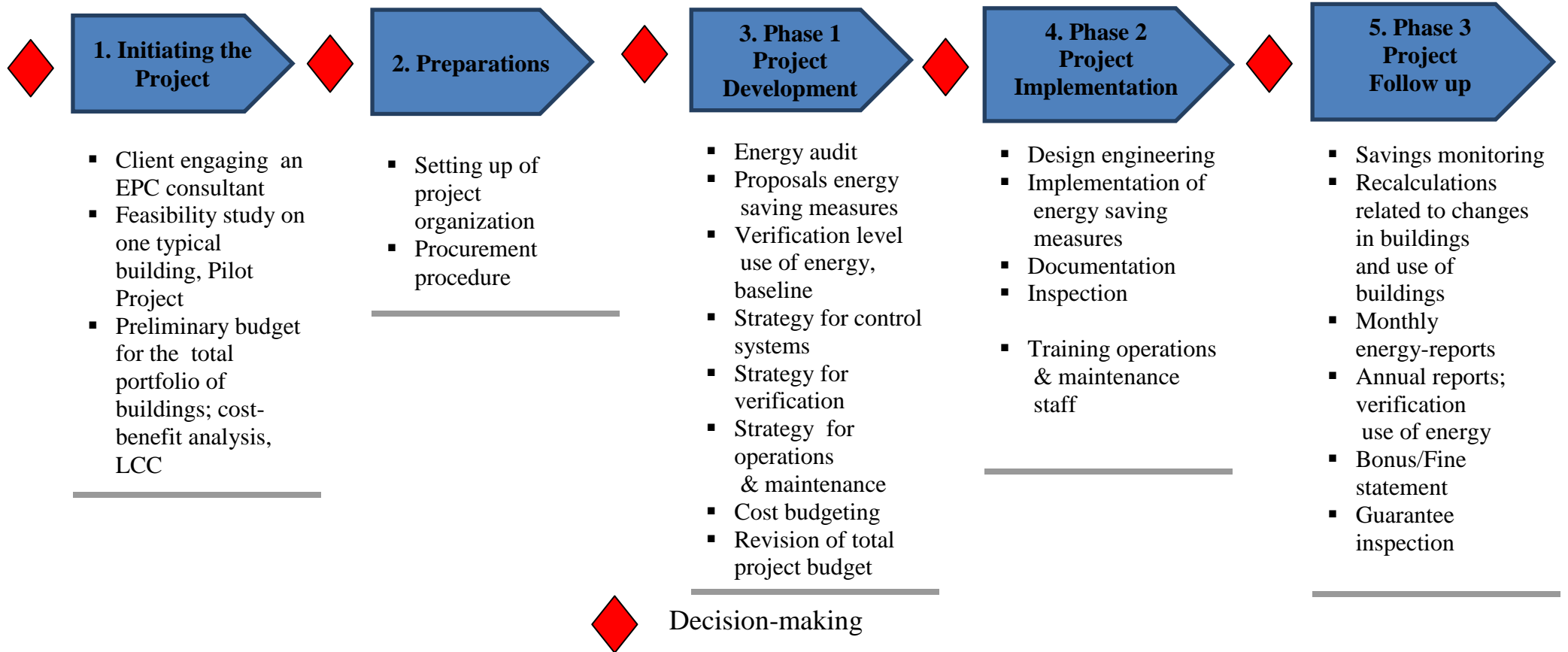


## 1.1. EPC Project Process Description



## 1.2. Time Schedule ``

(Example based on the Building area covered 30 000 m<sup>2</sup>)

Time Schedule	Duration in Months	Duration from start
1. Initiating the Project	2	2
2. Preparations	4	6
3. Phase 1 Project Development	5	11
4. Phase 2 Project Implementation	12	23
5. Phase 3 Project Follow Up	24	47
6. Guaranteed Inspection after five years	2	49

## 1.3. Summary of the Employer's work/input in an EPC project of a Public entity

No	Employer's work	Description
<b>1. Initiation of project</b>		
1:1	Engaging an EPC consultant	
1:2	Conclusions from the completed feasibility study and other investigations and collection of data	
1:3	Decide the financial parameters for a proposed project	<i>Maximum total cost of project</i> <i>Maximum contract amount to be paid to the ESCO</i> <i>Payback period</i> <i>Rate of interest</i> <i>Period for depreciation</i> <i>Inflation</i> <i>Expected increase in energy prices above inflation</i> <i>Present value calculation of savings</i> <i>Reduced costs for maintenance (repair and upkeep)</i>
1:4	Decide the property portfolio to be considered in a proposed project	
1:5	Decide strategies for two systems in a proposed project	<i>Computerized control and monitoring system</i> <i>System for collecting readings from energy meters</i>
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>
1:7	Scope; what should a proposed project include	<i>Only energy-saving measures</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>Cost/benefit analysis</i> <i>LCP (LCC)</i>
1:9	Decision	<i>Consideration to go to next stage or not</i>

