client. You may update the content of different sections as you proceed through the process, removing older versions and replacing with newer ones, and adding appendices. For this reason it is provided in a format which, when printed, may be placed in a lever-arch folder.

### **Why follow All Stages in the Process?**

The five-stage process includes three initial project preparation stages. On completing each stage approval is required prior to proceeding to the next stage: this provides an independent review of decisions based on the additional information gathered during that stage.

At the end of these preparation stages you will have compiled valuable information with which to brief decision-makers, solicitors, consultants and Energy Services Companies (ESCOs).

There is likely to be a strong temptation to partially complete or ignore the earlier stages. However, the process has been developed based on experience. If you follow it carefully, you will help ensure value for money by selecting the right route (i.e. EPC, EPRP, traditional or do nothing) and going about developing and procuring the contract in the right way. It avoids:

- Selecting a route that is not suitable for your organisation or project
- Establishing late in the process that there is no financially viable project at the core of the initiative
- The contract structure not being optimised, or you have not included essential works
- Premature commitments whereby a particular route gains visibility and momentum that makes it difficult to stop, even though it is not suitable
- An initiative being vetoed because you have not achieved sufficient organisation buy-in

- Tendering ESCOs seeking technical and baseline information that you do not have

Therefore the client is well advised to dedicate time to complete the first three stages. At the end of all three, the client should reaffirm their commitment and desire for the EPC solution. For the **public sector**, a number of approvals are required; furthermore SEAI will conduct Readiness Assessments at the end of Stages 2 and 3.

The fifth stage is concerned with both supervising the implementation of works and ensuring the contract is actively managed by an informed contract manager throughout the contract term.

This Handbook follows the stages identified in Figure 0.1 above:

### **Stage 1: Get Organised**

This stage involves quantifying the energy saving objectives for a given facility (or facilities) and appraising whether or not there is a need for an energy efficiency project to achieve these objectives. If business as usual is sufficient to meet objectives, there is no need to proceed further. If business as usual is insufficient, we examine 3 alternative contract options and establish if performance contracting (i.e. either Energy Performance Related Payment or Energy Performance Contract) is an option. Preliminary project risk identification is useful at this stage. This stage secures internal approval (a) that business as usual is not an option (b) that the performance contracting concept is acceptable in principle and (c) confirmation to progress to the Initial Appraisal stage. This information is gathered and presented in the Stage 1 & 2 Workbook. It should be possible to complete this stage quickly using readily available information.

### **Stage 2: Initial Appraisal**

Stage 2 is concerned with establishing if there is a business case for upgrading the facility – i.e. an appraisal to establish if there is a financially viable project, which may consist of a mix of projects of long and short paybacks that would be financially attractive to develop. This stage also involves an appraisal of each contract (and associated procurement) route: traditional, EPRP or EPC to establish which is most suitable.

On selecting a particular route, plans may be made for the next stage and approval in principle is required to proceed. For the **public sector**, SEAI will conduct a preliminary readiness assessment to check if you are ready to proceed to the next stage; approval to proceed is required from your organisations relevant sanctioning authority and/or the board. This information is gathered and presented in the Stage 1 & 2 Workbook.

A sample document Preliminary Energy Audit is completed at this stage, which brings facts and figures to the analysis. It also identifies energy metering and monitoring requirements for the collection of baseline data.

A Stage 2 Sample Document: Risk Management Guide is also provided as part of the suite of documents. A project Risk Register should be prepared at this stage and consideration should be given to risk assessment and mitigation.

### **Stage 3: Detailed Appraisal**

Stage 3 is concerned with finalising the shape of the Energy Performance Contract and appraising the financial outcome from your perspective (your organisation, the ESCO and the financier will have different financial perspectives on the same project as the project savings will be split between the different parties). A detailed financial analysis, with supporting spreadsheets, is required and should be included as an appendix to the Stage 3 Workbook,

Work in relation to project Risk Management Guide should continue to be developed and be captured in the project risk register developed as part of Stage 2 and included with Stage 2 Workbook.

During this stage you will compile a site(s) Technical File, which contains technical information to assist the ESCOs in completing their Investment Grade Audit(s) (IGA). You will also assemble the Baseline Data against which future energy use for the duration of the contract will be compared to measure energy savings. (See Stage 3 Workbook and Sample Document: Technical File and Baseline Data). The more baseline data you gather the better, so it is essential to start gathering this data as early as possible.

Internal approval is required at the end of this stage to proceed to procurement (i.e. before issuing the Invitation to Participate in Competitive Dialogue, ITPCD). If you are a public sector organisation, SEAI will conduct a detailed readiness assessment to check you are ready to proceed to procurement and approval is required from your organisations relevant sanctioning authority.

#### **Stage 4: Procurement**

Stage 4 outlines the Competitive Dialogue procurement procedure, which is the preferred public procurement approach, and details a step-by-step process for EPC project procurement.

SEAI has developed a suite of tender and guidance documents to facilitate **public sector** bodies interested in entering into contractual arrangements with ESCOs. **Private sector** organisations may also wish to use the tender documents as appropriate. These documents are discussed in Stage 4 and included as Sample Documents. Updated financial analysis and final sign off are provided in the Stage 4 Workbook. The Guidelines to the Contract are provided as a Sample Document.

#### **Stage 5: Contract Implementation**

Stage 5 outlines arrangements for the supervision of works by the client, the implementation of the new contract payment arrangements, the measurement and verification of savings, and the on-going contract management. At this stage the ESCOs contract manager is put in place and liaises with the client's project manager. The project manager's role will remain but with reduced involvement as the ESCOs contracts manager take responsibility for the day-to-day management of the contract.

The Handbook has the following sample documents to accompany the Workbooks:

#### **Sample Document: Preliminary Energy Audit**

The Preliminary Energy Audit is a concise assessment of the facility(s), with the primary objective of establishing the business case – an overall budgetary cost and estimate of total savings – for implementing an EPC. The Preliminary Energy Audit template is included, but an energy survey of the facility may be adequate.

#### **Sample Document: Risk Management Guide**

A Risk Management guide is provided to give high level advice on assessing & quantifying the project risks; risk mitigation, allocation and management strategies.

#### **Sample Document: Technical File and Baseline Data**

This document is a collection of information that will help the bidding ESCOs to complete detailed energy surveys of the facility (IGA), and provide the baseline energy and environmental data that is ultimately used to quantify savings. This data is also used to produce a Measurement & Verification (M&V) Plan.

**Sample Document:  
Procurement & Contract  
Templates**

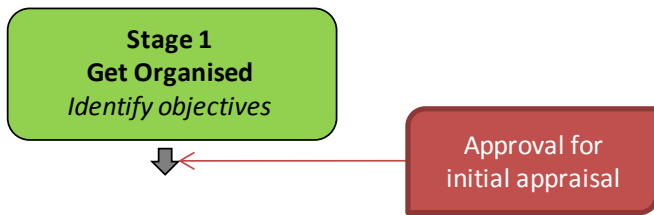
This suite of procurement documents contain the following templates:

- Pre-Qualification Questionnaire
- Invitation to Participate in Competitive Dialogue
- Sample Energy Performance Contract
- Invitation to Tender Document Template

A Guidance Note on Contract is also provided in Stage 4.



## 1 Stage 1: Get Organised



### 1.1 Introduction

Getting organised involves quantifying the energy saving objectives for a given facility (or facilities) and appraising whether or not there is a need for an energy efficiency project to achieve these objectives. If business as usual is sufficient to achieve these objectives, there is no need to proceed further. If business as usual is insufficient, 3 alternative contract options are examined to establish if performance contracting (i.e. either EPRP or EPC) is an option. This stage is to secure internal approval from a senior manager and accounting official (a) that business as usual is not an option (b) the performance contracting concept is acceptable in principle (c) to progress to the Initial Appraisal stage.

It should be possible to complete this stage quickly using readily available information. If, for instance, only energy cost information is readily available from your finance department, then this is adequate. Subsequent stages will involve gathering more accurate and detailed information.

This stage involves an initial high level exercise that identifies the objectives of the project that is being proposed. This is a key step that does not always get the required attention. If the objective changes during the appraisal or planning process then all parts of the appraisal need to be reviewed.

On completing this stage you should have established:

- The objectives – what has to be achieved
- That business as usual will not achieve it
- That performance contracting (EPRP or EPC) is an option open to the organisation
- That senior management support further evaluation.
- Preliminary client Responsible, Accountable, Consulted & Informed (RACI) chart.<sup>3</sup>

If you have signed a Public Sector Partnership Agreement or a Large Industry Energy Agreement with SEAI, then your Partnership/Agreement Support Manager can assist you in completing Stage 1 (this section).

### 1.2 Project Identification

Section 1.2 to 1.6 below provide guidance on how to complete the corresponding tables in the relevant Workbooks.

Project Identification	
<b>Organisation name</b>	
<b>Point of contact &amp; contact details</b>	<i>For day-to-day communications</i>
<b>Site(s)</b>	<i>Name of sites or facilities to which the project objectives apply</i>
<b>Project name</b>	<i>A simple but unique name that can be used for future reference. You may identify a long and short name/acronym</i>

<sup>3</sup> See section 3.4.2 for information and guidance on preparing a RACI charts

	<i>Avoid a name that presumes a particular approach (e.g. "xyz epc"), consider a name that is objective based (e.g. "xyz 30% energy efficiency improvement project")</i>
<b>Project Description</b>	<i>High level description</i>
<b>Approvals</b>	<i>From who and when</i>

### 1.3 Facility information

<b>Facility information</b>			
<b>Facility details</b>	<i>Provide details on the facility e.g. list building(s) and areas (m<sup>2</sup>) If there are several facilities, complete a new table for each facility</i>		
<b>Existing annual energy use</b> Costs (€) and energy usage of facility, or facilities, within scope of this project:  Electricity Natural gas Others (specify): <i>(e.g. gas oil, lpg, wood pellets)</i>  Non-utility costs: <i>(only where relevant, e.g. water, maintenance)</i>  Total annual costs:	<i>Cost (ex. VAT)</i>	<i>Quantity</i>	<i>Units (kWh, litres, etc.)</i>

Note: the above table should be filled out in the relevant Workbook.

### 1.4 Project Initial Objectives

Define clearly the objective of the project proposal i.e. what needs are to be met and what is the planned scale on which those needs will be met, measured as precisely as possible. Objectives should be expressed in terms of the benefits they are expected to provide and for whom. The quantitative objectives may be expressed as a percentage energy saving, energy unit reduction, euro saving or CO<sub>2</sub> reduction. It is advised to be as specific as possible at this stage. For instance, a number of public sector organisation may have an objective to achieve a 33% energy efficiency improvement by 2020 (the driver); this can be quantified into a primary energy number for each facility, with some facilities expected to deliver a greater share of the savings than others.

Note that these objectives may change in subsequent stages as the facility is appraised and a clearer understanding of what can realistically be achieved emerges.

<b>Objectives of project</b>	
<b>Quantitative Objectives</b>	<i>(i.e. savings)</i>
<b>Qualitative Objectives</b>	<i>The qualitative objectives are not essential. However, they may include essential requirements (e.g. the provision of an alternative heat generator due to end of life of the existing boiler) or organisational objectives.</i>
<b>Other objectives</b>	<i>You may also have objectives (or preferences) in terms of the scale and depth of works. For</i>

	<i>instance:</i> <ul style="list-style-type: none"> <li>• Completely retrofitted facility/facilities, lifecycle investment (including works with no energy-saving benefits)</li> <li>• Total retrofit of all energy and non-energy saving measures</li> <li>• Total energy retrofit of all energy-saving measures only</li> <li>• Partial retrofit of a selected mix of technologies, e.g. boilers, BMS</li> <li>• Single technology energy-saving project only, e.g. lighting, pumps</li> </ul>
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Note: the above table should be filled out in the relevant Workbook.

## 1.5 Project Scope, Savings and Cost

Physical scope of the energy-saving project			
<b>Projected annual savings</b> Energy and cost savings (€) for this project: Electricity Natural gas Others (specify): <i>(e.g. gas oil, lpg, wood pellets)</i> Non-utility costs: <i>(only where relevant, e.g. water, maintenance)</i>	<i>Value (ex. VAT)</i>	<i>Quantity</i>	<i>Units (kWh, litres, etc)</i>
Total		N/A	
<b>Expected project cost</b> (not including internal costs)	<i>At this point some organisations may not have a clear project scope in mind, making it difficult to project savings and budgetary costs. An approach here is to identify what percentage savings the organisation wishes to achieve, quantify this in euro terms, and multiply the answer by, for example, 7 to get a budgetary capital figure for a project with a 7-year simple payback. Refer to Workbook Note 1 for more details.</i>		
<b>Simple (or real) payback in years</b>			

Note: the above table should be filled out in the relevant Workbook.

## 1.6 Contract options & constraints

All realistic ways of achieving stated objectives should be identified and examined critically when considering project options for the first time. This should be done with a completely open mind, and should always include the option of 'doing nothing / doing the minimum / business as usual'. Other options include energy efficiency projects by traditional contract, EPRP, or EPC.

Contract options & constraints	
Contract Option	Considerations
<b>Business as usual</b>	<i>If business as usual will achieve the above objectives, then proceeding further is not necessary. Based on past performance trends, will business as usual achieve the objectives?</i>
<b>Performance Contracting</b>	<i>If performance contracting is not an option, then proceeding further with this handbook is not necessary. One can simply revert to the traditional approach of procuring energy efficiency projects.</i>  <i>Consider the following:</i> <ul style="list-style-type: none"> <li>• <i>If control of detailed design specification and works is essential (e.g. for highly</i></li> </ul>

	<p><i>specialised facility), then performance contracting is unlikely to work.</i></p> <ul style="list-style-type: none"> <li>• <i>If energy savings cannot be measured and verified with any degree of accuracy (this would be unusual), then performance contracting is unlikely to work.</i></li> <li>• <i>If the annual energy spend per facility is less than €50,000 then performance contracting is unlikely to be significant and may not be worth the additional procurement effort (a simple EPRP may suffice).</i></li> <li>• <i>If there may be a change in ownership or use of the facility, then the benefit of any works may be lost.</i></li> <li>• <i>If there are existing contracts in place, such as general maintenance, FM, specialist equipment contracts, which may affect the suitability of the facility to EPC/EPRP.</i></li> <li>• <i>If senior management have any reservations as to the suitability of EPRP / EPC in the context of your organisation or the facilities involved.</i></li> <li>• <i>Preliminary risk identification.</i></li> </ul> <p><i>Some of the above may be deal-breakers at this point, others may warrant further consideration to identify a solution.</i></p>
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## 1.7 Plan next stage

<b>Plan</b>	
<b>Contract options for further evaluation</b>	<i>Traditional, EPRP, EPC</i>
<b>Team required</b>	<i>Skills and resources required to complete next stage. A preliminary client RACI should be prepared at this stage to be completed once all resources have been identified and appointed by the client organisation, Stage 3. See section 3.4, paragraph 3.4.2 Project Structure specifically for further details and suggested RACI Charts. The ESCO will also be required to provide a RACI chart for their team, to be submitted formally at tender stage.</i>
<b>Project Initiation Document</b>	<i>The client project manager will prepare a Project Initiation Document for all stage of the project. It will include, at a minimum, all the information contained in the Stage 1 tables. Additional guidance is available for public bodies in relation to PPP type projects<sup>4</sup>.</i>
<b>Budget requirements</b>	<i>Any budget for resources or possible works, such as monitoring equipment. May be difficult to quantify, but even identifying potential other costs will help.</i>
<b>Time required to complete</b>	<i>Consider your overall deadline for the project (if you have one), and the likely time for next stage. Populate a programme (gantt chart) with all deliverables and key milestones on a critical path.</i>

Note: the above table should be filled out in the relevant Workbook.

