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# PROJECT PRO-ENERGY

## D5.6.3 Joint preparation of Energy Performance Contracts

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### PRO-ENERGY

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## IDENTIFICATION SHEET

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# 1 Introduction

## 1.1 General Information - Main scope of the project

PRO-ENERGY is a transnational cooperation project, co-financed by the Cooperation Programme “Interreg V-B Balkan Mediterranean 2014-2020”, under Priority Axis 2, Specific Objective 2.2 Sustainable Territories. The project aims at promoting Energy Efficiency in public buildings in the Balkan Mediterranean territory and to create a practical framework of modelling and implementing energy investments interventions, through specific ICT monitoring and control systems, as well as **through Energy Performance Contracting (EPC)**. The specific objective of PRO-ENERGY is to reduce by more than 20% the energy spending in public buildings of the participating entities in one year after the implementation of pilot actions.

The PRO-ENERGY project was launched as a very ambitious intervention aimed at improving energy efficiency of public buildings (municipal/provincial/regional buildings, schools, universities, health centers, hospitals, museums, sports facilities etc.).

At the same time, the project is focused to create a practical framework of modelling & implementing energy investment interventions through specific ICT monitoring & control systems.

The project kicked off in February 2019 and is expected to last until July 2022. The project partners are:

- Region of Epirus - Regional Unit of Thesprotia - **Greece**
- Development Agency of Evia SA - **Greece**
- Cyprus Energy Agency - **Cyprus**
- Department of Electrical and Mechanical Services - Ministry of Transport, Communications and Works - **Cyprus**
- Regional Development Agency with Business Support Centre for Small and Medium-sized Enterprises - **Bulgaria**
- National Agency of Natural Resources - **Albania**

The common challenge of PRO-ENERGY is to improve energy efficiency of public buildings (municipal/provincial/regional buildings, schools, universities, health centres, hospitals, museums, sports facilities etc.). This is a common problem faced by the territories participating

in the project characterized by old facilities, outdated/degraded building façades, materials & equipment (insulation, electrical appliances, cooling/heating systems etc.), low energy consciousness & awareness, lack of skilled civil servants, etc. all leading to high energy consumption & CO2 emissions.

## 1.2 Energy Performance Contracts

The project will commonly promote energy performance contracting (EPC), which is a form of ‘creative financing’ that allows funding energy upgrades from cost reductions. In that sense, EPC arrangements shall be prepared between project partners & energy service companies (ESCOs) who will implement interventions (retrofits etc.) in the selected pilot public buildings to deliver energy efficiency & will use the stream of income from the cost savings to repay the costs of investments.

Energy Performance Contracts through open-tendering procedures to finance energy upgrades from cost reductions & contribute in this way to increased energy savings & increased energy efficiency.

This document will provide two models of Energy Performance Contracts (EPC):

- ❖ EPC of shared savings
- ❖ EPC of guaranteed savings

**Each partner will choose one of them, and based on their own relevant national policies framework, will draft their own EPC (PP3 & PP4 can either provide both models or jointly work on one model). Likewise, the following layout/template will be used as a base by the partners to create their respective Energy Performance Contracts.**

**Each partner will provide its EPC in its national language.**

## 2 Energy Performance Contract of shared savings

### 2.1 Basic definitions

For the purposes of this EPC the following definitions shall be applied:

**Energy Efficiency Contract** (hereinafter referred to as the **Contract**): This Contract signed between the Contracting Parties, with the aim of improving the energy efficiency and the achievement of energy savings and related economic benefits.

**Contractual Period**: The period of time from entry into force until termination of the Contract.

**Contractual Equipment**: The equipment installed or upgraded/modernised under the Contract.

**Contractual Facility**: The facilities (buildings and/or parts of buildings) of the Customer, where the Project is implemented.

**Measure to improve energy efficiency and energy saving energy** (hereinafter referred to as the **Measure**): The supply and installation of new equipment, the modernisation or replacement of existing equipment, as well as any work or service provided by the Energy Service Provider under the Contract for the purpose of increasing energy consumption in the Contractual Installation.

**List of Measures and Contractual Equipment**: Table including basic information on the Measures, new equipment as well as the upgraded or modernised equipment under the Contract.

**Implementation Programme**: The project implementation plan, including a detailed description of activities, resources and time schedules of each Measure.

**Project**: The set of Measures implemented under the Contract.

**Reference Period**: The period of time during which the energy consumptions considered representative by the Contracting Parties.

**Monitoring Period Energy Values**: Average unit energy values for the Monitoring Period, which are used for energy costing and the calculation of economic benefits from energy savings.

**Baseline Energy Consumption**: The energy consumption in the Contracting Facility during the Reference Period.

**Settlement:** The periodic process of technical and economic evaluation of the progress of the Project and specification of the economic reward of the Energy Service Provider.

**Preliminary Period:** The phase of supply, installation, upgrading and modernisation of equipment under the Contract.

**Operational Period:** The main part of the Contract Period, which follows the Preliminary Period.

**Start Date:** The date on which the Operating Period begins.

**Monitoring period:** Each period of time within the Contractual Period, after which the Actual Energy Monitoring Period is calculated, the Actual Energy Consumption, the Actual Economic Benefit and the Actual Economic Exchange.

**Projected Period Baseline of the Monitoring Period of the Energy Consumption:** The energy consumption at the Contractual Facility within the Monitoring Period, calculated with the scenario of the evolution of the Baseline Energy Consumption described in the Monitoring Plan and verification programme.