No	Employer's work	Description
<b>2. Preparations</b>		
<b>2:1</b>	<b>Setting up project organization</b>	
	Appoint project organization for Preparations and Phase 1	<i>Project Manager maintaining regular contacts with The ESCO and representing the Employer in project meetings Technical responsible person representing the Employer in design meetings and also participates in the project meetings Person responsible for energy statistics EPC consultant</i>
<b>2:2</b>	<b>Procurement</b>	
2:2:1	Prepare basis of tender	<i>Tender invitation Form of tender Calculation model for weighting of criteria for determining the most economically advantageous tender Calculation model for volumetric weighting of average contractor's fee Contract agreement forms: Principal agreement Agreement Phase 1 Agreement phase 2 Agreement phase 3 Information regarding the competence- and creativity test Excel sheet showing list of buildings with energy statistics Previously conducted technical investigations Design manual, environmental plan and other Employer specific procurement documents Administrative instructions; Phase 1 and 2 Specifications for project development report from Phase 1 Excel-sheet displaying the calculations of energy savings as a part of project development report Definition of major divergence of indoor climate and routines related to rectification of defects during the guarantee period Special directions; Phase 3 Specification of contract work Phase 3 Excel-sheet displaying the calculations of actual annual energy savings, annual statement</i>

No	Employer's work	Description
2:2:2	Tender advertisement	
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>
2:2:4	Distribution of basis of tender	<i>Electronically or by post</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>
2:2:6	Opening of tenders	
2:2:7	Examination of tenders and award of contract	
2:2:8	Execution of contracts	<i>Appoint legal representative</i>
		<i>Principal agreement</i>
		<i>Agreement Phase 1</i>

No	Employer's work	Description
<b>3. Phase 1 “Project development”</b>		
3:1	Participate in meetings with the ESCO	<i>Project meetings, twice a month,</i> <i>Technology meetings, twice a month,</i> <i>Actively take part in and coordinates 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>
3:3	The preliminary energy efficiency measures proposed by ESCO shall be established within the Employer's organization	
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>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>
3:9	Execution of contracts	<i>Appoint legal representative</i> <i>Agreement Phase 2</i> <i>Agreement Phase 3</i>

No	Employer's work	Description
<b>4. Phase 2 "Project implementation"</b>		
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>
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>
4:3	Check adjust and confirm the minutes from the site-, design- and economy meetings	
4:4	Give ESCO access to data for designing works: drawings, specifications, manuals for operations and maintenance	
4:5	Give ESCO access to buildings	<p><i>Procedure to administer keys</i></p> <p><i>List of contact persons at each building</i></p>
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 Checking that the agreed range of energy saving measures (contract works) are carried out	

No	Employer's work	Description
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>
4:9	Handle Alterations and Additions	<i>Anchoring within the Employer's organization; property managers and managers of operations and maintenance</i>
		<i>Verify impact on the energy savings</i>
		<i>Financing of the additions</i>
4:10	Invoice-verification for Contract works and Alterations and Additions	<i>Verification that the work specified in invoices has been completed.</i>
		<i>Verification of previously invoiced amounts</i>
		<i>Issuing certificate of payments</i>
4:11	Final Inspection of works	<i>Monitor compliance with the approved time schedule for inspections</i>
		<i>Participate in each inspection;</i>
		<i>- Part-final inspections (on completion of each building)</i>
		<i>- Final inspection</i>
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	<i>Verification with list of Alterations and Additions</i>
		<i>Verification of calculations</i>
	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>
4:14	Guarantee inspection	<i>Claim liquidated damages in case of delay in rectification of defects</i>
		<i>Letter convening the inspection</i>
		<i>Carrying out the inspections in each building engaging the Group of Final Inspectors.</i>
		<i>Re-checking that defects, as noted in the inspection report from the Guarantee inspection, have been rectified</i>





ENERGY COOPERATION BETWEEN THE EU, THE LITTORAL STATES OF THE BLACK & CASPIAN SEAS AND THEIR NEIGHBOURING COUNTRIES



No	Employer's work	Description
<b>5. Phase 3 "Project Follow up"</b>		
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</i> <i>Technicians to perform supervision, care and service for the installations made by the ESCO during Phase 2.</i> <i>Technician specialized in energy optimization ("energy hunter")</i> <i>Person responsible for energy statistics</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</i> <i>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>Use of building; line of business/type of activity</i> <i>At what stroke the activities in building starts and ends</i> <i>Operation hours of installations</i> <i>Temperature</i> <i>Gross floor area</i> <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>

No	Employer's work	Description
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>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>
5:9	Participate in annual Meetings with the ESCO	<i>Analysis of annual energy report submitted by the ESCO</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>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>What would the cost of energy had been if the EPC project would not have been carried out</i>