## 1.8 Stage Gate: Approval for Initial Appraisal

By the completion of stage 1 you should have established:

- The objectives – what has to be achieved
- That business as usual will not achieve it
- That performance contracting (EPRP or EPC) is an option open to the organisation

Before committing additional management time and resources to the next stage, it is strongly advised that you secure the approval of a senior manager.

Furthermore, you should ensure that the senior accounting official or director of finance has no objections in principle to performance contracting (i.e. EPC or EPRP; it may be that EPRP is an option, but EPC may not be). Note that the traditional approach is also an option: the decision as to which option – Traditional, EPRP, and EPC – has yet to be taken.

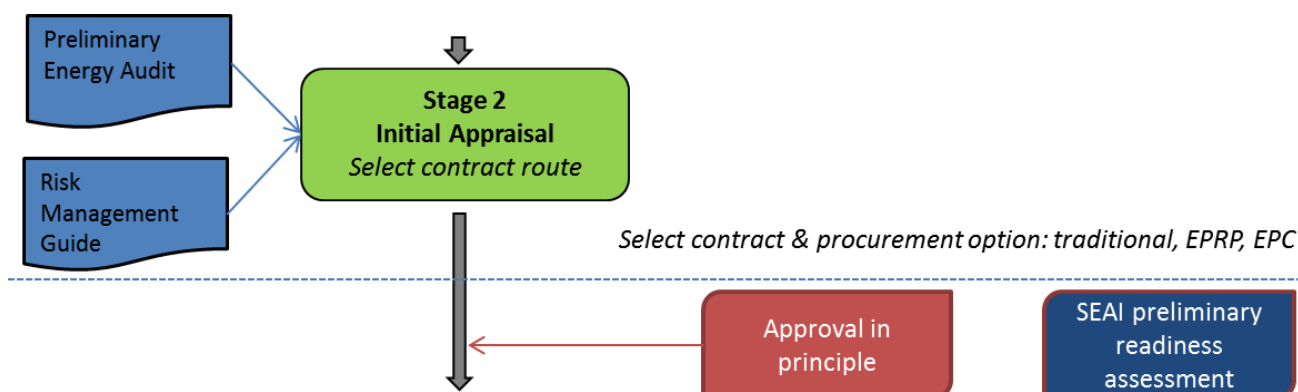
Clients should consider what approvals, from their relevant sanctioning authority, will be required at which points during the whole project life cycle. Include this information in table 1.2 or 1.6 above depending on your organisations requirements.

It is also wise at this point to identify and secure a degree of support from other key stakeholders.

Sample approvals from a senior accounting official and a senior manager are provided in Stage 1 and 2 Workbook Section 1.7 and Section 2.6; these can be amended as appropriate, but formal sign-off of some level of commitment is recommended. If you envisage discussing financing with the National Energy Efficiency Fund (NEEF), the fund managers are likely to require sign-off by a senior accounting official.

<sup>4</sup> <http://ppp.gov.ie/key-documents/guidance/central-guidance/>

## 2 Stage 2: Initial Appraisal



### 2.1 Introduction

This stage is concerned with establishing if there is a business case for upgrading the facility – i.e. an appraisal to establish if there is a financially viable project, which may consist of a mix of projects of long and short paybacks that collectively would be financially attractive to develop. This stage also involves an appraisal of each contract (and associated procurement) route: traditional, EPRP or EPC to establish is the most suitable.

Approval to proceed is required from your organisations relevant sanctioning authority on selecting a particular route. For the **public sector**, SEAI will conduct a preliminary readiness assessment to check if you are ready to proceed to the next stage.

A Preliminary Energy Audit is completed at this stage (see sample document provided), which brings facts and figures to the analysis. It also identifies energy metering and monitoring requirements for the collection of baseline data. Risk identification and assessment should be undertaken, a Risk Management guide is also provided.

On completing this stage you should have established:

- There is a viable project to be implemented that will achieve the objectives for the facility (or facilities)
- Reviewed contracting options and selected which route to take
- Secured senior management approval in principal to proceed to the next stage for your chosen route.
- Project Risk Register
- Preliminary Clients RACI chart.

Where possible and appropriate you are also likely to have identified external professional support requirements, and set about procuring these. Furthermore, in the event of your implementing performance contracting, you are likely to have identified and installed the energy metering required for gathering baseline data.

It is important that work in this and subsequent stages is proportional. The complexity of the appraisal or evaluation of a project or programme and the methods used will depend on the size and nature of the project or programme and should be proportionate to its scale. The resources to be spent on appraisal or evaluation should be commensurate with the likely range of cost, the nature of the project or programme and with the degree of complexity of the issues involved.

#### **ESCO engagement:**

During this stage you may wish to meet and discuss options with a number of ESCOs, and even allow ESCOs to undertake assessments. Such consultations will help to find out if there is a market appetite for your EPC concept and to check the acceptability of any particular requirements you might have.

**Public sector** organisations should ensure that such discussions are informal and impartial, and that the ESCOs understand there is no guarantee that they may secure any work in the future. Note also that, during the procurement process, public organisations can only evaluate formally submitted tendered documentation; any documents submitted prior to the tender must be ignored.

**Private sector** organisations, depending on their procurement practices, may begin the process of selecting their ESCO now. Many private companies select their preferred ESCO based on prior experience with them, or test an ESCO on a small project first.

**Financier engagement:**

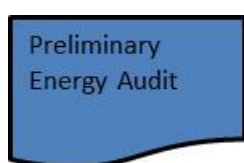
If you plan to provide the project financing (rather than the ESCO), then once you have a clear understanding of project scope, likely savings and budgetary cost you may wish to discuss financing options with banks, the NEEF, or other financing entities.

**SEAI engagement:**

A number of supports may be available from SEAI to assist you through this (and the subsequent) stage. Refer to Section 6 and Appendix 2 of the National Energy Services Framework document for information on SEAI Supports and Technical Assistance (TA). TA information and application form is also available on the SEAI website.

## 2.2 Appraisal of Technical Solution

### 2.2.1 Preliminary Energy Audit



The Preliminary Energy Audit (see sample document provided) is a brief assessment of the facility<sup>5</sup> to identify a register of energy efficiency measures that could deliver your objectives. It does not necessarily follow that this is the mix of measures that will be implemented – that is a later decision taken in consultation with the ESCOs. However, it does provide a reasonable understanding of:

- The types of measures involved, associated scope of works and project complexity
- The overall size of investment required
- The savings potential, and whether or not this exceeds project objectives
- The overall project viability (simple payback) and associated bankability.

This information is essential in deciding which contract route – Traditional, EPRP or EPC - to follow.

The audit also provides other information that will assist in the bringing a project proposal to tender. It identifies:

- A suitable energy performance indicator (EPI) for existing and target energy use, to quantify the potential for energy savings.
- A register of energy efficiency measures, including savings and implementation budget, which together are of sufficient scale and combined payback to create a financially viable project that meets client objectives. Where appropriate, non-energy savings, such as water or maintenance, will also be quantified.
- Essential client requirements to be incorporated in the works (such as replacing building services or fabric elements). Savings and implementation budget figures will be provided.
- Other benefits, including renewal of plant that has reached end of life or resolution of comfort issues. These may need to be quantified.
- Additional metering and recording requirements, including any environmental conditions, which may be required for baseline data (against which energy savings can be measured and verified). The associated installation budget will be included.
- Any potential technical or other risks to the project as currently defined.

A template is provided in Sample Document: Preliminary Energy Audit but it is not essential to use this.

<sup>5</sup> If there are several facilities included in the scope, an audit is required for each; if the facilities are similar, additional audits should be straightforward to complete.

The Preliminary Energy Audit is not an IGA but the first step in gathering information which will be critical for the production of an IGA. (an IGA is completed by an ESCO for the purpose of evaluating accurately the savings and investment costs), The client will issue the Preliminary Energy Audit to the tenderers at competitive dialogue stage. It should be completed in a relatively short time by using readily available site information, sector performance indicators, and rules of thumb; all figures will be indicative.

The assessor may be an employee of the client organisation, an independent energy consultant, or an ESCO. Consideration should be given to the natural bias of the assessor, which is influenced by their perspective, their own areas of expertise, and their particular views on requirements.

For the **Public Sector**, an independent assessor will be appointed by SEAI if a suitable Preliminary Energy Audit has not been completed already. If an EPC is subsequently chosen as the route to project development, the **public sector** procurement process involves each ESCO doing its own IGA as part of the tendering process (Stage 4), and at no cost, so an IGA is not required at this point.

**Private sector** organisations, not bound by public procurement requirements, may arrange for one or more ESCOs to perform a Preliminary Energy Audit and use this as an opportunity to establish:

- The technical capability (and bias) of the ESCO(s)
- The ESCO(s) proposed approach to implementing the works
- What it is like to work with the ESCO(s), including their thoroughness, professionalism and responsiveness
- An insight into the pricing methods, costs and margins of the ESCO(s). Note that the costs quoted in a Preliminary Energy Audit will not be firm, but the price structure for making cost adjustments is important. Such an approach requires the ESCO(s) to be prepared to provide such details as part of their IGA.

An executive summary of the Preliminary Energy Audit and recommendations (or other energy survey report) should be copied into the tables 1 to 4 provided in the Preliminary Energy Audit sample document provided.

## 2.2.2 Project Viability

The Preliminary Energy Audit provides the information needed to evaluate if there is a financially viable project (simple payback), and associated bankability. The Audit provides the basic information but management, with a broader and ideally neutral perspective, draws the conclusion as to whether or not the project is viable.

To justify spending capital on implementing an energy-saving project, the savings generally have to be sufficient to recover the original capital cost and investment return over an acceptable number of years, which, depending on the methodology can vary from 2 to 15 years.. For projects with a longer payback, the customer may have to fund a portion of the works as a 'cost of ownership', or alternative approaches may be required; such a situation is most likely to occur where a building refurbishment is being planned, and energy efficiency retrofits are included in this.

For an EPC, there are a number of additional costs which must be considered, as such the project must also be of sufficient scale to justify the transaction cost and attract finance. EPC may be used for smaller projects (i.e. straightforward approach using a single technology that lends itself to simple measurement and verification of savings such as lighting projects); however, the process as set out here is intended for projects with high capital cost. Furthermore, these costs may increase the overall payback term, this is discussed in greater detail in Stage 3.

Remember that this appraisal should never to be "case-making" and always ensure that the appraisal is done on an objective basis. Good quality appraisal at this stage will make it easier to complete the next stages (i.e. Detailed Appraisal and Procurement stages) and minimise the potential for difficulties and risks to arise in the later stages.

In relation to the **Public Sector** projects, if you intend seeking finance from NEEF this intention and the amount being requested needs to be communicated to SEAI at Stage 2 of the EPC process, by submitting the table below to [Info@seai.ie](mailto:Info@seai.ie). This needs to be done whether SEAI are assisting your project with an Audit, TA or a Readiness Assessment or not.

Project Viability	
Existing annual energy spend	<i>Of facility. If several facilities, we recommend you complete a Stage 1 &amp; 2 Workbook for each facility.</i>



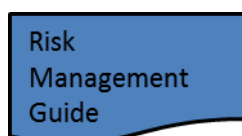
<b>Budgetary overall capital investment required</b>	<i>Simple analysis. Include project costs, such as internal human resources, external consultants, SEAI supports.</i>
<b>NEEF application details</b>	<i>Provide details here on whether you have applied for funding from the Energy Efficiency fund and if so what the total amount will be.</i>
<b>Expected annual savings</b>	<i>Euro, excluding VAT.</i>
<b>Simple payback</b>	<i>Years</i>

Note: the above table should be filled out in the relevant Workbook.

### ***EPC Model and Key Considerations***

The energy (or water) savings will be captured initially by whoever pays the utility bills, in the form of lower bills (or at least lower energy use). If there are maintenance savings, these will be captured by whoever pays for maintenance. These savings must be redistributed among the parties (i.e. client, ESCO and financier) to the EPC: somebody has to 'write a cheque'. This whole arrangement and the process by which it works, is referred to as the EPC model and is documented in the contract. Of particular importance is the 'payment mechanism', i.e. the means by which savings are distributed to repay the initial investment over time.

## **2.3 Risk Management Guide**



The Risk Management Guide is high level and each organisation is advised to develop a project risk strategy and maintain a Risk Register (as illustrated on next page) from the outset. One key area of risk to be considered is the allocation of risk to the ESCO, particularly energy performance risk (i.e. the risk that actual savings may be less than predicted).

There are a number of high-level risks which require mitigation to ensure successful project delivery. When considering risks associated with EPC contracting it is worth noting that not all will be relevant depending on the contract route chosen.

The following are suggested headings when considering risks associated with EPC contracting:

- Risk analysis and management of proposed project as a whole
- Failure to get buy-in from your organisation
- Project viability risk
- Project transaction risk
- Technical evaluation of the proposed project
- Technical energy performance risk
- Preparing the preliminary energy audit
- Assessing the business case for application to the fund,
- Preparing the tender documents
- Administering the competitive dialogue procurement process
- Tender evaluation and award of contract
- Contract administration and verification of savings
- Construction risk
- Late completion of the Interim Period.