**Actual Energy Consumption of the Monitoring Period:** The energy consumption during the Monitoring Period, as a result of Monitorings and calculations, based on the Monitoring Programme and verification programme.

**Actual Energy Savings of Monitoring Period:** The reduction in energy consumption resulting from the implementation of the activities within the Monitoring Period. It is defined as the difference between the Actual Energy Consumption and the Projected Energy Consumption for this Period

**Actual Economic Benefit of the Monitoring Period:** The economic benefit resulting from the Actual Energy Savings for the Monitoring Period.

**Total Actual Energy Savings:** The total reduction of energy consumption as a result of the project.

**Total Real Economic Efficiency:** The total economic benefit as a result of the Total Actual Energy Savings.

**Economic Exchange Rate:** The percentage % applied to the Actual Economic Benefit to determine the Economic Return for a Monitoring Period.

**Economic Exchange:** The remuneration attributed to the Energy Service Provider for its services provided within a Monitoring Period, as derived from the Monitoring Period Report.

**Work Completion Report:** The report prepared by the Energy Service Provider upon completion of a task or group of tasks performed under the project.

**Supplemental Work Schedule:** The plan for performing the remedial actions required to ensure compliance with the work performance guarantees.

**Monitoring Period Report:** The report prepared by the Energy Service Provider at the end of each Monitoring Period and include the Monitorings and calculations made to determine the energy savings and the financial benefit thereof, as well as the financial settlement to determine the financial remuneration of the Energy Service Provider for the Monitoring Period.

## 2.2 Subject of the Contract

1. Under the Contract, the Energy Service Provider shall implement the Project that aims to save energy and improve the energy efficiency in the Contractual Facility. The financial exchange of the Energy Service Provider comes from the energy savings achieved through the implementation of the Project.
2. The Project will be implemented at the Contractual Facility, which is described in Annex I.
3. The Project will be implemented with the Provider's own means and resources. Energy Services Provider, who shall assume full responsibility for the financing of the project, with own and/or external funds, in accordance with the financing scheme described in Annex X.
4. The Project consists of all activities and services provided by the Energy Service Provider (Measures), concerning the supply and installation of new equipment, the upgrade and/or modernization of existing equipment, as well as activities and interventions aimed at improving the energy efficiency and energy saving in the Contractual Facility.
5. Prior to the signing of the Contract, the Energy Service Provider will prepare a Feasibility Study for the energy interventions (Annex II), on the basis of which the Parties formulated and finalised the List of Measures and Contractual Equipment (Annex VIII) and the Implementation Plan (Annex X).

## 2.3 Beginning and duration of the contract

1. The Contract shall enter into force on the date of signature by the Parties. This date shall be the date of entry into force of the Contract.
2. The termination date of the Contract shall be \_\_\_\_\_.
3. Contractual Period is the period of time from the Commencement Date to the Contract end date.

## 2.4 Preliminary period and monitoring periods

1. The Contract Period consists of the Preliminary Period and the Monitoring Periods.
2. The Preliminary Period is the phase of procurement, installation, upgrade and modernisation of equipment.
3. The Monitoring Period is the basic time unit for monitoring the execution of the Contract, starting on the Start Date. At the end of each Monitoring Period, the Energy Service Provider shall carry out the Monitorings and calculations provided for in order to determine the Actual Monitoring Period Energy Savings and the corresponding Actual Monitoring Period Economic Benefit (in accordance with the Monitoring and Verification Programme) and shall prepare the Monitoring Period Report.
4. The Preliminary Period and the Monitoring Periods are detailed in Annex V.

## 2.5 Reference period, basic energy consumption, energy prices

1. For the purposes of carrying out the calculations for determining the Actual Energy Savings and Actual Economic Benefits of the Monitoring Periods, the calendar year preceding the year of conclusion of the contract (Reference Period) shall be used as the base period.
2. The consumption of each energy product within the Reference Period (Baseline Energy Consumption) shall be the starting point for determining the Actual Energy Savings of each Reference Monitoring Period. Based on the development scenario described in the Monitoring and Verification Programme, the Projected Baseline Energy Consumption is determined for each Monitoring Period, per energy product, which is the basis for comparison with the Actual Energy Consumption of the Monitoring Period.
3. The Baseline Energy Consumptions for the Monitoring Periods are listed in Annex VI.
4. In order to cost energy and to convert energy benefits into economic benefits, the Parties agree to use energy prices for each Monitoring Period (Energy Prices Monitoring Period), which have been derived from the application of energy price evolution scenario.
5. For each Energy Product, the Monitoring Period Energy Price shall be deemed to be the average price of that Energy Product during the Monitoring Period.
6. The Energy Prices of the Monitoring Periods are reported in the Annex VII.

## 2.6 List of measures and contractual equipment

1. The Parties have established a List of Measures and Contractual Equipment, which lists all measures implemented by the Energy Service Provider and the equipment installed, upgraded or modernized under the Contract.
2. The List of Measures and Contractual Equipment includes a Table of Measures, a Table of New Equipment and a Table of Upgraded and Modernised Equipment and is set out in Appendix 9.
3. For the coding of Measures of a technological nature, the categorisation in Annex III is used, while for measures of an organisational and management nature the categorisation in Annex IV is used.

