

EPC Procurement Process

1. Preparation of tender documents

- Contracting party to prepare the tender documents

2. Announcement and invitation to participate

- Formulate announcement
- Formulate criteria for selecting suppliers to participate in tendering
- Publishing the announcement

3. Receiving applications for participation

- Opening applications
- Examination of applications
- Selection of suppliers to participate in tendering

4. Sending tender documents, receipt and examination of tenders

- Distribution of tender documents
- Opening of tenders
- Examination of tenders
- Selection of supplier

5. Notification of decision, 10 days grace-time and signing of agreements

- Publish notification to tenderers of decision reached concerning awarding of contract
- 10 days “grace-time” to elapse
- Signing Principle agreement and agreement for Phase 1
- After Phase 1 signing of agreements for Phases 2 and 3

Practical experiences from services rendered by EPC consultants to public entities and sessions on the implementation barriers encountered and measures available/needed in order to overcome such barriers

No	Employer's work	Description	EPC Consultant Services	Implementation barriers and possible solution
1. Initiation of project				
1:1	Engaging an EPC consultant			
1:2	Conclusions from the completed feasibility study and other investigations and collection of data		<i>Feasibility study</i>	Barriers: <i>Why EPC and not conventional method.</i> Solution: <i>Guaranteed savings</i>
1:3	Decide the financial parameters for a proposed project	<i>Maximum total cost of project Maximum contract amount to be paid to the ESCO Payback period Rate of interest Period for depreciation Inflation Expected increase in energy prices above inflation Present value calculation of savings Reduced costs for maintenance (repair and upkeep)</i>	<i>Advise reg. calculation parameters to be adopted</i>	
1:4	Decide the property portfolio to be considered in a proposed project		<i>Advice regarding property portfolio</i>	Barriers: <i>Clients would like to include all buildings with highly neglected maintenance.</i> Solution: <i>All neglected maintenance cannot be paid for by savings in energy.</i>
1:5	Decide strategies for two systems in a proposed project	<i>Computerized control and monitoring system System for collecting readings from energy meters</i>	<i>Advice on selection of systems</i>	Barriers: <i>Normally there is a mix of different systems and they are not compatible.</i> Solution: <i>Streamlining</i>

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1:6	Data collection for the property portfolio to be considered in a proposed project	<i>Energy Statistics, use of buildings / category, built up are, special requirements, energy audits already performed, indoor climate parameters, hours of operation</i>	<i>Guidance to the personal of the client in their collection work.</i>	Barriers: <i>Lack of staff to do the work. They are normally busy in their day to day work.</i> Solution: <i>The project work must be given priority. No outcome without input.</i>
1:7	Scope; what should a proposed project include	<i>Only energy-saving measures</i>	<i>Guidance to include what can be accommodated within the given financial parameters for the project</i>	Barriers: <i>Property directors hope to solve the problem of all neglected maintenance.</i> Solution: <i>All neglected maintenance cannot be paid for by savings in energy.</i>
		<i>Neglected maintenance</i>		
		<i>Modernization</i>		
		<i>Environmental aspects</i>		
1:8	Preliminary total project budget and financial analysis	<i>Total cost budget</i>	<i>Carry out calculations and simulations</i>	
	<i>Cost/benefit analysis</i>			
	<i>LCP (LCC)</i>			
1:9	Decision	<i>Consideration to go to next stage or not</i>	<i>Advice the decision makers</i>	Barriers: <i>Economists, directors and trustees have questions about the validity of the savings guarantee. Is it a real guarantee?</i> Solution: <i>Visit clients that have carried out EPC projects and study how effective the savings guarantee had proved to be.</i>

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2. Preparations				
2:1	Setting up project organization			
	Appoint project organization for Preparations and Phase 1	<p><i>Project Manager maintaining regular contacts with The ESCO and representing the Employer in project meetings</i></p> <p><i>Technical responsible person representing the Employer in design meetings and also participates in the project meetings</i></p> <p><i>Person responsible for energy statistics</i></p> <p><i>EPC consultant</i></p>	<i>Advice on the organizational set up</i>	<p>Barriers: <i>Some clients do not from the beginning understand the extent of work it takes to carry out an EPC project.</i></p> <p>Solution: <i>Visit clients that have carried out EPC projects and get information about their organization</i></p>
2:2	Procurement			
2:2:1	Prepare basis of tender	<p><i>Tender invitation</i></p> <p><i>Form of tender</i></p> <p><i>Calculation model for weighting of criteria for determining the most economically advantageous tender</i></p> <p><i>Calculation model for volumetric weighting of average contractor's fee</i></p> <p><i>Contract agreement forms:</i> <i>Principal agreement</i> <i>Agreement Phase 1</i> <i>Agreement phase 2</i> <i>Agreement phase 3</i></p> <p><i>Information regarding the competence- and creativity test</i></p> <p><i>Excel sheet showing list of buildings with energy statistics</i></p> <p><i>Previously conducted technical investigations</i></p> <p><i>Design manual, environmental plan and other Employer specific procurement documents</i></p> <p><i>Administrative instructions; Phase 1 and 2</i></p>	<i>Preparation of drafts of documents and explain to clients' technical-, procurement-, finance-, and property management-personnel.</i>	<p>Barriers: <i>No client has run an EPC project earlier. It takes time to understand the project design and the implications.</i></p> <p>Solution: <i>To allocate sufficient time for review of the documents.</i></p>