**Example Risk Register**

No.	Who	Category	Risk	Raw Risk			Controls	Residual Risk			Risk Owner	Action Required	Value €	Date
				Impact	Likelihood	Ranking		Impact	Likelihood	Ranking				
E.g.		Planning	Failure to get planning permission may delay project progress or require design changes.	8	8	H	Prepare a typical final design that requires planning permission now and secure permission prior to tender.	8	1	L	ESCO	Manage design and construction to ensure stays within planning constraints.	€	Q1 2015
1						L				L				
2						L				L				
3						L				L				
4						L				L				

Key	Scale	Interpretation
Impact	1-8	1 = Very Low, 8=Very high
Likelihood	1-8	1 = Very Low, 8=Very high
Ranking	L, M , H	Low, Med, High

## 2.4 Identify Baseline Data Requirements

The Preliminary Energy Audit will include recommendations on what additional energy (and possibly activity and environmental) data should be gathered for use as a baseline in the event that savings are to be measured and verified, particularly for performance contracts (i.e. EPC or EPRP). This is likely to require the installation of additional metering and/or logging equipment in the detailed appraisal stage; such requirements should be planned and procured now so that the installation of any additional equipment can be completed early in that Stage and the logging of associated data commence. Any delays in data logging may result in the process being put on hold so that adequate baseline data can be recorded before works commence.

If such requirements have not been identified by an energy survey, then metering and monitoring requirements should be identified by a separate survey. An external specialist may be required to carry this out.

The final selection of meters should be informed by an understanding of the likely scope of the performance contract; it may be necessary to make a judgement now as to the likely contract scope to enable gathering of baseline data sooner, rather than delaying the project process later.

If it is concluded that the existing metering (e.g. utility meters) will be adequate for gathering baseline data, then consideration should be given to improving the resolution of this data. For instance, if gas meters are read manually every 2 months, then consideration should be given to begin taking daily or weekly gas meter readings.

<b>Baseline data requirements</b>	
<b>Energy data to be metered and recorded</b>	<i>Consider areas to be metered and frequency of data readings</i>
<b>Activity data to be metered and recorded</b>	<i>Should be a driver of energy use, e.g. occupancy levels, weather/degree days.</i>
<b>Environmental data to be metered and recorded</b>	<i>e.g. Internal temperatures</i>
<b>Procurement requirements</b>	<i>Identify what equipment / works will need to be procured for installation in Stage 3, and begin the specification and procurement process.</i>
<b>Data readings to be taken</b>	<i>Identify if meters need to be manually read and put in place system to ensure regular readings are taken and recorded.</i>

Note: the above table should be filled out in the relevant Workbook.

## 2.5. Appraise Options and Select Preferred Contract Route

There are three contract options: traditional, EPRP and EPC. Each of these must be assessed in order to select the most appropriate option.

### 2.5.1 Traditional Contract Option

The traditional contract route to project development may be the base case against which other options can be compared (alternatively the base case may be “do nothing”).

<b>Traditional Contract Option</b>	
<b>How it would work</b>	<i>Brief description of how the contract will work – who designs, who builds, who pays who and when. This is straightforward for traditional contracts.</i>
<b>Measurement &amp; Verification</b>	<i>Although the measurement and verification of savings does not form part of a traditional contract, it is good practice to put in place some means of demonstrating performance. Describe briefly, at a high level only, how savings will be verified (if at all).</i>
<b>Procurement method</b>	<i>Describe how the works will be procured. It may be by a large number of small projects, or a small number of large projects. Identify the basis of contract award, e.g. lowest cost, most economically advantageous tender (include associated details).</i>
<b>Contract template</b>	<i>Usually standard form of contract. For <b>public sector</b> is likely to be the Government form of Construction Contract (GCC.)</i>
<b>Timeframe</b>	<i>Set out a high level schedule for the design, procurement and implementation of works using this method. If there are a large number of small projects, this is likely to more take time than one or two large projects.</i>
<b>Internal resources</b>	<i>Identify the internal team that is required, and for how long. Consider specification, design, procurement, supervision, contract management, project management and technical competences required – although much of this may be outsourced, internal resources are still required.</i>  <i>Establish if/how internal resources can deliver the works using the proposed procurement method within the timeframe set out above.</i>
<b>Track record</b>	<i>Has your organisation a track record of delivering energy projects and achieving projected savings? Identify examples of energy efficiency projects implemented in recent history that required similar internal resources, competences and are of similar scale.</i>
<b>Balance sheet</b>	<i>In the traditional contract, if debt is a source of finance, it will be on the organisation’s balance sheet. Consider the implications and acceptability of this for the organisation.</i>
<b>Sources of finance</b>	<i>Identify the likely sources of finance, both debt and equity, to implement the project.</i>
<b>Risks</b>	<i>Identify the risks to the project associated with traditional contracts. Technical energy performance risk (i.e. the risk that savings won’t materialise as projected) is a particular consideration here, but also energy price risk (i.e. the risk that energy prices will fall, reducing the value of savings).</i>  <i>For the traditional contract option, both these risks are borne by the client.</i>  <i>Note: A project risk register is to be maintained and updated at the various stages throughout the project life cycle.</i>

<b>Other considerations favouring Traditional</b>	<i>Identify any other considerations which may favour a traditional approach. For instance, the client may have specialist requirements which require their specialist knowledge or full control of detailed design. Or the solution may be relatively straightforward and the energy performance risk low. Also, measurement and verification (M&amp;V) of savings is not required for traditional, which may be advantageous if savings are very difficult to verify or time is not available to install and measure baseline energy use.</i>
<b>Other considerations that don't favour Traditional</b>	<i>Identify any considerations which may not favour a traditional approach. For instance, achieving substantial savings is likely to require a large number of small transactions over a number of years, consuming client resources.</i>

Note: the above table should be filled out in the relevant Workbook.

### 2.5.2 Energy Performance Related Payment Option

There may be several ways of implementing an EPRP contract, so options should be identified and then discussed individually; for each realistic option complete the table below. Much of the text may be the same as for the traditional contract option, but each item should be considered with care. The main differences from traditional are detailed design tends to be undertaken by the contractor (ESCO) and a portion of the payment is withheld pending demonstration of energy performance as guaranteed (which increases contractor technical risk, motivating the contractor to deliver energy savings).

<b>Energy Performance Related Payment Option</b>	
<b>How it would work</b>	<i>Brief description of how the contract will work – who designs, who builds, who pays who and when. Give particular consideration to how the performance related payment would work, and how long the performance guarantee would last for.</i>
<b>Procurement method</b>	<i>Describe how the works will be procured. It may be by a large number of small projects, or a small number of large projects. Identify the basis of contract award; generally a combination of the price for the works, the performance guarantee, and qualitative considerations.</i>
<b>Contract template</b>	<i>Typically a standard form of contract with energy performance guarantee clause, associated retention, and measurement and verification plan. For <b>public sector</b> is likely to be the GCC.</i>
<b>Measurement &amp; Verification</b>	<i>As the performance payment is based on guaranteed performance, performance will need to be measured and verified. Describe briefly, at a high level only, how savings will be measured and verified. Identify any particular concerns you are aware of, and consider if such difficulties will influence your choice of contract type.</i>
<b>Timeframe</b>	<i>Set out a high level schedule for the design, procurement and implementation of works using this method. If there are a large number of small projects, this is likely to more take time than one or two large projects.</i>
<b>Internal resources</b>	<i>Identify the internal team that is required, and for how long. Consider specification, design, procurement, supervision, contract management, project management and technical competences required – although much of this may be outsourced, internal resources are still required.</i>  <i>Establish if/how internal resources can deliver the works using the proposed procurement method within the timeframe set out above.</i>
<b>Track record</b>	<i>Identify energy efficiency projects implemented in recent history that required similar internal resources, competences and are of similar scale. If you have no EPRP experience, consider traditional projects (but in the case of EPRP savings must be measured and verified and the ESCO takes performance risk).</i>
<b>Sources of finance</b>	<i>Identify the likely sources of finance, both debt and equity, to implement the project.</i>

<b>Balance sheet</b>	<i>In the EPRP contract, if debt is a source of finance, it will generally<sup>6</sup> be on the organisation's balance sheet. Consider the implications and acceptability of this for the organisation.</i>
<b>Risks</b>	<i>Identify the risks to the project associated with EPRP contracts. For the EPRP contract option, the ESCO will take a portion of the technical performance risk, reducing client risk, which is its main advantage. Other risks include energy price risk (i.e. the risk that energy prices will fall, reducing the value of savings). Furthermore, energy savings are measured and verified, which often assists in securing funding for further energy projects. Energy price risk is traditionally borne by the client.</i>  <i>Note: A project risk register is to be maintained and updated at the various stages throughout the project life cycle.</i>
<b>Other considerations favouring EPRP</b>	<i>Identify any other considerations that may favour an EPRP approach. For example, this method is well suited where a single technology is being considered (e.g. LED lighting); where the savings can be achieved and demonstrated in a short period of time and where the client is reluctant to enter into a long term contract.</i>
<b>Other considerations that don't favour EPRP</b>	<i>Identify any considerations which may not favour an EPRP approach.</i>

Note: the above table should be filled out in the relevant Workbook.

### 2.5.3 Energy Performance Contract Option

There may be several ways of implementing an EPC, so options should be identified and then discussed individually.

There are four key considerations when engaging external parties to provide energy services, in Energy Performance Contracts.<sup>7</sup>

**1)** The first and core consideration is that the project has to be viable to justify spending capital on implementing an energy-saving project; the savings generally have to be sufficient to recover the original capital cost and investment return over an acceptable number of years that, depending on the methodology can vary from 2 to 15 years. For projects with a longer payback, the customer may have to fund a portion of the works as a 'cost of ownership', or alternative approaches may be required.

The project must also be of sufficient *scale* to justify the transaction cost and attract finance. EPC may be used for smaller projects (i.e. straightforward approach using a single technology that lends itself to simple measurement and verification of savings such as lighting projects), however, the process as set out here is intended for projects with high capital cost

**2)** If the project is viable, one must consider who will provide the capital – the ESCO, the customer organisation, or a third party (e.g. NEEF, private capital fund, energy utility or bank). If the ESCO or a third party make the initial

**Figure 2.1: Key factors in EPC model**



<sup>6</sup> One exception is an Operating Lease, which is generally considered off balance sheet, but may be suited to EPRP.

<sup>7</sup> Refer to SEAI's *A Guide to Energy Performance Contracts and Guarantees* for more information: [http://www.seai.ie/Your\\_Business/Public\\_Sector/Energy\\_Performance\\_Contracts\\_and\\_Guarantees.pdf](http://www.seai.ie/Your_Business/Public_Sector/Energy_Performance_Contracts_and_Guarantees.pdf)

capital investment, they will require a long-term contract through which they recover their investment with interest.

3) The third consideration is risk. There are a range of risk categories that require consideration. For example there are performance risks, i.e. the underlying assumptions used to predict savings are incorrect or that equipment will not perform as expected, as such the projected savings will not materialise. These performance risks are typically borne by the ESCO.

There is also the *credit* risk – the risk that the customer can't or won't pay at some point in the future. This may be assumed by the ESCO or the third-party financier.

Finally, there is an *energy price* risk: if energy prices change, so does the value of the savings. As the customer is already inherently exposed to fluctuations in energy prices and has most to gain if energy prices fall, typically the energy price risk is taken by the customer by agreeing a fixed energy price (or alternatively an energy price floor) at which savings are valued.

4) The fourth consideration is savings – not just the value of savings, but also how those savings are allocated among the different parties, as discussed above.

The capital cost of a project, the annual cost savings it delivers and the number of years for which savings will accrue determine the extent of the overall project return. Who supplies the capital, and how the credit, performance, savings and energy price risks are allocated, will influence how the overall project savings are distributed.

Different ESCO models (as defined in different forms of contract) and contract clauses allocate these risks – and the rewards – between the different parties. In the case of the EPC standard form of contract, many of these risks are already assigned. However, even if you are following this EPC approach, it is essential that, before going to procurement, your organisation understands the EPC model, how it will work in practice and the implications for your organisation.

The ownership of new equipment, installed as part of the contract, may transfer on installation (as is the case with this standard form of EPC contract) or at the end of the contract term. Responsibility for maintaining the equipment must also be agreed. Responsibility for the risk of its premature failure during the contract term must be agreed; extended warranty cover can often be purchased from the supplier for large plant. The condition of the plant at the end of the contract term is generally implied by these points; i.e. the plant is generally handed over in operating condition, but with normal wear and tear allowed. If plant fails during the contract term, then it should be clear in the contract as to who must replace the equipment, and any implications of this on the term of the contract.

<b>Energy Performance Contract Option</b>	
<b>How it would work</b>	<p><i>Brief description of how the contract will work. Start by considering who will provide the capital and over what term the ESCO will be paid. Draw a diagram illustrating the transactions between the host, the ESCO, and the financier, e.g. typical shared savings model.</i></p> <p><i>Identify at what point equipment ownership is likely to transfer. For the public sector, in the EPC standard form of contract equipment ownership transfers on installation, although this may be modified.</i></p> <p><i>Identify who will be responsible for maintenance of new and existing equipment.</i></p> <p><i>This can be quite high-level; details will follow in Stage 3.</i></p>
<b>Procurement method</b>	<p><i>Describe how the works will be procured. It may be following the method described in Section 4, or <b>private sector</b> organisations may have alternative methods.</i></p>
<b>Contract template</b>	<p><i>The EPC standard form of contract is one option, and is required for <b>public sector</b> organisations.</i></p>

<b>Measurement &amp; Verification</b>	<i>For EPC, savings (or avoided energy costs) will need to be measured and verified and this should now be describe briefly, at a high level only, how savings will be measured and verified. Identify any particular concerns you are aware of, and consider if such difficulties will influence your choice of contract type.</i>
<b>Timeframe</b>	<i>Set out a high level schedule for the design, procurement and implementation of works.</i>
<b>Internal resources</b>	<i>Identify the internal team that is required, and for how long. Note that in EPC the ESCO generally does the detailed specification and design. Client resource requirements are at their highest during contract procurement.</i>  <i>Establish if/how internal resources can deliver the works using the proposed procurement method within the timeframe set out above.</i>
<b>Track record</b>	<i>Identify energy efficiency projects implemented in recent history that required similar internal resources, competences and are of similar scale. Your organisation may not have a track record with EPC.</i>
<b>Sources of finance</b>	<i>Identify the likely sources of finance, both debt and equity, to implement the project.</i>
<b>Balance sheet</b>	<i>In EPC the debt may be on the ESCO's or the client's balance sheet, or on the balance sheet of a Special Purpose Vehicle, depending on contract structure. <b>The potential for off-balance sheet treatment is one of the major advantages of EPC and this may be the determining factor in why the EPC route is chosen.</b></i>
<b>Risks</b>	<i>Identify the risks to the project associated with EPC contracts. For the EPC option, the ESCO will take the technical performance risk, eliminating client risk, which is its main advantage. Energy price risk is traditionally borne by the client. Credit risk is a consideration.</i>  <i>Note: A project risk register should be maintained and updated at the various stages throughout the project life cycle.</i>
<b>Is there a financially viable project?</b>	<i>A simple payback of 5–8 years is likely to be required, although there are exceptions and alternative approaches</i>
<b>Is the project of sufficient scale to warrant the investment of time and effort in developing an EPC?</b>	<i>Minimum efficient scale for a full EPC is likely to involve a capital investment However, smaller-scale contracts may be viable where the contracts and/or projects are relatively straightforward, e.g. single-technology projects such as lighting.</i>
<b>Other considerations favouring EPC</b>	<i>Identify any other considerations which may favour EPC. For instance, some organisations may value a single contract that outsources the entire energy efficiency requirement. The nature of the project may suit EPC.</i>
<b>Other considerations that don't favour EPC</b>	<i>For instance, the longer procurement time or long term nature of the contract may not favour EPC. Also, there may be special organisational considerations that may mean it is ill-suited to implementing EPC.</i>

Note: the above table should be filled out in the relevant Workbook.