## 2.7 Economic exchange energy service provider

1. The Financial Exchange of the Energy Service Provider for the services provided under the Contract is agreed to be calculated as a percentage of the Actual Economic Benefit for each Monitoring Period.
2. The Parties, taking into account the Energy Service Provider's desired rate of amortization of its funds, have agreed to the benefit sharing model reflected in the table of Economic Exchange Rates for the Monitoring Periods.
3. The Energy Service Provider's Actual Economic Exchange shall be determined at the end of each Monitoring Period and summarized in a summary table in the Periodic Report Monitoring Period (Annex XIV).



## 2.8 Implementation Programme

### 2.8.1 Description

The project implementation plan, with a detailed description of activities, resources and time schedules is reflected in the Implementation Plan (Annex X).

### 2.8.2 Start of project implementation

The Energy Service Provider shall, within a period of \_\_\_\_\_ from the date of signing the Contract, initiate the execution of the Project on the basis of the Implementation Plan.

### 2.8.3 Supply and installation of the equipment

1. The Contractual Equipment will be installed by the Energy Services Provider at the Contractual Facility.
2. The method of financing the Contractual Equipment is described in Annex XI (Investment Cost and Project Financing).
3. All statutory permits and approvals required for the installation and operation of the Contractual Equipment shall be obtained in accordance with the statutory requirements. The Contractors shall co-operate in obtaining such permits and approvals and, where legally required, the Customer shall submit and process on its behalf the relevant applications and other documentation.
4. The cost of obtaining the required permits and approvals shall be done by the Energy Service Provider, unless otherwise agreed.
5. The Energy Service Provider shall provide the Customer with copies of all required permits and approvals for the equipment to be installed prior to commencing installation work.
6. The equipment to be installed shall meet all prescribed specifications and safety requirements.
7. The Energy Service Provider shall supervise all work and shall be responsible for the methods, techniques and procedures of construction. He shall also be responsible for payment of the cost of materials, equipment, labor, transportation and services necessary for the supply and installation of equipment.
8. For the performance of any work that affects the smooth operation of the operation of the installation, the Energy Service Provider shall secure from the Customer in writing the relevant permission to carry out work.

9. In the event that due to the execution of work construction/installation of equipment is caused to the Customer financial damage due to the disruption of the normal operation of the installation, this shall be settled in a manner agreed between the contracting parties following a negotiation process.
10. The Energy Service Provider shall ensure that there is sufficient space at the Customer's premises for the installation and operation of the equipment.
11. The Customer shall take all necessary measures to protect the Equipment from damage, theft and misuse. He shall allow the Energy Service Provider free access to his installation for work related to the Contract during working hours and at any other time requested by the Energy Service Provider and accepted by the Customer. It shall also allow the Energy Service Provider direct access to the Facility for the purpose of carrying out repair and restoration work, upon its written request in which it shall state in detail the the type of work to be carried out, the reason for it and the impact it will have on the have on the operation of the installation.

#### 2.8.4 Test operation and start-up

1. The Energy Service Provider shall conduct a full operational test in each item of equipment it installs, in accordance with the manufacturers' procedures and instructions, prior to approval and acceptance by the Customer. The purpose of the inspection is to ensure that the equipment is operating in accordance with its specifications and that the equipment is in accordance with the customer's specifications included in the Contract, and that any modifications or changes to systems or items of equipment have been made in such a way that the smooth operation of the installation is not disrupted.
2. The Energy Service Provider shall notify the Customer in writing of the scheduled inspections and tests it intends to carry out, and the Customer shall have the right to designate persons who may attend all inspections/tests carried out by the Energy Service Provider or the equipment manufacturers.
3. The Energy Service Provider shall be responsible for rectifying all deficiencies and addressing instances of faulty operation observed during the testing and start-up.

### 2.8.5 Legal compliance

The project must be implemented in accordance with the requirements of the applicable national legislation.

### 2.8.6 Quality control

The Energy Service Provider is responsible for the quality control of the Measures throughout the implementation period. The Energy Service Provider shall inspect and control each work performed to fulfil the requirements under the Contract.

### 2.8.7 Timetable

1. The Energy Service Provider shall perform the work of the Implementation Program in accordance with the schedule contained therein.
2. No modification of the Implementation Programme timetable shall be permitted, except in cases of extraordinary force majeure. Modification of the timeframe for implementation of the Measures in such cases is permitted by a supplemental agreement signed by the Parties and attached to the Agreement. In this case, the period of implementation of the Measures shall be extended no longer than that attributable to the extraordinary event/force majeure, as evidenced by an appropriate supporting document.

### 2.8.8 Access to the Contracting Facility

1. Facility for scheduling and performance of work, adjustments, inspection and monitoring of operation during business days and hours, provided that the normal operation of the Contractual Facility is not affected. Access may also be granted to outside working hours upon reasoned request of the Energy Service Provider.
2. The Customer may not prevent the Provider's access to the The Customer shall not be able to prevent the Energy Service Provider from accessing the Contractual Installation when prevent or respond to damage and other emergencies.

### 2.8.9 Equipment and materials used

1. The Energy Service Provider undertakes to ensure that the execution of the works and provision of services under the Contract is carried out with its own equipment and materials.