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		<i>Specifications for project development report from Phase 1</i> <i>Excel-sheet displaying the calculations of energy savings as a part of project development report</i> <i>Definition of major divergence of indoor climate and routines related to rectification of defects during the guarantee period</i> <i>Special directions; Phase 3</i> <i>Specification of contract work Phase 3</i> <i>Excel-sheet displaying the calculations of actual annual energy savings, annual statement</i>		
2:2:2	Tender advertisement		<i>Advice on formulation</i>	
2:2:3	Qualification; limitation of number of candidates to be invited to submit tender under the "restricted procedure"	<i>Examining the applications and selecting a minimum of five candidates to submit tenders</i>	<i>Advice on selection</i>	
2:2:4	Distribution of basis of tender	<i>Electronically or by post</i>	<i>Advice on organization</i>	
2:2:5	Organize the competence- and creativity test	<i>Visiting Schedule for candidates; absolute secrecy must be observed</i>		
		<i>Access to buildings included in the competence- and creativity test</i>		
		<i>Candidates to be accompanied during their visits to the buildings included in the competence- and creativity test</i>		

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2:2:6	Opening of tenders		<i>Participation and proceedings</i>	
2:2:7	Examination of tenders and award of contract		<i>Participation and proceedings</i>	Barriers: <i>Difficulties to follow Public Procurement Act (PPA).</i> Solution: <i>To have extensive knowledge about PPA and while needed get advice from expert lawyers on Public Procurement</i>
2:2:8	Execution of contracts	<i>Appoint legal representative</i>		
		<i>Principal agreement Agreement Phase 1</i>	<i>Drafting the agreements</i>	

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3. Phase 1 "Project development"				
3:1	Participate in meetings with the ESCO	<i>Project meetings, twice a month,</i>	<i>Take part in the meetings. Assist in analyzing work.</i>	Barriers: <i>Poor performance of ESCO's energy auditors. The energy efficiency measures are of substandard.</i> Solution: <i>Issue notification of defects to ESCO and demand rectification and improvement</i>
		<i>Technology meetings, twice a month,</i>		
		<i>Actively take part in and coordinate the planning of the Phase 1 works.</i>		
		<i>Analysis of preliminary energy efficiency measures proposals from ESCO</i>		
3:2	Minutes from the project- and technology meetings	<i>Check adjust and confirm the minutes from the project- and technology meetings</i>	<i>Assist in checking the formulations, as proposed by ESCO, of proceedings.</i>	Barriers: <i>Incorrect or contradictory formulations.</i> Solution: <i>Careful reading and demand adjustments.</i>

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3:3	The preliminary energy efficiency measures proposed by ESCO shall be established within the Employer's organization		<i>Presentations at information meetings</i>	
3:4	Check and countersign Site diary			
3:5	Give ESCO access to drawings and other documentation related to the existing buildings, for their project development works			
3:6	Give ESCO access to buildings	<i>Procedure to administer keys</i>		
		<i>List of contact persons at each building</i>		
3:7	Minimize disruption for persons working or otherwise stay or reside in the buildings	<i>Overview that the ESCO undertakes required measures.</i>		
3:8	Review the Project development report submitted by the ESCO	<i>Reviewing and commenting on the various documents in project report</i>	<i>Advice in review and analysis.</i>	
		<i>Reviewing baseline calculations</i>		
		<i>Reviewing calculations for energy savings</i>		
		<i>Reviewing description of the proposed energy saving measures</i>		
		<i>Price Analysis</i>		
		<i>Revision of total project budget</i>		
		<i>Decision about what buildings and energy saving measures should be included in the Phase 2 and Phase 3</i>		
	<i>Negotiation with ESCO</i>	<i>Lead negotiations with ESCO.</i>		
3:9	Execution of contracts	<i>Appoint legal representative</i>		
		<i>Agreement Phase 2</i>	<i>Drafting the agreements</i>	
		<i>Agreement Phase 3</i>		