#### 2.5.4 Recommended Contract Route

Three contract options have been discussed above and at this point it should be reasonably clear which option is likely to be preferred by the organisation. Identify below the preferred choice and describe briefly the key factors that influence this decision.



<b>Recommended Contract Route</b>	
<b>Recommended route</b>	<i>Traditional/EPRP/EPC</i>
<b>Key factors that influenced this choice</b>	<i>Explain rationale for the above choice. This will provide the case for approval by senior management.</i>

Note: the above table should be filled out in the relevant Workbook.

## 2.6 Plan next stage

At this point the client needs to review requirements and produce a high level plan for Stage 3, detailed appraisal. In securing approval in principle management are likely to require a budgetary cost for completing the next stages, any human resources required and the overall timeframe to award of contract. There may also be some items that you can commence whilst awaiting approval in principle. This may include, for instance, procuring any external services, installing metering and logging baseline energy data, etc.

<b>Plan next stage</b>	
<b>Team required</b>	<i>Consider any external professional assistance which may have a procurement lead time. Complete Client RACI Chart.</i>
<b>Budget requirements</b>	<i>These are resources required to complete stages 3 and 4. Consider metering and monitoring requirements, external resources required for surveys, legal advice, project management, other advice.</i>
<b>Time required to complete</b>	<i>Expected to for stages 3 and 4, and when works are expected to commence.</i>
<b>Other plans</b>	<i>Complete as appropriate.</i>

Note: the above table should be filled out in the relevant Workbook.

## 2.7 Stage Gate – Approval In Principle

Based on the findings of this stage, consider if you are ready to proceed to detailed appraisal. If there does not appear to be a viable project based on your assessment, you may wish to examine ways of redefining the mix of facilities, mix of services, or mix of energy efficiency measures in order to create a viable project. Indeed, for one reason or another, the outcome of this process may be not to proceed any further.

This second stage has been concerned with appraising the technical solution required to achieve your objectives (using a Preliminary Energy Audit to facilitate this), and your contract options. Depending on which contract option you have selected, your next stage will be one of:

- Traditional – proceed to your traditional procurement procedure for a contract of this scale<sup>8</sup>
- EPRP – proceed to Stage 3 of the EPRP Handbook<sup>6</sup>
- EPC – complete Stage 3 of the EPC Handbook

Prior to proceeding to the next stage approval in principle is required from senior management including finance.. Sign off templates are provided in Stage 1 & 2 Workbook.

### 2.7.1 Public Sector Requirements

Clients may require approval, from their relevant sanctioning authority, to proceed to the detailed appraisal Stage.

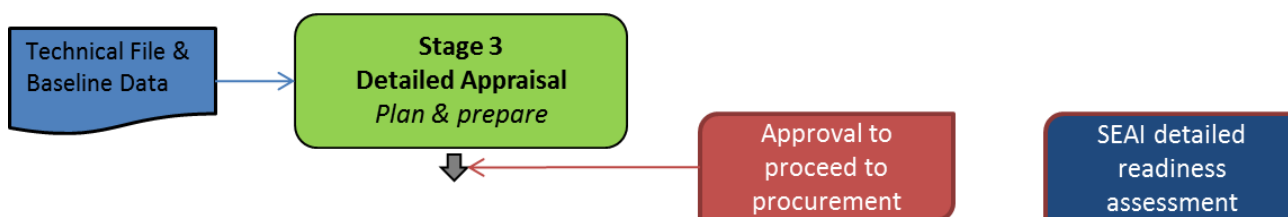
Furthermore, if the value of the project is likely to exceed €20 million, this Initial Appraisal must be submitted to the Central Expenditure Evaluation Unit of the Department of Public Expenditure and Reform for quality assurance purposes. The Central Expenditure & Evaluation Unit (CEEU) will advise on any additional reporting requirements for subsequent stages.

**At this point, the Stage 1&2 Workbook should be submitted to SEAI who will conduct a Preliminary Readiness Assessment to confirm if the project is ready to proceed to the next step.**

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<sup>8</sup> For the public sector the Capital Works Management Framework sets out the procurement procedures to be adopted.

## 3 Stage 3: EPC Detailed Appraisal



### 3.1 Introduction

The detailed appraisal Stage is concerned with finalising the shape of the Energy Performance Contract and appraising the financial outcome from your perspective (your organisation, the ESCO and the financier will have different financial perspectives on the same project as project savings will be split between the different parties).

Planning and resourcing is required at the beginning of Stage 3, as it involves a good deal of work and would benefit from collaboration with specialist in area such as energy management and financing. Furthermore, the subsequent Procurement stage (Stage 4) is also planned as both stages may proceed in parallel.

During stage 3 you will compile a site(s) Technical File, which contains technical information to assist the ESCOs complete their IGA. You will also assemble the baseline data against which future energy use, for the duration of the contract, will be compared to measure energy savings. (See Sample Document: Technical File and Baseline Data). The more baseline data you gather the better, so it is essential to start gathering this data as early as possible (you may already have commenced this).

It is critical to have the relevant approval at this point to progress to tender stage. If you are a **public sector** organisation, SEAI will conduct a detailed readiness assessment to check you are ready to proceed to ITT.

By the completion of this stage you will have:

- A project plan and organisation and reporting systems in place.
- Assembled your technical file and gathered detailed baseline data for use in procurement.
- A view of how the EPC will be structured, understand what the cash flows to your organisation are likely to be, and have completed a risk assessment.
- Determined that you are ready to proceed to procurement, and secured the appropriate approvals to do so.

If you are subject to public procurement rules, but wish to minimise the time to final contract, part of stages 3 & 4 could be completed in parallel. . In particular, the contract notice (Stage 4.1) and prequalification (Stage 4.2) of procurement (detailed below) can be completed simultaneously to this Stage 3. However, Stage 3 should be completed prior to the final EPC tender (Stage 4.3 and 4.4), as the answers herein will affect the content of the tender.

For the **private sector**, if you are following an alternative procurement process, we recommend that you complete Stage 3 before finalising your contract documentation.

It is recommended that **public sector** organisations complete Stage 3 using internal resources, and if required the assistance of independent 3<sup>rd</sup> parties that will not be involved in the final contract. It is recommended that care be taken when involving ESCOs (who may tender for the work) during stage 3 as to do so you run the risk of undermining the procurement process by giving them an unfair advantage. . Note also that, during the procurement process, public organisations can only evaluate tendered documentation; any documents submitted prior to the tender must be ignored.

#### Scale of Project

Every spending proposal should be appraised carefully. However, the resources spent on appraisal should be commensurate with the cost of projects (or proposals for current expenditure), and with the degree of complexity of the issues involved.

- A simple assessment will be carried out for minor projects with an estimated cost below €0.5 million<sup>9</sup>, such as projects involving minor refurbishment works, fit outs etc.
- This Stage 3 has been prepared assuming EPCs with a typical contract value of less than €5 million<sup>10</sup>.
- Projects over €20 million:
  - Are subjected to a Cost Benefit Analysis (CBA) or Cost Effectiveness Analysis (CEA). The Central Expenditure Evaluation Unit in the Department of Public Expenditure and Reform may specify other requirements.
  - The sponsoring agency is required to seek the advice of the NDFA on all projects above €20 million and should do so at preliminary appraisal stage and in any event before tender documents are finalised.

### 3.2 Project Plan

The table below outlines the steps to follow in the project plan and should be filled out in the relevant workbook.

<b>Project Plan steps</b>	
<b>Identify the project development process and detailed steps</b>	<i>Refer to example plan below in section 3.2.1</i>
<b>Identify project development timeframe</b>	
<b>Review and establish if current human resources are adequate to deliver the project</b>	
<b>Establish project development budget requirements</b>	Consider metering and monitoring requirements, external resources required for surveys, legal advice, project management, EPC advice

Note: the above table should be filled out in the relevant Workbook.

<sup>9</sup> In line with the national project appraisal procedures outlined in the Public Spending Code at <http://publicspendingcode.per.gov.ie/000-value-for-money-code/>. & B03 <http://publicspendingcode.per.gov.ie/b-03-approvals-required-and-scale-of-appraisal>

<sup>10</sup> In line with the national project appraisal procedures outlined in the Public Spending Code at <http://publicspendingcode.per.gov.ie/000-value-for-money-code/>

**3.2.1: Example of High-Level Programme**

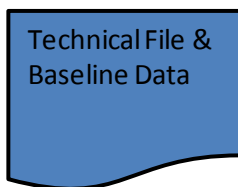
Overall Project	Typical Time	2014												2015				2016	2017	-----	2031	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Q1 & Q2	Q3 & Q4					
Get Organised (Stage 1)	1-2 months		■	■																		
Initial Appraisal (Stage 2)	1-2 months				■	■																
Detailed Appraisal (Stage 3)	2-3 months						■	■	■													
Prequalification	1-2 months							■	■	■	■											
Competitive Dialogue & Tender	2-4 months											■	■	■	■							
Implementation (by ESCO)	6-12 months															■	■					
Savings & Performance	5-15 years																	■	■	■		
Contract End & Handover																						■

### 3.2.2 Example of Stage 3 and 4 Programmes

Detailed Appraisal (Stage 3)	Wk. 1	Wk. 2	Wk. 3	Wk. 4	Wk. 5	Wk. 6	Wk. 7	Wk. 8	Wk. 9	Wk.10	Wk.11	Wk.12	Wk.13	Wk.14	Wk.15
Prepare project plan															
Set up and gather baseline data															
Identify HR requirements and make appointments															
Procure external services															
Assemble technical file															
Detailed appraisal including risk analysis															
On-going update of financial analysis															
Stage gate: Approval to proceed to procurement															

Procurement (Stage 4)	Wk. 1-10	Wk 11	Wk 12	Wk 11	Wk 12	Wk 13	Wk 14	Wk 15	Wk 16	Wk 17	Wk 18	Wk 19	Wk 20	Wk 21	Wk 22
Contract Notice															
Prequalification															
Invitation to Participate in Competitive Dialogue															
Invitation to Tender															
Evaluation and final approval															
Contract Award and signing															

### 3.3 Assemble Technical File and Baseline Data



The Technical File and Baseline Data document is a collection of information that will help the bidding ESCOs to complete detailed energy surveys of the facility to identify and quantify savings outlined in the IGA) and the preparation of a Measurement & Verification Plan (by you, the ESCO or a third party).

The Technical File element typically consists of existing facilities drawings, an asset register, energy or maintenance survey reports, maintenance records, equipment specifications, etc.

The Baseline Data, based on requirements identified in Stage 2, includes the baseline energy and environmental data that is ultimately used to quantify savings and any adjustments. Baseline Data typically requires data over several months (and up to 1 year), in order for the calculations and modelling work to be carried out you'll need a year's historical data (available from your organisation facilities and accounts departments).

The information can be assembled throughout the preparatory stages (Stages 1-3), but should be finalised during Stage 3 so it can be issued to the ESCOs in Stage 4 (procurement).

The rationale for compiling this information is to:

- Avoid delays in the procurement process as this information will need to be gathered by either you or the bidding ESCOs
- Improve the accuracy and consistency of the ESCO IGAs, thus reducing ESCO risk and improving the competitiveness of tenders
- Improve the accuracy of the baseline data, and hence, future savings verification
- Ensure information provided is properly documented and minimise risk of information being overlooked until after the contract has commenced
- Reduce ESCO tendering costs, thus helping to create and sustain a dynamic and competitive market

How much information you compile and the care you take in putting it into a format that is useful for the ESCOs is a matter of judgement, but is likely to be influenced by:

- Availability and format of facility information and energy data
- Scope of the EPC, and the scale and complexity of the facility (or facilities)
- Whether or not you are following the formal procurement process outlined in Stage 4, or a less formal process
- Internal project management effectiveness, time constraints and resources

Further information is contained in the Sample Document - Technical File and Baseline Data template.<sup>11</sup>

The **public sector** procurement process involves each ESCO doing an IGA as part of the tendering process (Stage 4), at the ESCOs own expense.

**Private sector** organisations may compile this information during negotiations with one or more ESCOs. Indeed, ESCOs may gather technical and baseline information, conduct an IGA, and make a proposal based on their findings, without any need for the client to prepare a Preliminary Energy Audit or Technical File and Baseline Data, see Sample Documents provided. However, where the private sector wishes to follow a formal procurement process with a number of bidding ESCOs or not, the recommendation is to compiling the Technical File and Baseline Data for the reasons identified above.

<sup>11</sup> At time of writing, the Technical File and Baseline Data template has been developed for buildings. It is intended that similar templates will be developed for water pumping or treatment facilities, and for public lighting installations. If you are developing an EPC in a non-building application, contact SEAI to obtain the latest information on templates for other facilities.



### **3.3.1 Baseline Data**

By this point historical energy invoices and other readily available energy data should have been assembled and the three-year trends for utility data (see tables provided in the Workbook 3) should be brought up to date.

The Preliminary Energy Audit is likely to have identified areas requiring metering, or more regular readings and logging of existing meters. The metering infrastructure should have been installed during Stage 2 and data-recording (manual or automatic) commenced.

As the scope of the EPC is refined, the method by which savings will be measured and verified will become clearer; you should continue to review what baseline data is required in light of this, and identify any changes to metering or monitoring requirements. A certified measurement and verification professional can provide advice.

Note, that the more frequent the recording intervals and the longer the recording period, the more accurate the reference point against which future savings will be measured and verified. Furthermore, detailed baseline energy data will help the ESCOs to better assess the savings from measures they propose. 15 minute or half-hourly data logs are ideal.

Non-energy baseline data, such as activity data and environmental data, should also be gathered where required. This will provide evidence of operational conditions prior to the contract.

Data-recording should continue for the term of the contract unless it is decided that particular data is no longer required.