2. In carrying out the work and providing services, the Energy Service Provider shall use materials and equipment provided for in the Program of Measures and in accordance with the applicable technical regulations.
3. The Energy Service Provider may, with the written approval of the Customer, use similar materials and equipment that are equivalent or superior in technical characteristics to those provided for in the Program of Measures.
4. The materials and equipment used shall be labelled and accompanied by a technical file with all necessary information (technical characteristics, proposed operating/use conditions etc.). The Energy Service Provider shall provide copies of the above if requested by the Customer.
5. When carrying out the works, the Energy Service Provider shall comply with the technical instructions of the manufacturers/suppliers of materials and equipment and the installation, use and quality control procedures provided by them

#### 2.8.10 Prerequisite Measures

The Energy Service Provider may not initiate the implementation of Measures for which there are, according to the Implementation Programme, pre-requisite Measures that have not been completed, such as certified by the Completion Reports. Otherwise, the Energy Service Provider shall, at its own expense, undertake all necessary remedial actions in accordance with the Customer's requirements and instructions.

#### 2.8.11 Instructions - training

1. The Energy Service Provider shall provide the Customer with instructions for the operation and maintenance of the Contract Equipment and a complete list of spare parts for the Contract Equipment.
2. Within a period of \_\_\_\_\_ calendar days from the completion of the installation of each item of Contractual Equipment, the Energy Service Provider shall provide training to the Customer's designated personnel on the operation and maintenance of such equipment.

#### 2.8.12 Savings Guarantees and Insurance

1. The Energy Service Provider shall perform the work set out in the Implementation Programme by providing the quality guarantees described for each task in the Implementation Programme (saving guarantees).

2. The effective date of the Saving Guarantee shall be the date the parties sign the Work Completion Report.
3. Energy Service Providers shall put in place professional indemnity insurance and any other type of insurance agreed in the Contract.

### 2.8.13 Supplementary Works Programme

1. If during the period of the performance guarantee deficiencies or defects in the work performed or in the or installed Contractual Equipment, the Parties shall jointly prepare and sign a Supplemental Work Program (Annex XII).
2. The Schedule of Supplementary Works, once signed by the Parties, shall be attached to the Contract and shall constitute and shall become an integral part thereof.
3. The Supplemental Work Program shall include all necessary remedial actions required and the schedule for their execution.
4. The Energy Service Provider shall, at its own cost and means, implement the Supplemental Work Program. In this case, the period of validity of the saving guarantee shall be extended accordingly.

## 2.9 Monitoring and verification programme

1. The Parties have agreed that all procedures for measuring and calculating the energy and economic benefits from the implementation of the Project will be based on the Monitoring and Verification Programme (Annex XIII).
2. In preparing the Monitoring and Verification Program, various factors have been taken into account, including the type of energy saving measures, the projected energy savings and the resulting economic benefit, the degree of uncertainty about the savings, and the intended risk sharing between the Customer and the Provider.
3. The Monitoring and Verification Program shall be a reference point for the Parties in the preparation and review of the Reports Monitoring Periods.
4. The Monitoring and Verification Program shall specify the procedures and methodology for measuring and verifying each Measure. The Monitoring procedures and methodology are described in Annex XIII and are in accordance with the International Monitoring and Verification Protocol (International Performance Monitoring & Verification Protocol IPMVP).

## 2.10 Obligations and rights of the Parties

1. The Parties shall be liable for defective performance of the Contract in accordance with applicable law and the terms of the Contract.
2. In the event of a delay by the Customer in fulfilling the obligations to pay the Actual Financial Exchange, the Energy Service Provider shall be entitled to claim a penalty amounting to ..... % of the amount due for each day of delay.
3. The Customer is exempt from the clause if he proves that the inability to fulfil the obligations payment of the Actual Financial Exchange is due to reasons of force majeure or the fault of third parties.
4. The Energy Service Provider shall be liable to the Customer for The Contractor shall be liable to the Energy Provider for any deviations from the requirements of the Contract as well as for any violations of applicable legislation and technical regulations.
5. The Energy Service Provider is responsible for the quality of the Contractual Equipment, materials and work performed during the duration of the warranty period.
6. In the event of delay in the fulfilment of the Energy Service Provider's performance of the Energy Services provided for in the Contract, including delay in the performance of the Works and in the remedying of any identified defects and/or deficiencies, the Customer shall be entitled to claim compensation.
7. The payment of compensation or any other assumption of liability shall not relieve the Parties from the fulfilment of the obligations obligations under the Contract.
8. The Parties shall not be liable for partial or total failure to perform their obligations under the Contract in the event of force majeure.
9. The Energy Service Provider shall be liable for compensation against damages caused to third parties as a result of work under the Contract, unless it proves that such damages are due to the fault of third parties.
10. If during the performance of work it becomes apparent that it is not being carried out in a proper manner, the Customer shall be entitled to claim the Energy Service Provider to correct the deficiencies and defects and deficiencies, setting a reasonable period of time for this purpose, and, in the event that the Energy Service Provider fails to meet this requirement, to unilaterally terminate the Contract and claim compensation.

## 2.11 Maintenance and operation of equipment

1. The Energy Service Provider shall be responsible for the maintenance, repairs and adjustments of the Contractual Equipment in accordance with the terms and procedures of the manufacturers.
2. The costs for maintenance, repairs and adjustments to the Contractual Equipment shall be borne solely by the Energy Service Provider.
3. If the need for maintenance or repair of the Contractual Equipment arises due to negligence or willful misconduct, or mismanagement by the Customer, the relevant costs shall be borne by the Customer to the extent not covered by insurance or insurance coverage.
4. Service Provider or its authorised subcontractors for:
  - any malfunction of the Contractual Equipment that may adversely affect the guaranteed energy savings
  - any interruption or modification of the energy supply to the Customer's premises
  - any modification, replacement or change of operation of equipment affecting the execution of the Project
5. The Customer shall also immediately notify the Energy Service Provider of any emergency situation that comes to its attention that affects the equipment. In this case, the Energy Service Provider must respond immediately and arrange for all necessary corrective actions. Any verbal notification of the Energy Service Provider by the Customer must be accompanied by a corresponding written notice. At Customer's unjustifiable delay to notify the Energy Service Provider of a malfunction or emergency situation, the Energy Service Provider shall be entitled to claim compensation from the Customer for the damage suffered in relation to the guaranteed energy savings of the Contract due to such delay.
6. The Customer may not make any removal, modification, either remove, replace, move or change the mode of operation of the Contract Equipment without the prior written consent of the Energy Service Provider.
7. The Customer shall maintain the installation site of the Contractual Equipment in a safe and secure manner and shall ensure that there are no conditions that adversely affect its operation.