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4. Phase 2 "Project implementation"				
4:1	Appoint project organization for Phase 2	<p><i>Project Manager maintaining regular contacts with the ESCO and representing the Employer in initial meeting, site meetings and economy meetings</i></p> <p><i>Technical responsible person representing the Employer in design meetings and also participating in the site meetings</i></p> <p><i>Person responsible for energy statistics</i></p> <p><i>Scrutiny team, with knowledge of the existing buildings and their installations as well as with expertise in civil works, ventilation, heating and sanitation, electricity, cooling and climate control and communication systems, to scrutinize the design documents prepared by the ESCO</i></p> <p><i>Group of Final Inspectors with skills for final inspection of civil-, ventilation-, heating-, sanitation-, electrical-, cooling- climate control-and communication works</i></p> <p><i>EPC-consultant</i></p>	Advice on the organizational set up	<p>Barriers: <i>The extent of client's work in Phase 2 is much greater than in phase 1.</i></p> <p>Solution: <i>Increase the set of persons</i></p>
4:2	Participate in meetings with the ESCO	<p><i>Siste meetings; fortnightly</i></p> <p><i>Design meetings; fortnightly</i></p> <p><i>Economy meetings; monthly</i></p> <p><i>Start meetings with persons working or otherwise stay or reside in the respective buildings</i></p>	Take part in the meetings	
4:3	Check adjust and confirm the minutes from the site-, design- and economy meetings		Assist in checking the minutes of the meetings	<p>Barriers: <i>Incorrect or contradictory formulations.</i></p> <p>Solution: <i>Careful reading and demand adjustments.</i></p>
4:4	Give ESCO access to data for			

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	designing works: drawings, specifications, manuals for operations and maintenance			
4:5	Give ESCO access to buildings	<i>Procedure to administer keys</i>		
		<i>List of contact persons at each building</i>		
4:6	Minimize disruption for persons working or otherwise stay or reside in the buildings	<i>Overview that the ESCO undertakes required measures.</i>		
4:7	Scrutinize the design documents prepared by the ESCO; civil works, ventilation-, heating and sanitation-, electrical-, cooling-, climate control and communication systems		<i>Assist in the checking of design documents</i>	Barriers: <i>Incorrect or substandard documents.</i> <i>Lack of time for checking</i> Solution: <i>Demand adjustments and improvements.</i>
	Checking that the agreed range of energy saving measures (contract works) are carried out		<i>Assist in checking</i>	
4:8	Time schedule for execution of contract works	<i>Verify that that agreed time schedule for execution of contract works is being followed</i>		Barriers: <i>Delay by ESCO</i> Solution: <i>Impose fine according to agreement.</i>

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4:9	Handle Alterations and Additions	<i>Establish within the Employer's organization; property managers and managers of operations and maintenance</i>	<i>Analyze what is included in the contract</i>	Barriers: <i>ESCO claiming additions for work included in the contract. The EPC contract is a performance contract. The ESCO is responsible for design work and execution so</i>
		<i>Verify impact on the energy savings</i>		
		<i>Financing of the additions</i>		

				<p>as to achieve the technical performance and the energy savings.</p> <p>Solution: Well formulated contract agreements. Tirelessly defending client's rights under the contract</p>
4:10	Invoice-verification for Contract works and Alterations and Additions	<p>Verification that the work specified in invoices has been completed.</p> <p>Verification of previously invoiced amounts</p> <p>Issuing certificate of payments</p>	Assist in Invoice-verification	<p>Barriers: ESCO claiming payments for works not yet carried out</p> <p>Solution: Visit the actual work spots to verify extent of work carried out</p>
4:11	Final Inspection of works	<p>Monitor compliance with the approved time schedule for inspections</p> <p>Participate in each inspection;</p> <ul style="list-style-type: none"> - Part-final inspections (on completion of each building) - Final inspection - Re-inspections (after rectification of defects as noted in the inspection reports from the Part-final inspections) - Guarantee inspection 	Assist in monitoring	<p>Barriers: ESCO protesting against noted defects in inspection report. Delay by ESCO in rectification of defects.</p> <p>Solution: Proper and detailed description of works in the agreement. Impose fine for delay according to agreement</p>
4:12	Verification that the impact on the energy savings, related to Alterations and Additions, has been correctly calculated and included in the Excel-sheet displaying the annual energy savings, to be achieved	<p>Verification with list of Alterations and Additions</p> <p>Verification of calculations</p>	Assist in verification	