### **3.3.2 Technical File**

As indicated above, ESCOs will require technical information on the facility (or facilities). For a building installation and operating information for the lighting, heating, ventilation, air conditioning, etc. will be required. This information will be kept in an electronic folder and/or the Technical File and Baseline Data, as you judge appropriate. Rather than reproducing that information here, simply record the file name, location and status in the relevant Workbook.

## 3.4 Human Resources

### 3.4.1 Project Team Skills

To make the project happen, an EPC project team should be selected at this point. The final arrangement will depend on your project structure, the scale of the EPC, the human resources available in your organisation, and the financial resources at your disposal to engage professional external support.

The final selection of the project team should include a mix of the following skills / experience:

- **Project manager** – ideally an engineer familiar with the facility, but with good planning and budgeting skills (can be external), this role is specifically a client project manager who will manage all stages of the project. During stage 5 the client project manager will liaise with the ESCO through their contract manager.
- **Client organisation coordinator** – somebody from within the organisation to coordinate all the internal and external parties and tasked by senior management to make the project happen (must be internal; may be the project manager)
- **Client organisation financial representative** – someone of appropriate authority who can make day-to-day decisions on project finances (must be internal, but might only attend relevant meetings)
- **Maintenance manager** – somebody familiar with the plant installation, maintenance requirements and the condition of the facilities to be upgraded (can be external, e.g. maintenance contractor)
- **Energy manager** – somebody familiar with energy use and costs, and energy monitoring in general (may be the maintenance manager; can be an external energy consultant)
- **Project Supervisor Design Process** - Clients should be aware that the retrofit and refurbishment activities anticipated under the EPC will almost certainly fall under the scope of the Safety, Health and Welfare at Work (Construction) Regulations 2013. Clients are therefore obliged to appoint a competent project supervisor for the design process (“PSDP”) in Stage 3 and a competent project supervisor for the construction stage (“PSCS”) in Stage 5, for the project. Additional information is available on the HSE web site<sup>12</sup>.
  - **Private Sector** organisations who have already selected an ESCO (or preferred bidder), may appoint the ESCO as PSDP.
  - **Public Sector** organisations will have a number of competing ESCOs and must appoint a single non-ESCO PSDP during this stage, who will act as PSDP for all ESCO designs.
- **Technical expert** – somebody who understands client technical considerations, and can provide or review technical specifications during the process (may be an in-house engineer, energy consultant, or mechanical/electrical consultant).
- **Procurement expert** – internal expert familiar with public procurement processes and legal contracts, particularly for public sector organisations. An external expert may be brought in to help advise the internal expert where required.
- **Stakeholder Manager** – a good communicator who can reach up, down and across the organisation (may be an additional resource or someone on the team with the skills, experience and authority to communicate at all levels)
- **Contract manager** – the person (ESCO) who will manage the contract element of the project, from the execution date of the interim period on through the guarantee period to the contract expiry date and liaise with the client project manager.

EPC knowledge is not a prerequisite: a combination of EPC documentation, training, meeting with ESCOs and other interactions is likely to be adequate for the project manager and team provided they have the time to absorb this information. A strong project manager is of greater importance.

Given the above, it is not a requirement to appoint external professionals to assist you through the process, but it is an option that ought to be considered. International experience has been that external specialists can guide

<sup>12</sup> [http://www.hsa.ie/eng/Your\\_Industry/Construction/Construction\\_Duty\\_Holders/Project\\_Supervisor\\_Design\\_Process/](http://www.hsa.ie/eng/Your_Industry/Construction/Construction_Duty_Holders/Project_Supervisor_Design_Process/)

organisations and projects efficiently and effectively through the process from initial planning and baseline creation, to the management of the procurement process, and on to the selection of the winning ESCO. Examples include an EPC consultant to assist with project-managing this and subsequent stages of the project development process, a building services consultant to provide or review technical specifications, a legal advisor to assist with procurement or provide contractual advice, and a M&V professional.

### 3.4.2 Project Structure

To procure an EPC, particularly a large-scale contract in a large organisation, considerable project support is required at various levels of the organisation, and resources to deliver the project are essential. Inadequate support is often the reason an EPC is not procured. When selecting the Project resources, the focus is typically on those who can get the EPC through the development, procurement, works and implementation stages. However, it is also important to identify and involve the long-term client project manager who will sign off on the measurement and verification of savings and payments to the ESCO.

The following table will help you to identify the human resources that are needed.

<b>Project resources required</b>	
<b>Sponsor</b>	<i>Identify the senior management sponsor of the project.</i>
<b>Strategic Group</b>	<i>Identify the senior managers who are required to make high-level decisions, allocate resources, clear roadblocks and supervise progress.</i>
<b>Project Manager</b>	<i>The person who will develop and procure the EPC, liaise with the ESCO on completion of works Interim Period and the Guarantee Period</i>
<b>Client organisation coordinator</b>	
<b>Client organisation financial representative</b>	
<b>Project Supervisor Design Process</b>	<i>The person who will ensure compliance with statutory requirements.</i>
<b>Project Team</b>	<p><i>Identify those who will assist the project manager with the work; consider those whose buy-in will be essential to success. Complete client RACI chart.</i></p> <ul style="list-style-type: none"> <li>• <i>Energy manager</i></li> <li>• <i>Technical expert</i></li> <li>• <i>Maintenance manager</i></li> <li>• <i>Stakeholder Manager</i></li> <li>• <i>Procurement executive</i></li> </ul>
<b>Stakeholder Manager</b>	<i>Identify a good communicator who can reach up, down and across the organisation (may be an additional resource or someone on the team with the skills, experience and authority to communicate at all levels)</i>
<b>External Support Requirements</b>	<i>Identify what external support is required, and how this will be financed. Consider the availability and relevant experience of the project manager and team. (See notes below).</i>

Note: the above table should be filled out in the relevant Workbook.

A RACI chart details all the key stakeholders/roles of the project and determines whether they are responsible or accountable for certain deliverables and tasks or whether they need to be consulted or informed. It is especially useful in clarifying roles, relationships and responsibilities in cross-functional or departmental projects and processes, a clear picture is available from the outset as to these inter-relationships should be managed.

- Responsible – those who do the work to achieve the task. There is at least one role with the participation type ‘responsible’, although others can be delegated to assist in the work required (see the RACI below for separately identifying those who participate in a supporting role).
- Accountable – the one ultimately answerable for the correct and thorough completion of the deliverable or task, and the one who delegates the work to those responsible. In other words, the person accountable must sign off (approve) work that the responsible person provides. There must be only one accountable person specified for each task or deliverable.
- Consulted (sometimes ‘counsel’) – those whose opinions are sought, typically subject-matter experts, and with whom there is two-way communication.
- Informed – those who are kept up to date on progress, often only on completion of the task or deliverable, and with whom there is just one-way communication.

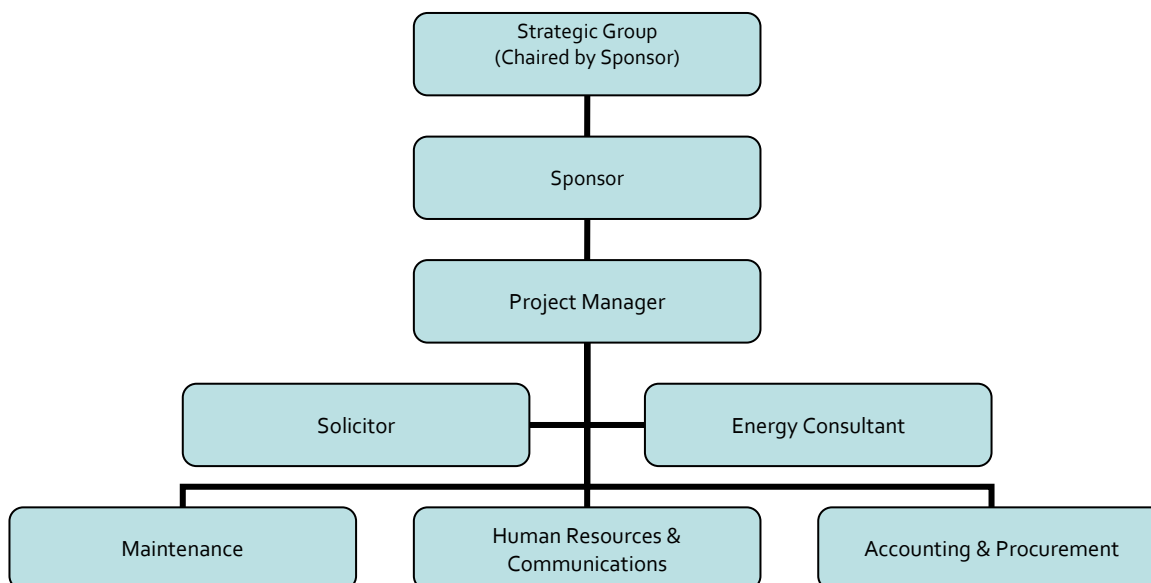
An example RACI Chart is provided below; it should be modified to reflect your project arrangements

<b>RACI Chart</b>						
	<b>Sponsor</b>	<b>Project Mgr.</b>	<b>Contract Manager</b>	<b>Energy/ Engineering Consultant</b>	<b>Solicitor</b>	<b>Strategic Group</b>
<b>Stage 1</b>	Accountable	Responsible	Informed			Informed
<b>Stage 2</b>	Accountable	Responsible	Informed			Informed
<b>EPC Assessment</b>		Accountable	Informed	Responsible		Informed
<b>Stage 3</b>	Accountable	Responsible	Informed	Consulted	Consulted	Informed
<b>Technical File &amp; Baseline Data</b>		Accountable & Responsible	Informed	Consulted		Informed
<b>Stage 4: Procurement</b>	Accountable	Responsible	Informed		Consulted	Informed
<b>Stage 5: Works</b>		Accountable & Responsible	Informed	Consulted		Informed
<b>Stage 5: Contract mgt.</b>	Informed		Accountable	Consulted		Informed

Note: the above table should be filled out in the relevant Workbook.

Based on the above, it is recommended that you complete a project structure chart, similar to figure 3.1. This will clarify reporting lines from the outset.

### **Figure 3.1: Project Structure– example**



### 3.4.3 Procurement of External Services

If you require the assistance of external professionals for this or subsequent phases, you may need to start the procurement process now. For guidance on engaging consultants, **public sector** organisations should refer to Appendix 2 of the Department of Finance Guidelines for the Appraisal and Management of Capital Expenditure Proposals in the Public Sector.

One option is to consider contacting Participating Energy Suppliers (PES) to see if they can provide assistance for some activities, such as an EPC Assessment (see 2.4), or in identifying M&V requirements (see 2.5). PES are energy suppliers who have annual energy saving targets and their involvement in EPC projects could count towards meeting this target. The obligated energy suppliers are:

- Airtricity
- Arigna Fuels Ltd
- Bord Gais Energy
- Bord na Mona
- Calor Gas
- Electric Ireland
- Energia
- Galtee Fuel Ltd
- Stafford Fuels
- Vayu
- REIL [ConocoPhillips, Esso, Inver, Maxol, Valero, Tedcastles, Topaz, Flogas and Gazprom]

In order to meet EU guidelines all PES must demonstrate that their involvement is material to the project. As a result the Form<sup>13</sup> (available at the link below), when counter signed, will allow energy suppliers to claim the energy savings associated with the project towards their target.

The table below concerns the services to be provided by external professionals and should be filled out in the relevant workbook.

Procurement of services of external professionals	
<b>External professional requirements</b>	<i>Establish first what type of assistance will be required; how suitable candidates will be identified and procured; the scope of their work, and the budget.</i>

<sup>13</sup> EPC Sample Document: PES Form, also available from SEAI.

### 3.4.4 Information Flows & Reporting Systems

It is important to determine reporting requirements and the information needed to meet those. For this reason the following should be established:

- The information needs at various levels of the management structure.
- The format to be used for presenting this information. Standard forms are particularly useful.
- The frequency of the submission of reports.
- Who is responsible for supplying and for compiling the reports?

<b>Information Flows &amp; Reporting Systems</b>	
<b>Reports</b>	<i>Name and identify content of each report, note its frequency, who produces and who receives.</i>
<b>Meetings</b>	<i>Name and identify content of each meeting, note its frequency, who organises and who participates, who receives minutes.</i>

## 3.5 Detailed Appraisal

### 3.5.1 Scope of contract

At this point the scope of the EPC must be finalised. You must establish what elements are in and what are out. Consider facilities, utilities and building services. You may state any client requirements (see below), but it is suggested you avoid proposing the technical solutions and measures, as this is generally for the ESCO to decide.

#### **Client requirements and boundaries**

Clients may have minimum requirements in terms of what works the ESCO will undertake. These essential works may be driven by practical needs, such as the replacement of plant at end of life, or other stipulations, such as a renewable energy contribution. Often such requirements have a long payback associated with them, and this affects the overall payback of the project. You should at this point be sufficiently well informed on the cost-benefit of individual measures and the project as a whole to have an informed view on how to strike a balance between including non-essential requirements that may undermine the overall project viability and making sure that you can get the most value out of the contract.

As this may be the only opportunity to address any fundamental problems with your building for the duration of the contract, it is important that this be given careful consideration. We recommend careful thought be given to any specific client requirements.

As the client you may also have requirements in relation to the operation and maintenance of the equipment installed, or legal requirements, such as a particular energy saving target. These are elaborated on in section 4.3.4.

The client may also specify any boundaries that will limit the extent of savings. For instance, if there is likely to be a change of use in a particular area, this may be specifically excluded from the scope of the contract. Further work in assessing and quantifying risk and updating the project risk register should be carried out during this stage. Particular attention should be paid to what risks could be transferred to the ESCO, these should be quantified.

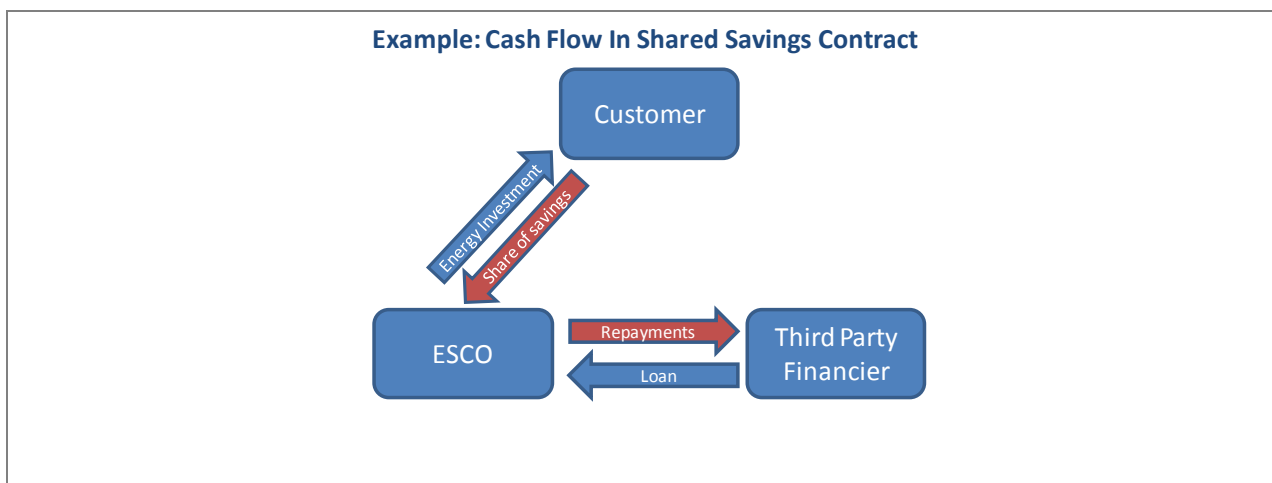
If you are using the EPC standard procurement procedure, client requirements (and boundaries) will be included in Schedule 1 of the ITPCD.