## 2.12 Modifications

The Agreement may be amended only by written and express agreement between the parties.

## 2.13 Termination of the contract

1. Termination of the Contract may be effected either by agreement of the Parties parties or by a court decision.
2. If the Contract is terminated by agreement of the Parties, this shall be done in writing, in a separate termination agreement.
3. Termination of the Contract by a court decision shall be made on the basis of civil law, law and the terms of the Contract
4. Grounds for termination of the Contract by decision of a court include in particular
  - a. breach of essential terms of the Contract
  - b. systematic delays in the execution of the project in relation to the timetable on the part of the Energy Service Provider, without any fault on the part of the Customer
  - c. failure to secure the necessary permits and approvals for the execution of the Project
  - d. systematic failure of the Energy Service Provider to comply with the systematic failure of the Energy Service Provider to comply with the specifications and quality requirements of the project
  - e. the liquidation or bankruptcy of one of the contracting parties

## 2.14 Final provisions

1. The Contract and the rights and obligations of the Contracting Parties shall be governed by and construed in accordance with the national law.
2. Notifications and communications from a Contracting Party to the other shall be sent in writing by post or by electronic mail or by facsimile transmission, the original of which shall follow.
3. The Contract consists of \_\_\_\_\_ pages, is drawn up and signed by the parties in \_\_\_\_\_ copies.



## 2.15 Annexes

### 2.15.1 Annex I - Description of the contractual installation

This Annex provides a detailed description of the Customer's premises and the characteristics of the buildings and/or parts of buildings which are the subject of the activities of the Contract.

## 2.15.2 Annex II - Feasibility Study

(carried out by the Energy Service Provider in order to determine the technical and economic potential for energy savings)

### **Data provided by the Customer**

- Historical energy consumption data and corresponding costs
- Description and drawings of installations
- Uses and operating conditions of installations
- Description of electromechanical equipment and type of energy consumed
- Operating hours
- Copies of energy supply contracts
- Copies of energy consumption bills
- Copies of maintenance contracts
- Other information that may be required

### **Content of feasibility study**

- Analysis of energy consumption and loads
- Inventory of energy consuming equipment/systems
  - o Electrical systems
  - o heating, cooling and air conditioning systems
  - o lighting systems
  - o electric motors
  - o boilers
  - o steam generators
  - o compressed air systems
  - o other
- Proposals for replacement measures and energy upgrading of existing equipment
- Proposals for organisational management measures to improve energy efficiency and energy saving

- Description of proposed Monitoring and verification procedures
- Identification of energy savings and economic benefits
- Costs financial analysis
- Proposed financing scheme
- Proposed method of determining the financial compensation and payment procedure
- Draft energy services contract
- List of permits required by legislation

## 2.15.3 Annex III - Categories of technological measures

(non-exhaustive list)

### TM.1 Boiler room.

- Boiler control systems
- Replacement of boilers with high efficiency boilers

### TM.2 Cooling installations.

- Improvements/replacement of refrigeration units
- Improvements/replacement of pumping systems, piping and control systems for refrigeration units

### TM.3 Building automation/energy management systems

- Upgrading of heating, cooling and air conditioning (HVAC) systems from pneumatic control systems to digital control systems
- Upgrading or replacement of building automation systems / Building automation systems
- energy management systems

### TM.4 Lighting

- Improvements and replacements of indoor and outdoor systems lighting
- Lighting control systems
- Motion sensors
- Use of natural lighting

### TM.5 Building shell

- Thermal insulation
- Weather protection
- Window replacement

### TM.6 Cold water, hot water and steam distribution systems

- Insulation of pipes
- Repair and replacement of water heaters
- Repair and replacement of steam traps
- Repair and replacement of existing return systems and installation of new condensate return systems

**TM.7 Electric motors and drive systems**

- Replacement of motors by high efficiency motors
- Variable speed motors and transmission systems

**TM.8 Decentralised electricity generation**

- Cogeneration units

**TM.9 Renewable energy systems**

- Photovoltaic systems
- Solar hot water systems
- Passive solar systems
- Biogas
- Geothermal heating and cooling pumps

**TM.10 Energy distribution systems**

- Transformers
- Capacitive compensation and power factor correction
- Natural gas distribution systems

**TM.11 Reduction of energy costs through**

- Switching to more favourable tariff time zones
- Search for a more economical energy supplier
- Energy tariff and meter control procedures

**TM.12 Energy interventions in the production process**

- Improvements in the production process
- Recovery of waste heat

**TM.13 Advanced metering systems**

## 2.15.4 Annex IV - Categories of organisational measures of an administrative nature

(non-restrictive list)