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	During the Guarantee period (five years)			
4:13	Administer rectification of defects appearing during the Guarantee period. The ESCO is during the Guarantee period responsible for rectification of defects appearing in materials and goods, execution and performance / functioning.	<i>Receive reports from Technicians regarding defects</i> <i>Send notice of defect to the ESCO</i>		
		<i>Verify that rectification of defects have been correctly carried out and within stipulated time</i>	Assist in interpretation of the Agreement	Barriers: ESCO rejecting responsibility for the reported defects. Delay by ESCO in rectification of defects. Solution: Proper and detailed description of works in the agreement. Impose fine for delay according to agreement
		<i>Claim liquidated damages in case of delay in rectification of defects</i>		
4:14	Guarantee inspection	<i>Letter convening the inspection</i>		
		<i>Carrying out the inspections in each building engaging the Group of Final Inspectors.</i>	Assist in interpretation of the Agreement	Barriers: ESCO protesting against noted defects in the guarantee inspection report. Delay by ESCO in rectification of defects. Solution: Proper and detailed description of works in the agreement. Impose fine for delay according to agreement
		<i>Re-checking that defects, as noted in the inspection report from the Guarantee inspection, have been rectified</i>		

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5. Phase 3 "Project Follow up"				
5:1	Appoint project organization for Phase 3	<i>Appoint legal representative</i>		
		<i>Project Manager maintaining regular contacts with the ESCO and representing the Employer in Contract Meetings; quarterly Meetings, and annual Meetings Technicians to perform supervision, care and service for the installations made by the ESCO during Phase 2. Technician specialized in energy optimization ("energy hunter") Person responsible for energy statistics</i>	<i>Advice on the organizational set up</i>	
		<i>EPC-consultant</i>		
5:2	Submit monthly energy meter readings to the ESCO, related to water, heating, cooling and electricity	<i>Collecting meter readings Reporting meter readings</i>		
5:3	Perform the supervision, care and service for the installations made by the ESCO during Phase 2 to the extent agreed in the contract			
5:4	Documentation of the performed supervision, care and service for the installations			
5:5	Report to ESCO such changes in buildings or use of buildings that have impact on the energy savings guaranteed by the ESCO		<i>Advice on reporting</i>	Barriers: <i>The client do not keep track on changes with a result that the follow up work becomes problematic.</i> Solution: <i>Develop a system to make it easy for the property managers to report.</i>
		<i>Use of building; line of business/type of activity</i>		
		<i>At what time the activities in building starts and ends</i>		
		<i>Operation hours of installations</i>		
		<i>Temperature</i>		
<i>Gross floor area</i>				

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		<i>Rebuilding</i>		
		<i>Sale of building</i>		
		<i>Demolition</i>		
		<i>Other changes</i>		
5:6	Review and analysis of monthly energy reports from ESCO	<i>Distribute to technicians, energy hunter and property managers</i>		
		<i>Analysis, action planning and carry out</i>		
5:7	Energy optimization	<i>Continuous process</i>		Barriers: <i>The client does give priority to this. If he did there will be still more savings.</i> Solution: <i>Create incentives for own staff.</i> <i>Employ energy hunters</i>
5:8	Participate in quarterly meetings with the ESCO	<i>Analysis and action plan based on monthly energy reports and follow-up of energy optimization activities</i>	<i>Participate in meetings</i>	
		<i>Follow-up on notices of defects and rectification of defects</i>		
		<i>Follow-up on recalculations of base line due to reported changes in buildings and changes in use of buildings</i>		
		<i>Contractual issues such as security, insurance, liquidated damages, etc.</i>		
		<i>Check adjust and confirm the minutes from the meetings</i>		

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5:9	Participate in annual Meetings with the ESCO	<i>Analysis of annual energy report submitted by the ESCO</i>	<i>Participate in meeting Check recalculations of baseline Check calculations on achieved energy saving for the year Assist in checking and adjusting the minutes from the meetings</i>	Barriers: <i>Mistakes in the calculations submitted by the ESCO</i> Solution: <i>Total checking and verification by using the Excel-sheet.</i>
		<i>Follow-up on notices of defects and rectification of defects</i>		
		<i>Follow-up on recalculations of base line due to reported changes in buildings and changes in use of buildings</i>		
		<i>Analysis of calculations for bonus/liquidated damages, as a result of achieved energy saving for the year</i>		
		<i>Check adjust and confirm the minutes from the meetings</i>		
5:10	Invoicing and invoice verification for Contract works	<i>Bonus, alternatively claim for liquidated damages related to achieved energy saving for the year</i>	<i>Assist in calculations and issue payment certificates</i>	
		<i>Claim for liquidated damages related to late rectification of defect.</i>		
		<i>Payment of annual contract amount to the ESCO</i>		
		<i>Payment to ESCO for recalculations of base line due to reported changes in buildings and changes in use of buildings</i>		
5:11	Reporting to decision makers in the organization regarding achievements	<i>Results performed by the ESCO related to the contractual terms</i>	<i>Assist in drafting reports and participate in reporting meetings.</i>	
		<i>What would the cost of energy had been if the EPC project would not have been carried out</i>		