<b>Project physical scope and client requirements</b>	
<b>Physical scope of contract</b>	
<b>Client requirements</b>	<i>See comment above.</i>
<b>Client boundaries</b>	<i>See comment above.</i>

### 3.5.2 Contract Model

The expected EPC Contract model is outlined in Section 2.4.3. At this point it should be finalised.

<b>EPC Contract Model</b>
<i>Identify the various parties: client, owner/operator (if different from client), financier, ESCO. A Special Purpose Vehicle (SPV) owned by one or more parties may be used. Map out the cash and work/service flows between the various parties.</i>



### 3.5.3 Financial Analysis

In section 2.2.2 the project viability was assessed in basic terms: initial capital investment, annual savings and simple payback; all figures were estimates. Having gathered extensive baseline data, information on the facility, and changes to physical scope, an updated financial analysis (often referred to as a 'discounted cash flow' analysis) is required. This involves two steps:

- (i) Project financial analysis – discounted cash flow analysis using latest figures and a test discount rate
- (ii) EPC financial analysis from client perspective, ESCO perspective and financier perspective.

The EPC financial analysis effectively splits the project cash flows between the 3 participating parties and assesses the cash flows of each. It remains a budgetary estimate until tenders are received from the ESCOs and the cost of capital is known; this information will emerge during Stage 4 and can be used to update the financial analysis prior to final approval (and can be used to inform the final approval decision).

The client perspective is of most relevance and it is worth noting that in many cases the client may not make any initial investment, but still receives a share of the savings arising from the investment at some point during the life of the project. However, it is important to have an understanding of the other contract costs which will be borne by others in order to establish that your expectations are realistic and you are getting value for money in the form of a reasonable share of the savings.

EPCs have additional costs which should be considered in the financial analysis<sup>14</sup>, for example:

- Interest on the capital investment
- Performance guarantee (which reflects the technical performance risk borne by the ESCO)
- Inspection over the life of the contract
- Training over the life of the contract
- Client project management from the IGA to design and construction to on-going contract management
- Measurement and verification of savings.

It is estimated that the actual contract length can be expected to be greater than the simple payback period established by an energy audit.

Guidance on how to complete a discounted cash flow analysis is available in SEAI's "A Practical Guide to Preparing and Presenting Investment Proposals". Spreadsheet packages, such as MS Excel, can quickly calculate the net present value (NPV) and internal rate of return (IRR). Spreadsheet analyses should be created, see Stage 3 Workbook (A financial analysis tool is in the process of developing to assist organisations to complete this stage). The spreadsheets should be used to consider various scenarios and establish sensitivity to changes in key variables.

Some items to bear in mind:

<sup>14</sup> "Federal Buildings Initiative: Managing Energy Performance Contracts in Federal Buildings", Cowan Quality Buildings, 1994



- Consideration must be given to initial capital cost, operating and maintenance costs (possibly including periodic major service / overhauls), and disposal costs over the life of the equipment/system.
- Depreciation is an accounting transaction and not a cash flow, and should be excluded from the financial analysis
- Sunk costs: these are costs which have already been spent or committed and cannot be changed by the decision under consideration and should therefore be ignored. However, the quantum of sunk costs to date is a noteworthy point of information in terms of progress under the project to date and should be noted separately
- For large projects involving limited companies, it may be appropriate to analyse the impact on the profit and loss account and balance sheet
- Allowance should be made for increases in costs between the time of appraisal and final delivery
- For the **public sector** a test discount rate of 4% should be used initially; however, the CEEU<sup>15</sup> is producing a revised discount rate and should be contacted for a more appropriate rate.

Economic life and decommissioning costs) should be included. This is likely to be required for each item of plant installed. Typical economic life factors are available from the Chartered Institution of Building Services Engineers (CIBSE) guides (CIBSE Guide B (Table B18.2), Guide M – Appendix 13A1).

<b>Project Financial Analysis</b>			
<b>Existing annual utility</b>  Costs (€) and energy usage of the facility, or facilities, within the scope of this project. Electricity Gas Others (specify):  <b>TOTAL</b>	<i>Cost (ex. VAT)</i>	<i>Quantity</i>	<i>Units (kWh, litres etc.)</i>
Electricity Gas Others (specify):  <b>TOTAL</b>	<i>Euro (ex. VAT)</i>	<i>Quantity</i>	<i>Units (kWh, litres etc.)</i>
<b>Project capital budget</b>			
<b>Expected economic life of the project / specific investment measures</b>	<i>Whilst the project may have an overall average life of, for instance, 15 years a more accurate approach is to list the cash flows associated with each measure over the economic life of that measure. These cash flows should include decommissioning and disposal cost. This allows the benefits of long term measures, such as insulating a roof, to be accurately combined with shorter economic life measures such as lighting retrofits in a single overall cash flow model.</i>		
<b>Expected project net savings</b>	<i>Express in kWh and euro. Savings should be net of any maintenance costs. If varies from year to year, due to non-annual maintenance and some measures having a longer economic life than others, then provide for each year.</i>		
<b>Simple Project Payback (years)</b>			
<b>Expected Project Internal Rate of Return</b>	<i>Include here rate(s) of inflation used in calculations.</i>		

<b>EPC Financial Analysis</b>		
	<b>Client Perspective</b>	<b>ESCO Perspective</b>
<b>Capital budget</b>		

<sup>15</sup> <http://publicspendingcode.per.gov.ie/about-us/>

<b>Project Works</b>  <b>Overhead</b> Including project management, legal, M&V plan, etc.	<i>Refer to project financial analysis</i>	<i>Refer to project financial analysis</i>
<b>Expected project net savings</b>  <b>Project</b>  <b>Interest on capital</b>  <b>Overhead</b> Including performance guarantee, M&V, inspection and training, contract management, etc.	<i>Refer to project financial analysis</i>	<i>Refer to project financial analysis</i>
<b>Expected contract term</b>	<i>Will be 50-100% longer than simple payback calculated in the project financial analysis. Will be established iteratively by adjusting this and reviewing NPV / IRR calculations below.</i>	
<b>Internal Rate of Return</b>	<i>This is calculated over <u>project</u> life. Include here rate(s) of inflation used in calculations</i>	<i>This is calculated over the <u>contract</u> life. Include here rate(s) of inflation used in calculations.</i>
<b>Net Present Value</b>	<i>Include here rate(s) of inflation and discount rate used in calculations.</i>	<i>Include here rate(s) of inflation and discount rate used in calculations.</i>

### 3.5.4 Risk Evaluation for Allocation/Transfer to ESCO

It is recommended that project risks be formally evaluated and quantified at this point to assist with:

- project finance,
- project insurance and
- the transfer of appropriate risks to the ESCO,

Risk has a value or cost that will need to be understood when dealing with the items listed above at a minimum. The risk register is to be updated with the main findings, as illustrated in section 2.3). Sample Document: Risk Management Guide is provided with this Handbook.

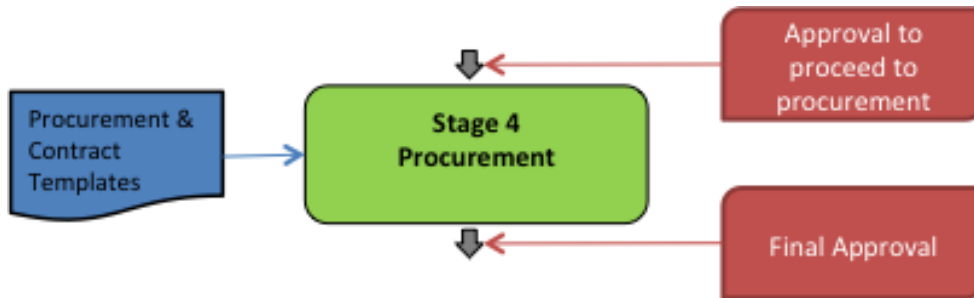
### **3.6 Stage Gate – Approval to Proceed to Procurement**

Stage 3 has been concerned with finalising the scope and contract model, as well as establishing the project and contract financial return. You may have already commenced pre-qualification (Stages 4.1 and 4.2) but most of the costs (including ESCO costs) will be incurred during the competitive dialogue (Stage 4.3) and tender (Stage 4.4). If substantial issues have emerged during this current stage, an alternative approach or abandoning the project altogether should be considered.

The required approvals set out in the Workbook will ensure you have formal support to proceed to procurement, i.e. to issue ITPCD.

**At this point, the Stage 3 Workbook should be submitted to SEAI who will conduct a Detailed Readiness Assessment to confirm if the project is ready to proceed to the next step**

## 4 Stage 4: Procurement

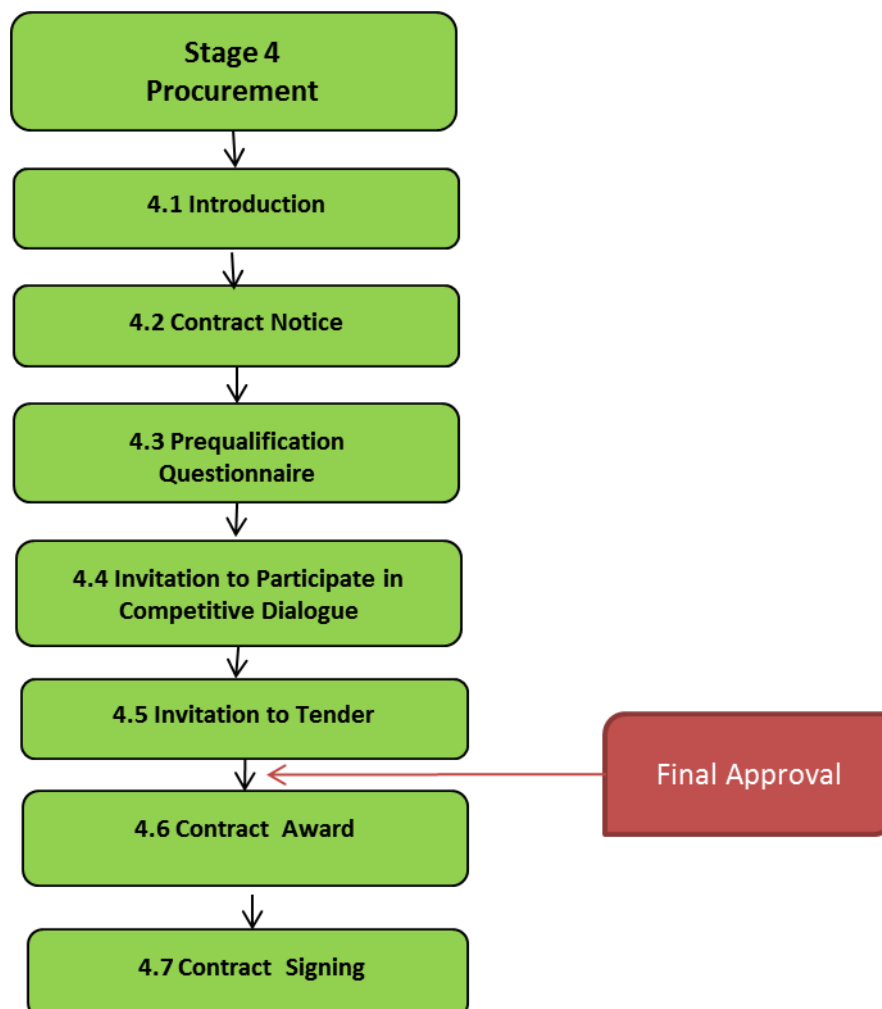


### 4.1 Introduction

#### 4.1.1 Structure of this Section

This stage is concerned with project procurement and is broken down into six parts, numbered 4.1 to 4.6. The EPC procurement guidance notes are numbered to match the relevant parts of Stage 4.

**Figure 4.1: Stage 4: Procurement**



The Workbook for Stage 4, comprises a final review of the bids and final approval sign off, together with 4 sample documents which should be completed, with the help of Guidance notes (sample document) on the contract. The suite of procurement documents includes:

- Pre-Qualification Questionnaire
- Invitation to Participate in Competitive Dialogue & Descriptive Document
- Sample Energy Performance Contract
- Invitation to Tender Document Template

#### **4.1.2 EPC Procurement – Guidance Notes**

Given the long-term and complex nature of Energy Performance Contracting a suite of tender documents has developed and drafted the guidance provided below to facilitate, in particular, public bodies interested in entering into contractual arrangements with ESCOs. Private sector organisations may also wish to use the tender documents as appropriate.

This guide identifies the preferred procurement procedure and details a step-by-step process for running the procurement for an EPC project. This section of the guide has been designed to facilitate a robust process that is fully compliant with EU procurement law and national legislation, can achieve results in as short a time-frame as possible, and minimises transactional costs for all parties involved.

Please note that the guidance should not be considered as a legal interpretation of the public procurement rules and is not intended to act as a substitute for legal advice. Public bodies are strongly encouraged to obtain legal advice before starting a tender competition for the procurement of an EPC contract.

#### **4.1.3 Recommended Procurement Procedure**

When a decision is made to commence a procurement process, one of the first tasks is to decide which procurement procedure to use. The Procurement Directive<sup>16</sup> ('the Directive') provides for four types of procedure: the open, restricted, negotiated and competitive dialogue.

A public body will be looking for an innovative solution(s) to reduce its energy consumption but may be unable to define the technical means capable of satisfying its needs. The open procedure would not seem appropriate for a procurement of this complexity, and the restricted procedure is not considered to provide sufficient flexibility. The negotiated procedure is for exceptional or urgent cases only and may not be justified or appropriate in the context of the procurement of an EPC contract. Therefore the competitive dialogue process is regarded as the most appropriate procedure and accordingly is the recommended procedure to be used for EPC procurement.