### **OM 1 Regulation of operating conditions**

### **OM.2 Monitoring of the operation of energy systems**

- Recording of energy use
- Energy data analysis
- Energy indicators

### **OM.3 Setting and monitoring of energy targets**

### **OM.4 Equipment maintenance**

- Periodic equipment maintenance programme
- Checking compliance with custodians' instructions
- Monitoring of failures

### **OM.5 Staff training**

- Operation and maintenance of equipment
- Implementation of energy management system
- Improvement of energy behaviour

## 2.15.5 Annex V - Preliminary period and monitoring periods

### PRELIMINARY PERIOD

Phase description	Start Date	End date

### MONITORING PERIODS

Number	Start Date	End date

### 2.15.6 Annex VI - Basic energy consumption of monitoring periods

(the Baseline Monitoring Period Energy Consumption is used as the basis for comparison with the Actual Monitoring Period Energy Consumption to determine the energy benefit)

Monitoring Period		Basic Energy Consumption (kWh)
Number	Time Period	
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....



### 2.15.7 Annex VII - Energy prices of monitoring periods

(The Monitoring Period Energy Values for the various forms of energy used for the cost and economic benefit calculations)

Monitoring Period		Energy Prices (euro/kWh)
Number	Time Period	
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....

## 2.15.8 Annex VIII - List of measures and contracting equipment

### MEASURES

Description	Start implementation date	Completion date	Budget cost

### NEW EQUIPMENT

Description	Point installation	Quantity	Technical characteristics	Budget supply cost and installation costs

### EQUIPMENT UPGRADED/MODERNISED

Description	Type of intervention	Technical characteristics	Budget cost upgrade and modernisation



## 2.15.10 Annex X - Implementation programme

(Project implementation plan with full breakdown by measure, activities and tasks)

Hierarchical structure: Measure > Activities > Tasks

### Measure

- Category
- Installation point
- Detailed description
- Date of commencement
- Date of completion
- List of activities
- Cost budget
- Expected energy and economic benefit
- Monitoring of implementation (progress reports, completion report)

### Activity

- Detailed description
- Resources required
- Start date
- Date of completion
- List of works
- Work programme
- Cost budget
- Monitoring of implementation (progress reports, completion report)

### Work

- Detailed description
- Technical specifications, standards
- Execution procedures
- Licensing, approvals
- Resources required
- Start date
- Date of completion
- Cost budget

- Implementation monitoring (progress reports, completion report)

## 2.15.11 Annex XI - Investment cost and financing of the project

## 2.15.12 Annex XII - Supplementary work programme

The Supplementary Work Programme is as follows:

Job description	Measure code	Start date	Date of completion	Budget (EUR)

## 2.15.13 Annex XIII - Monitoring and verification programme

### **1. Risk taking, obligations**

Summary of allocation of obligations and risk taking for the main elements of the Monitoring and Verification Programme (sharing matrix risk sharing).

### **2. Reporting Timeline**

	Submission time	Audit and verification time
Periodic Monitoring reports and verification		
Other Monitoring and verification reports calculations		

### **3. Format and content of reports and reports**

3.1 Periodic Monitoring and verification reports

3.2 Other Monitoring and calculation reports

### **4. Summary of methodology**

4.1 Summary description of the project, location/sites of the Contractual Facility and how the energy and cost savings were achieved.

4.2 Guidelines and options for Monitoring and verification procedures (A, B, C, D) from those provided by the International Performance Monitoring & Verification Protocol (IPMVP).

4.3 A summary description of the Monitoring and verification activities for each energy saving measure.

4.4 A summary description of the methods for calculating the savings for each energy saving measure.

### **5. Basic energy consumption**



5.1. Description of all parameters defining the Basic Energy Consumption. Include parameters such as weather conditions, operating hours, etc. A clear description of how each parameter is determined (Monitoring, monitoring, calculation, manufacturer's data, etc.).

5.2 Detailed reporting of the data used to determine the baseline energy consumption:

- Parameters monitored
- Details of the equipment monitored (location, type, model, etc.)
- Sampling and Monitoring schedule
- Monitoring and monitoring equipment (description, calibration procedures, errors)
- Data collection format
- Monitoring results

## **6. Methodology for calculating energy savings**

6.1 Detailed description of the methodology for data analysis prior to energy savings calculations.

6.2 Data sources and assumptions.

6.3 Types and technical details of energy savings calculations.

6.4 Adjustments and corrections to energy consumption reference levels

6.5 Values used to calculate cost savings and the procedure for their adjustment.

## **7. Operation and maintenance cost savings**

7.1 Description of how the operation and maintenance cost savings are achieved.

7.2 Description of the procedure for calculating the cost savings operation and maintenance cost savings.

## **8. Monitoring and verification procedures**

8.1 Description of the parameters affecting energy consumption. For each parameter, a description of how it is quantified (Monitoring, monitoring, assumptions, manufacturer's data, technical calculations, etc.)

8.2. A detailed report on the data collected

- Parameters monitored
- Details of the details of the equipment monitored (location, type, model, etc.)
- Sampling and Monitoring programme
- Measuring and monitoring equipment (description, procedures calibration procedures, errors)
- Data collection format
- Monitoring results

8.3. Description of the data analysis procedure

## 2.15.14 Annex XIV - Monitoring Period Report

### A. Analytical calculations and Monitoring results

.....  
 .....  
 .....

### B. Actual Energy Savings for the Monitoring Period

Monitoring Period		Energy Product	Basic Energy Consumption (kWh)	Basic Energy Consumption (kWh)	Real Energy Saving (kWh)
			(1)	(2)	(3)= (1)-(2)
Number	Time Period				
		Electricity			
		Natural gas			
		Oil			
		LPG			
		Thermal energy			
		Other energy			
		Total:			

**C. Real Economic Benefit of the Monitoring Period**

Monitoring Period		Energy Product	Actual economic benefit from energy savings (EUR)	Actual economic benefit from Maintenance cost savings and operation costs (EUR)	Total Actual Economic Benefit (EUR)
			(1)	(2)	(3)= (1)+(2)
Number	Time Period				
		Electricity			
		Natural gas			
		Oil			
		LPG			
		Thermal energy			
		Other energy			
		Total:			

**D. Summary table for the determination of Economic Exchange**

Monitoring Period		Economic Exchange Percentage (%)	Total Real Economic Benefit	Actual Economic Exchange (euro)
		(1)	(2)	(3)= (1)x(2)
Number	Time Period			

\* The Economic Exchange is determined by applying the Economic Exchange Percentage (%) multiplied by the Total Real Economic Benefit of the Monitoring Period (sharing benefit model).

## 3 Energy Performance Contract of guaranteed savings

### 3.1 Basic definitions

For the purposes of this type of EPC the following definitions shall be applied:

**Energy Efficiency Contract** (hereinafter referred to as the **Contract**): This Contract signed between the Contracting Parties, with the aim of improving the energy efficiency and the achievement of energy savings and related economic benefits.

**Contractual Period**: The period of time from start date until termination of the Contract.

**Contractual Equipment**: The equipment installed or upgraded/modernised under the Contract.

**Contractual Facility**: The facilities (buildings and/or parts of buildings) of the Customer, where the Project is implemented

**Measure to improve energy efficiency and energy saving energy saving** (hereinafter referred to as the **Measure**): The supply and installation of new equipment, the modernisation or replacement of existing equipment, as well as any work or service provided by the Energy Service Provider the under the Contract for the purpose of increasing energy consumption in the Contractual Installation.

**List of Measures and Contractual Equipment**: Table including basic information on the Measures, new equipment as well as the upgraded or modernised equipment under the Contract.

**Implementation Programme**: The project implementation plan, including a detailed description of activities, resources and time schedules of each Measure.

**Project**: The set of Measures implemented under the Contract.

**Total Guaranteed Energy Savings**: The reduction in energy consumption that the Energy Service Provider guarantees will occur as a result of the project.

**Total Guaranteed Economic Benefit**: The economic benefit that the Energy Service Provider guarantees will result from the project.

**Guaranteed Monitoring Period Energy Savings:** The reduction of energy consumption within the Monitoring Period guaranteed by the Energy Service Provider that will result from the implementation of the actions of the project.

**Guaranteed Economic Benefit Monitoring Period:** The economic benefit within the Monitoring Period guaranteed by the Provider that will result from the implementation of the actions of the project activities.

**Reference Period:** The period of time during which the energy consumptions considered representative by the Contracting Parties.

**Monitoring Period Energy Values:** Average unit energy values for the Monitoring Period, which are used for energy costing and the calculation of economic benefits from energy savings.

**Baseline Energy Consumption:** The energy consumption in the Contractual Facility during the Reference Period.

**Settlement:** The periodic process of technical and economic evaluation of the progress of the Project and determination of the economic reward of the Energy Service Provider.

**Monitoring period:** Each period of time within the Contractual Period Period, after which the Actual Energy Monitoring Period is calculated, the Actual Energy Consumption, the Actual Economic Benefit and the Actual Economic Exchange.

**Projected Period Baseline of the Monitoring Period of the Energy Consumption:** The energy consumption at the Contracting Facility within the Monitoring Period, calculated with the scenario of the evolution of the Baseline Energy Consumption described in the Monitoring Plan and verification programme.

**Actual Energy Consumption of the Monitoring Period:** The energy consumption during the Monitoring Period, as a result of Monitorings and calculations, based on the Monitoring Programme and verification programme.

**Actual Energy Savings of Monitoring Period:** The reduction in energy consumption resulting from the implementation of the activities within the Monitoring Period. It is defined as the difference between the Actual Energy Consumption and the Projected Energy Consumption for this Period

**Actual Economic Benefit of the Monitoring Period:** The economic benefit resulting from the Actual Energy Savings for the Monitoring Period

**Total Actual Energy Savings:** The total reduction of energy consumption as a result of the project.

**Total Real Economic Efficiency:** The total economic benefit as a result of the Total Actual Energy Savings.

**Contractual Financial Exchange:** The remuneration provided for in the Contract of the Energy Service Provider for the services provided within the Monitoring Period.

**Actual Financial Exchange:** The fee attributable to the Energy Service Provider for its services provided within a Monitoring Period, as reflected in the Monitoring Period Report.

**Work Completion Report:** The report prepared by the Energy Service Provider upon completion of a task or group of tasks performed under the project.

**Supplemental Work Schedule:** The plan for performing the remedial actions required to ensure compliance with the work saving guarantees.

**Monitoring Period Report:** The report prepared by the Energy Service Provider at the end of each Monitoring Period and include the Monitorings and calculations made to determine the energy savings and the financial benefit thereof, as well as the financial settlement to determine the financial remuneration of the Energy Service Provider for the Monitoring Period.