The competitive dialogue procedure – under which the client enters into a dialogue with tenderers as to the means best suited to satisfying its needs – is allowable for complex contracts.<sup>17</sup> The procedure specifically permits dialogue between the client and pre-qualified tenderers at an early stage of the process, with a view to refining the specification/tender documents. Following the dialogue phase, the client is free to amend its statement of requirements after, for example, new proposals are suggested by tenderers. **The procedure does not, however, permit the authority to enter into post-tender negotiations with the preferred tenderer.**

The procedure is initially conducted in a similar manner to the restricted procedure. This means that a Contract Notice is published on the e-tenders website and in the Official Journal of the European Union (OJEU), inviting expressions of interest and setting out the client's needs and requirements. These must then be defined in the notice, or in a separate document called the Descriptive Document, which may be issued either at the time of publication of the notice or after the shortlisting process.

The client is required to conduct the dialogue in accordance with the principle of equality of treatment and must give the same level of information to each tenderer. This necessarily involves a due diligence stage whereby the authority must give information to candidates regarding the operation of the potential contract. One of the benefits of this procedure is that it provides an opportunity for the client to learn about new developments in the market and new ways of doing things. It can, in effect, be an opportunity to secure some very beneficial time and advice from service providers. However, if not structured carefully and implemented in a disciplined fashion, the process can be time-consuming and costly for all parties involved. Accordingly, clients are strongly encouraged to engage in the pre-procurement / planning stage (described below) which will help all those

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<sup>16</sup> Directive 2004/18/EC

<sup>17</sup> Article 29 of the Directive 2004/18/EC

involved in the project (on the client side) to understand the objectives being pursued and the process to be followed to attain those objectives. In addition as a client you will be better able to anticipate the risks and challenges that may arise along the way.

#### **4.1.4 Pre-Procurement**

Good interaction between procurement / legal advisors and technical advisors is a key factor in delivering a successful outcome. The client must compile the relevant technical and financial information about the facilities the project will deal with. In this regard, all existing contractual obligations that may potentially affect the EPC contract should be disclosed to tenderers.

All tendering costs associated with EPC procurement are borne by the tenderers, even if a project does not ultimately proceed. As such it is important that the client engages appropriately with tenderers (during the competitive dialogue stage) in order that the necessary information is made accessible to them to assist tenderers in determining whether a particular contract is worth competing for.

## **4.2 Contract Notice**

The first stage in the procurement process is for the client to advertise the contract by setting out its requirements in a **Contract Notice** to be published in the OJEU and on the e-tenders website. Interested parties can submit an expression of interest in response to the notice.

## **4.3 Prequalification Questionnaire**

Ordinarily, the client will issue, in addition to the contract notice, a separate Pre-Qualification Questionnaire (PQQ) that sets out some further information on the project, explains the process (including the selection criteria to be applied at pre-qualification stage) and lists the information that pre-qualification candidates are asked to submit.

The Contract Notice and the PQQ document should include a high-level description of the project, and should outline any initial requirements that you may have (if any) for the project. For example, if you have formed a view of the possible nature of the project – such as replacement of windows, or upgrading or replacement of particular equipment – then it should indicate this in general terms at this stage. Clients should be mindful of not being overly prescriptive at this point in the procurement process as the subsequent dialogue phase may produce a range of solutions that the client had not originally considered. A client who is too prescriptive too early in the process risks being tied to a solution that may not ultimately be the best available.

Clients should be aware, however, that if they are under any statutory or other legal obligation to meet any particular energy efficiency or environmental targets they should communicate this to candidates in the PQQ if possible. These may have a bearing on the solutions that the tenderers can offer, so they need to be communicated at the earliest possible stage.

Sample Document: PQQ sets out some indicative selection criteria and corresponding weightings that may guide clients in deciding the basis upon which candidates are evaluated at this stage. Careful consideration should be given to these evaluation criteria, as further down the line, they will need to balance the requirement for tenderers to supply the full range of energy-saving services against more specialised tenderers who might provide innovative solutions (within a narrower field, e.g. system controls) not previously contemplated by the client will all need to be balanced. This could have implications after the dialogue process when clients decide on a particular solution or solutions which may only be offered by a limited number of tenderers.

### **4.3.1 Evaluation and Shortlisting**

On receipt of the expressions of interest, the next stage in the process is for the client to carry out a shortlisting exercise (using the PQQ), where candidates are shortlisted (a minimum of three) by applying the objective criteria indicated in the contract notice.

The criteria typically include the provider's technical experience, capacity and financial standing. Only those candidates that meet the client's selection criteria will be invited to proceed to the next stage in the process.

Debriefing unsuccessful candidates (at Pre-Qualification stage) and tenderers (at tender stage) is regarded as not only good procurement practice but is also specifically prescribed for under the Directive (as well as under the Remedies Directive<sup>18</sup> and in implementing Irish Remedies Regulations<sup>19</sup>). The specific requirements relating to the standstill period, its duration and the debriefing letters which must be sent to the unsuccessful tenderers as stipulated under this legislation, and as interpreted by the courts, are set out below under the stages where debriefing is required.

Those candidates who do not qualify for the next stage must be notified and the reasons for non-selection summaries and communicated<sup>20</sup>.

The Remedies Regulations provide that this information can be supplied by setting out

- (a) *the score obtained by the candidate concerned, and*
- (b) *the score achieved by the lowest-scoring candidate who was considered to meet the pre-qualification requirements, in respect of each criterion assessed by the contracting authorities.*<sup>21</sup>

However, case law has clarified that the reasoning as to why a candidate was not selected for shortlisting must be provided in a clear and unequivocal fashion.

See the following link to template letters adapted from the government procurement guidance, which may be used to debrief unsuccessful candidates:

<http://constructionprocurement.gov.ie/model-form-flowchart/>

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<sup>18</sup> Directive 2007/66/EC of the European Parliament and of the Council of 11 December 2007

<sup>19</sup> S.I. No. 130 of 2010 European Communities (Public Authorities' Contracts) (Review Procedures) Regulations 2010

<sup>20</sup> Regulation 6(2)(c)(i) of the Remedies Regulations

<sup>21</sup> Regulation 6(4) of the Remedies Regulations

## 4.4 Issue of Invitation to Participate in Competitive Dialogue

Once the shortlisting phase is complete, the client issues an Invitation to Participate in Competitive Dialogue (ITPCD) to the tenderers. The Sample Document is provided as part of the suite of EPC documents. The objective of the dialogue phase is to enable the organisation to identify and define the means best fitted to satisfy its needs.

The invitation to dialogue outlines for the tenderers:

- the needs and requirements of the client (technical, financial and any other);
- how the competitive dialogue process will be carried out, including information required to be submitted by tenderers, stages, timescales, etc. and
- the award criteria.

The Sample document: *Energy Performance Contract; Guidance Notes on Contract*.

### 4.4.1 Technical File and Baseline Data

Clients will also provide the tenderers with a Technical File and Baseline Data document at this point. This document (which exists in template form to facilitate completion) is prepared by the client at the beginning of the overall process.

The document is provided to the tenderers to facilitate and expedite the preparation of their Investment Grade Audit (IGA). This document will be divided into two parts which relate to 'verifiable' (i.e. facilities drawings) and 'non-verifiable' data. As the titles suggest, the tenderers can check the former and they will assume full responsibility for it; the latter comprises historical data (such as occupancy levels, operating procedures, etc.) that cannot be verified by the tenderers. The Client Information Schedule (Contract Schedule 6) will be extracted from technical File and Baseline Data.

### 4.4.2 Investment Grade Audit

At this stage, the tenderers will be required to prepare their IGA. Accordingly, they will need to attend the relevant site and have access to any technical and financial information as may be required to assist them in their preparation of an IGA. One practical consideration in relation to such site visits is that clients may consider it prudent to ask any tenderers who will attend such site visits to sign a non-disclosure agreement. It is intended here that the IGA will include, among other data outlined earlier in this document:

- Proposed Equipment, (as set out in ITPCD schedule 3).
- Existing Equipment, (as set out in ITPCD schedule 3).
- Energy bills
- Details of the proposed savings

For the purposes of the EPC documents and contract the IGA and the Technical File & Baseline Data will need to include all information required to produce the design proposal and each item below:

- Measurement & Verification Plan, (Contract Schedule 2).
- Proposed design drawings and specification, (Contract Schedule 8).
- Interim Period (Works) programme (.mpp gantt chart or similar), (Contract Schedule 4).
- Services (Guarantee Period) Proposal, (Contract Schedule 5).
- Guarantee & shared Savings threshold, (Contract schedule 1)
- Client Information schedule, (Contract Schedule 6)

The above will be submitted by the ESCO as part of their tender bid and each will form separate schedules attached to the contract.

### 4.4.4 Client Requirements

#### 4.4.4.1 Client Requirements 1 – General

The ITPCD will also include the initial client requirements, whereby you communicate to the tenderers any minimum requirements or specifications for the project. The client requirements may be a more developed



schedule of any general requirements that might have been included in the PQQ. For example, a client who is the occupier of an old building may have decided that all windows at its premises should be upgraded to double-glazing, and should stipulate this at this point.

However, clients should not be over-prescriptive at this stage as to do so run the risk of eliminating the tenderer who might specialise in other energy-saving measures unrelated to glazing or insulation. Also the dialogue phase is, likely, to see a number of solutions presented to the client that may not have contemplated.

Clients are not under any obligation to stipulate requirements to the tenderers. The client who wants energy savings to be achieved but does not have a preference for how this is done can simply give the tenderers *carte blanche* to offer any solution they wish. In that case the solution that offers the greatest energy savings will likely be successful.

If you are using the EPC standard procurement procedure, client requirements (and boundaries) should be included in Schedule 1 of the ITPCD.

#### **4.4.4.2 Client Requirements 2 – Legal**

If clients are under any statutory or other legal obligation to meet any particular energy efficiency or environmental targets they should clearly state these in the Client Requirements included with the ITPCD. If the client has not communicated any such requirements to the tenderers, they run the risk of receiving solutions that may not be compatible with their legal or statutory obligations.

#### **4.4.4.3 Client Requirements 3 – Operations and Maintenance**

Clients should also give careful consideration to the operations and maintenance (O&M) of the energy-saving equipment. Some clients may already have an O&M team on site which will continue to operate the existing equipment as well as the new equipment installed by the successful tenderer. If this is the case, then this must also be communicated to the tenderers at this point, as it will affect their bids. For example, a successful tenderer who does not have to operate and maintain the energy-saving equipment at a facility is less likely to have regard to the operating costs of the equipment it is installing. On the other hand, the successful tenderer who is assuming full responsibility for O&M may decide to install equipment with lower operating costs if it is bearing those costs itself.

Clients who will be retaining operational responsibility may want to consider asking tenderers to demonstrate the operating costs of the equipment they are proposing to install as part of the evaluation process. If the client is working within a tight budget they can advise the ESCOs that proposals involving lower operational costs will achieve higher marks.

#### **4.4.5 Award Criteria**

The ITPCD will also set out the indicative award criteria that will be applied at the final tender evaluation stage. The quantitative award criteria are based on the payment mechanism in the draft Energy Performance Contract which is attached to the ITPCD. The tenderers will be asked to bid: (1) the guaranteed minimum level of savings that they will achieve (the benefit of which will accrue to the client in the form of a reduced energy bill € v kWh) and (2) the shared energy savings threshold of energy savings above which the parties will share the benefits of the energy savings in a ratio determined by/agreed with the client.

Tenderers will receive higher marks for the greater level of guaranteed savings they bid and higher marks for the lower level of shared savings threshold they bid; that is, the lower the shared savings threshold; the earlier the parties share the benefit of excess savings.

Other elements requiring consideration are the residual value of the equipment installed by the ESCO and/or value of post-contract savings and their evaluation. In most cases the lifecycle of equipment being installed by the ESCO will not mirror the duration of the contract and clients will not want to have to replace that equipment soon after the end of the contract. The indicative quantitative criteria contained in the template ITPCD and ITT provide for residual value of post-contract savings as an award criterion, but clients may wish to expand on this and/or increase its weighting as appropriate.

This point is also related to the criterion associated with the quality of equipment the ESCO is proposing to install. Clients should be mindful that, in asking tenderers to demonstrate the quality of the equipment they are proposing to install, they should also ask for details of any associated client costs (be they financial or temporal) in maintaining and/or operating such equipment.

In certain projects allowance may have to be made in the award criteria for the additional cost of changes to existing plant that the ESCO may make in its tender. This may, for example, be to award more marks for retention of certain elements of Existing Equipment. If this is not considered then the actual cost of one tenderer's proposal may be considerably higher (in terms of additional costs to the client not included in the tender sum) than that of its competitors.

In all cases where particular requirements are stipulated these should be reflected in the qualitative criteria being set out.

The award criteria set out in the ITPCD can be developed in the final tender stage; for example, sub-criteria or sub-weightings can be applied in the award criteria set out in the ITT. For example, if a client decides it wants a CHP unit to be installed as part of the project then consideration should be given to including marginal unit prices for CHP as a quantitative award sub-criterion to evaluate tenders. CHP may also have carbon advantages that may not apply to other technologies and clients may also wish to factor these into the award criteria if a decision has been made to prescribe CHP as the chosen solution.

#### **4.4.6 Dialogue Phase**

The client is required to conduct the dialogue in accordance with the principle of equality of treatment, and must give the same level of information to each tenderer. It is also important that confidential information revealed to the client as part of the dialogue is not communicated to other tenderers without prior agreement. However, beyond these basic principles, there are no particular rules regarding exactly how the dialogue is to be conducted.

The Directive permits the dialogue to be conducted in a number of different stages, so as to enable the client to reduce the number of solutions and eliminate tenderers during the dialogue phase; this must, however, be signalled in the contract notice, and it must be based on the application of the award criteria to written submissions from tenderers.

The ITPCD document should clearly specify the issues the client wishes to focus on during the dialogue, as well as the procedures for the dialogue (e.g. whether it requires written documents addressing those issues in advance of meetings, etc.).

The Draft Contract should be issued with the ITPCD so that, if tenderers have any issues with the terms and conditions, these issues can be discussed during the dialogue meetings.

The dialogue continues until the client can identify the solution(s) meeting its needs. There are no minimum legal time periods for the dialogue phase of the process. The only legal requirement is that the periods allowed are reasonable to permit responsive tendering.

### **4.5 Conclusion and Issuing of Invitation to Tender**

At the end of the dialogue, the client organisation must formally conclude the dialogue and invite tenderers to submit final tenders on the basis of the solution(s) presented and specified during the dialogue. The client then issues the Invitation to Tender (ITT) (which contains the final statement of Client Requirements and award criteria) the finalised contract and specifies the deadline for receipt of tenders. The client must take care to ensure that all existing legal obligations that may affect the EPC contract are fully disclosed.

The final client requirements contained in the ITT will have been refined and developed from those initially set out in the ITPCD during the dialogue phase. If the client did not set out any requirements (or was minimal in its requirements), it may decide to introduce new minimum requirements at this point, arising from the solutions presented during the dialogue phase.

For example, a tenderer may have proposed a solution (or a part thereof) that is particularly appealing to the client and which it may wish to include as a minimum requirement. This could have the effect of eliminating other tenderers who are proposing very different solutions or may not have the capacity to satisfy the particular requirement the client is stipulating, but it is open to the client to proceed in this manner. Clients should, however, be reminded again of the risks of being overly prescriptive and the effect it may have on the bids it receives or how it may eliminate some tenderers altogether.

It should be emphasised that, once the dialogue is closed, the procedure reverts back to something closer to the restricted procedure. Tenders are evaluated under the award criteria in the normal way. Tenders received may be clarified or supplemented, but changes cannot be made to the tender or call for tender that would distort competition between tenderers or have a discriminatory effect.

Each award criterion (and any sub-criteria to be applied) should be weighted in the ITT.<sup>22</sup> EU law requires a very high level of transparency in relation to the award criteria to be used. The criteria – which should be capable of objective verification – should be communicated in such a manner that all reasonably diligent tenderers will interpret them in the same way.

#### **4.5.1 Tender Evaluation**

The tenderers are required to submit a final bid in accordance with the ITT. Tender responses will then be evaluated on the basis of the published award criteria, see ITT for guidance. The evaluation will need to be carried out by a suitably competent evaluation team put in place at the beginning of the procurement process. The evaluation team should include the project manager and specialists in procurement, legal, finance and technical. It is important that those engaged in the evaluation process keep thorough and accurate records throughout, in the event of a challenge by an unsuccessful tenderer, these records will be required.

Clients should have defined, at ITT stage, how they plan to proceed if only one bid is submitted. Proceeding with the project may not be possible for some organisations; the tender may have to be repeated with issues identified in the tender documents resolved.

### **4.6 Stage Gate – Final Approval**

Final approval should include a final review of the bids and also the original and updated financial analyses conducted in Section 3.5. See Stage 4 Workbook for approval template.

#### **4.6.1 Public Sector Requirements**

Client organisations will require approval, from their relevant sanctioning authority to issue an OJEU notice and again prior to Award of Contract.

### **4.7 Contract Award**

The Procurement Directive obliges clients to adhere to a standstill period before they enter into the relevant contract with the preferred tenderer. The standstill period does not start to run until the unsuccessful tenderers have been provided with the reason for non-selection of their tenders, and the characteristics and relative advantages of the successful tenderer.

Recent case law clearly indicates that providing a breakdown of scores is not sufficient and that a detailed explanation of why the winning tenderer scored better under each criterion is necessary to meet the requirements prescribed under the Remedies Regulations.

Clients should note that, while they may offer a debrief meeting to unsuccessful tenderers for the purpose of providing feedback on the reasons why their response was not successful, they are not legally obliged to offer such meetings.

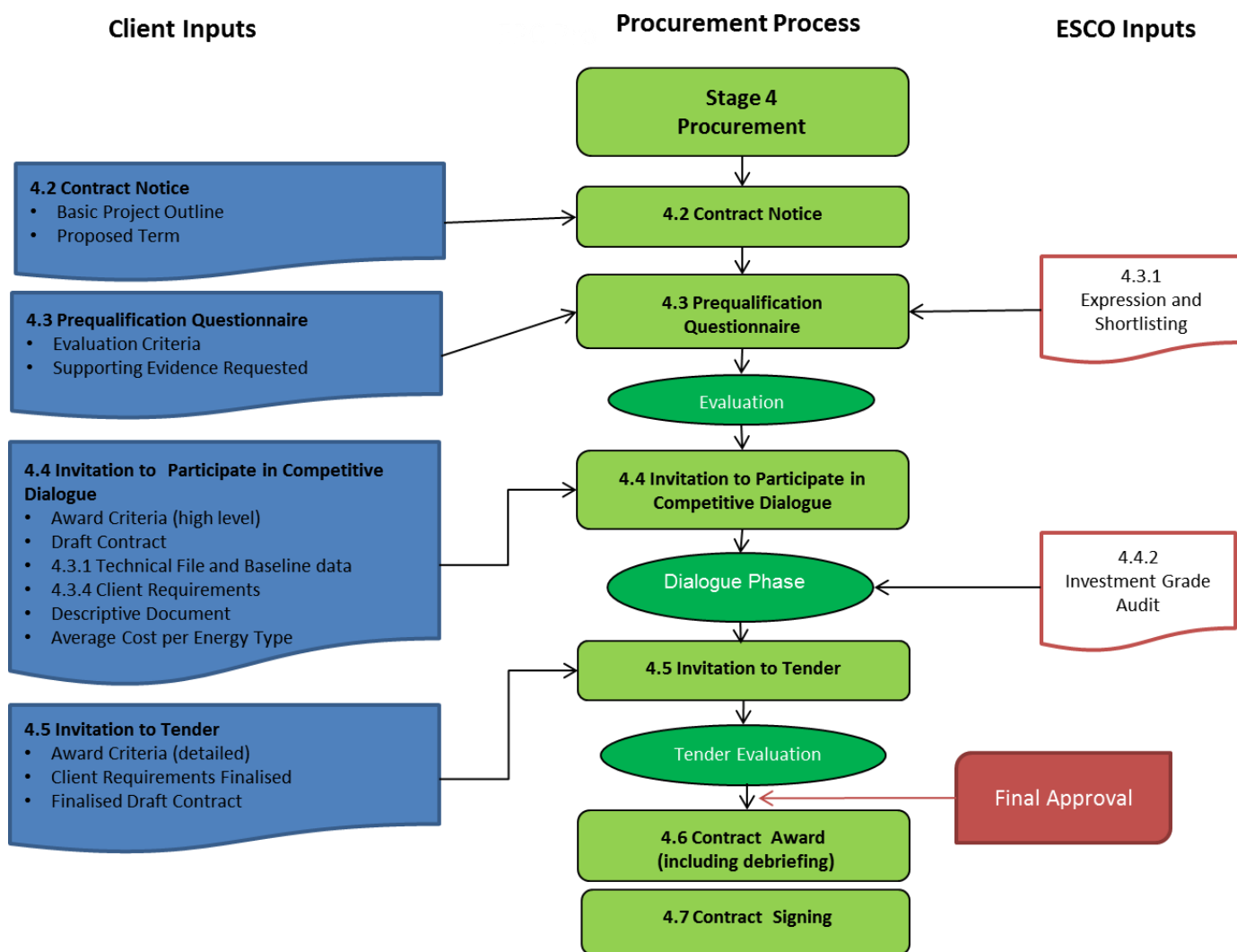
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<sup>22</sup> It is possible to state ranges of weightings in the initial Invitation to Dialogue document, to be finalised at the Invitation to Tender stage.

### 4.8 Contract Signing

Contracts should be signed by all relevant parties.

**Figure 4.2: Details of Project Development Process Stage 4: Procurement**



## 5 Stage 5: Contract Implementation

### 5.1 Introduction

This stage involves the interim (works) and guarantee period of the EPC. As with the rest of the Handbook, it takes the client perspective and what the client ought to be doing during this stage. Many items discussed here will be familiar to clients who are experienced with works traditional contracts, particularly design and build contracts, but we endeavour to bring additional value by including EPC-related considerations. Unlike previous stages, which were dominated by a client-seller relationship, this stage is governed by what was agreed in the contract.

The competitive dialogue process, will adequately deal with design development. However, the EPC process and contract recognises that the design may require the flexibility to be refined post contract award to reflect on site conditions... The client should be aware of the risk of scope creep affecting price and programme post contract award where design refinement is requested by the successful ESCO. As such the client is protected by the EPC contract in the following way:

- this design refinement work does not delay the construction Works
- there is no cost to the client for works associated with this design work (time resources etc.);
- that the design refinements are consistent with the tenders design, programme & price
- this refinement work, post contract award, is done at the ESCOs own risk.

The works phase is concerned with supervision and acceptance of the works, interim period savings, and culminates in the commencement of the contract. Simultaneously, systems need to be established so that energy data is monitored and analysed to quantify energy savings and associated payments calculated, all in accordance with the M&V plan. At this stage the ESCOs contract manager takes responsibility for managing the interim period works, and possibly, the guarantee period. The client project manager stays in place to manage the interface between client and ESCO until the contract expiry date.

The operational/services phase, or guarantee period, commences with establishing new operation and maintenance practices (which may be by the client, the ESCO or both), resolution of defects, the M&V of savings and making associated payments.

### Chart 5.2 Interim Period (Works)

#### 5.2.1 Client & ESCO Relationship

It is envisaged that the interim period (typically less than a year) will be relatively short and guarantee period will be the longer (typically a number of years). The client's project manager will be responsible for all interfaces between the ESCO and the client to ensure the contract is being complied with and that the client's requirements are being met. Communication will be directly between the ESCOs contract manager and the client's project manager to ensure effective communication and thus avoiding associated risks. The communication strategy should include at a minimum the client and ESCO RACI charts, the frequency of meetings, reporting, audits and details of payments and other commercial arrangements.

#### 5.2.2 Approvals

- Health and Safety:
  - Formally appoint ESCO as PSCS; complete HSA forms
  - Arrange any client-specific H&S site inductions for contractors
  - Monitor H&S practices to ensure they are in line with plan
  - Liaise with PSCS
  - Request if necessary, and approve method statements.
- Witness commissioning and review commissioning reports.
- Accept substantial completion of measures (measures may be handed over on a phased basis). Ensure all measures and snagging is completed.

- Accept M&V metering and recording system, with due consideration to meter accuracy, quality of installation and recording intervals.
- Record commencement date, which affects warranties and guarantee period. ESCO should provide a completion report for signature.
- Identify and formally notify ESCO of defects (snags).
- Accept as-built design documents.
- Accept O&M manuals.
- Accept (or otherwise) Interim period savings and associated payments, which should be based on M&V plan and the monitoring infrastructure installed.
- Accept a savings payment calculator, spreadsheet which quantifies energy savings and associated payments calculated, all in accordance with the M&V plan.

### **5.2.3 Client Project Manager**

- Attend regular meetings, review minutes and ensure client actions arising are addressed.
- Provide point of contact between ESCO, client and occupants; manage client communications; resolve issues.
- Monitor quality of works and ensure compliance with design.
- Monitor progress relative to plan.
- Coordinate any staff training provided by ESCO.
- Monitor and manage client risks, monitor regular risk updates submitted by the ESCO.

## **5.3 Guarantee Period (Services)**

The operational phase is referred to as the guarantee period in the contract. Although this phase formally begins on the commencement date, planning and preparation for this phase should commence earlier. The two key steps between the works and services are testing & commissioning and substantial completion & acceptance. The longstop date and snagging should be prior to the commencement date, except where agreed with the client. Defects directly affecting the savings and equipment are to be resolved during the testing and commissioning phase. Information regarding other snagging (i.e. making good) is to be included in the certificate of substantial completion issued by the ESCO to the client. The client should be aware of the affect outstanding snags may have on the use of the facility and how long they will take to complete.

The particular services being carried out by the ESCO are described in Schedule 5 and the energy savings are calculated from the commencement date for the defined length of the guarantee period. The ESCO may be providing full operational and maintenance services during this period, if not the ESCO will need to train the staff within 10 days of the substantial completion date.

### **5.3.2 Client Project Team**

- Review project team and structure requirement for the Interim and guarantee periods.
- Arrange any handover briefings if personnel change from project stage to project stage.
- The client project manager should be thoroughly familiar with the contract and review historical documentation (stage 3 in particular) to ensure there are no new developments or updates required.

### **5.1.3 Activities**

- Identify, document and embed any new operating practices.
- Identify, document and embed any new maintenance practices in accordance with contract (alternatively, the ESCO may conduct maintenance).
- Review and accept resolved defects.
- Occupant support and liaison.
- Ensure insurances and extended warranties are in place and maintained in accordance with contract.
- Approve M&V of savings at intervals defined by contract. Over time changes to the frequency of full M&V may be modified allowing, for example, annual reconciliation.
- On-going Project management, ESCO liaison, regular meetings.
- Approve ESCO payments with due account of guaranteed and shared savings.

- Handle any issues.
- Value engineering: negotiate any additional measures proposed by the ESCO in accordance with the contract. Any changes to comply with variations clause 23.

## 5.4 Post Contract

At the expiry date of the guarantee period the EPC ends and the client must put in place systems to operate and maintain equipment, and to monitor and sustain energy savings.

### Useful links

<http://ppp.gov.ie/key-documents/guidance/central-guidance>

<http://govacc.per.gov.ie/files/2011/05/RM-Guidance-for-WebSite.pdf>

<http://etenders.gov.ie/Media/Default/SiteContent/LegislationGuides/8.%20Capital%20Appraisal%20Guidelines.pdf>

## Glossary of Acronyms

DCENR: Department of Communications, Energy and Natural Resources

CEEU: Central Expenditure & Evaluation Unit

CIBSE: Chartered Institution of Building Services Engineers

CBA: Cost Benefit Analysis

CEA: Cost Effectiveness Analysis

EPC: Energy Performance Contracting

EPI: Energy Performance Indicator

EPRP: Energy Performance-Related Payments

ESCO: Energy Services Company

IGA: Investment Grade Audit

ITT: Invitation to Tender

ITPCD: Invitation to Participate in Competitive Dialogue

LESC: Local Energy Supply Contract

M&V: Measurement and Verification

NEAG: National ESCO Action Group

NEEAP: National Energy Efficiency Action Plan

NEEF: National Energy Efficiency Fund

NESF: National Energy Services Framework

O&M: Operations and Maintenance

OJEU: Official Journal of the European Union

PES: Participating Energy Suppliers

PDB: Project Development Brief

PSCS: Project Supervisor Construction Stage

PSDP: Project Supervisor Design Process

PQQ: Pre-Qualification Questionnaire

TA: Technical Assistance

SEAI: Sustainable Energy Authority of Ireland



## **Workbooks and Sample Documents**

### **Stage 1 and Stage 2 Workbook:**

**Sample Document: Preliminary Energy Audit Template**

**Sample Document: Risk Management Guide**

### **Stage 3 Workbook:**

**Sample Document: Technical File and Baseline Data**

**Sample Document: PES Form**

### **Stage 4 Workbook:**

**Sample Document: Pre-Qualification Questionnaire**

**Sample Document: Invitation to Participate in Competitive Dialogue & Descriptive Document**

**Sample Document: Sample Energy Performance Contract**

**Sample Document: Invitation to Tender Document Template**

**Sample Document: Guidance Notes on Contract**