### 3.2 Subject of the Contract

1. Under the Contract, the Energy Service Provider shall implement the Project that aims to save energy and improve the energy efficiency in the Contractual Facility. The financial Exchange of the Energy Service Provider comes from the energy savings achieved through the implementation of the Project.
2. The Project will be implemented at the Contractual Facility, which is described in Annex 1.
3. The Customer undertakes the finance, with its own and/or external funds, of the Contractual Equipment.
4. The Project consists of all activities and services provided by the Energy Service Provider (Measures), concerning the supply and installation of new equipment, the upgrade and/or modernization of existing equipment, as well as activities and interventions aimed at improving the energy efficiency and energy saving in the Contractual Facility.
5. Prior to the signing of the Contract, the Energy Service Provider prepared a Feasibility Study for the energy interventions (Annex II), on the basis of which the Parties formulated and finalised the List of Measures and Contractual Equipment (Annex VIII) and the Implementation Plan (Annex IX).

### 3.3 Beginning and duration of the contract

1. The Contract shall enter into force on the date of signature by the Parties. This date shall be the date of entry into force of the Contract.
2. The termination date of the Contract shall be \_\_\_\_\_.
3. Contractual Period is the period of time from the Commencement Date to the Contract end date.
4. If the Total Guaranteed Economic Benefit is achieved in a period shorter than the Contract Period, the Contract shall be automatically terminated. The Parties may in this case agree to extend their cooperation, under the same or different financial terms, either by amending the Contract or by concluding a new energy performance contract.



### 3.4 Monitoring periods

1. The Contract Period consists of the Preliminary Period and the Monitoring Periods.
2. The Preliminary Period is the phase of procurement, installation, upgrade and modernisation of equipment.
3. The Monitoring Period is the basic time unit for monitoring the execution of the Contract, starting on the Start Date. At the end of each Monitoring Period, the Energy Service Provider shall carry out the Monitorings and calculations provided for in order to determine the Actual Monitoring Period Energy Savings and the corresponding Actual Monitoring Period Economic Benefit (in accordance with the Monitoring and Verification Programme) and shall prepare the Monitoring Period Report.
4. The Monitoring Periods are detailed in Annex V.

### 3.5 Reference period, basic energy consumption, energy prices

1. For the purposes of carrying out the calculations for determining the Actual Energy Savings and Actual Economic Benefits of the Monitoring Periods, the calendar year preceding the year of conclusion of the contract (Reference Period) shall be used as the base period.
2. The consumption of each energy product within the Reference Period (Baseline Energy Consumption) shall be the starting point for determining the Actual Energy Savings of each Reference Monitoring Period. Based on the development scenario described in the Monitoring and Verification Programme, the Projected Baseline Energy Consumption is determined for each Monitoring Period, per energy product, which is the basis for comparison with the Actual Energy Consumption of the Monitoring Period.
3. The Baseline Energy Consumptions for the Monitoring Periods are listed in Annex VI.
4. In order to cost energy and to convert energy benefits into economic benefits, the Parties agree to use energy prices for each Monitoring Period (Energy Prices Monitoring Period), which have been derived from the application of energy price evolution scenario.
5. For each Energy Product, the Monitoring Period Energy Price shall be deemed to be the average price of that Energy Product during the Monitoring Period.
6. The Energy Prices of the Monitoring Periods are reported in the Annex VII.

### 3.6 Guaranteed energy savings and guaranteed economic benefit

The Energy Service Provider shall provide the Customer with guarantees regarding the energy savings and the economic benefit from the implementation of the Project, as follows:

1. Total Guaranteed Energy Savings ..... kWh, broken down by energy product as follows:
  - electricity .....
  - natural gas .....
  - oil .....
  - LPG .....
  - thermal energy .....
  - other energy product
2. Total Guaranteed Economic Benefit .....
3. Guaranteed Energy Savings and Guaranteed Economic Benefits of Monitoring Periods, according to the tables in Annex X
4. The calculation of the Guaranteed Economic Benefit (overall and for each Monitoring Period) is based on the respective Guaranteed Energy Savings and Monitoring Period Energy Prices, including the economic benefit due to the reduction of the operation and maintenance costs in the Contractual Facility.

### 3.7 List of measures and contractual equipment

1. The Parties have established a List of Measures and Contractual Equipment, which lists all measures implemented by the Energy Service Provider and the equipment installed, upgraded or modernized under the Contract.
2. The List of Measures and Contractual Equipment includes a Table of Measures, a Table of New Equipment and a Table of Upgraded and Modernised Equipment and is set out in Appendix 9.
3. For the coding of Measures of a technological nature, the categorisation in Annex III is used, while for measures of an organisational and management nature the categorisation in Annex IV is used.

### 3.8 Economic exchange energy service provider

1. The Contractual Financial Compensation of the Energy Service Provider for the services provided under the Contract is agreed that the amount shall be \_\_\_\_\_ EUR for each Monitoring Period. This shall constitute the Actual Financial Exchange paid to the Energy Service Provider, subject to the provided that the Actual Economic Benefit for the Monitoring Period is not less than the Guaranteed Economic Benefit of the latter.
2. In the event that in any Monitoring Period the Actual Economic Benefit is less than the Guaranteed Economic Benefit, the Energy Service Provider's Actual Economic Exchange shall be derived from the Contractual Economic Exchange, with a reduction of the latter by the amount of the difference. If the Real Economic Value Added is negative, it shall be paid by the Energy Service Provider to the Customer as compensation. The Energy Service Provider's Actual Economic Exchange shall be determined at the end of each Monitoring Period and summarized in a summary table in the Periodic Report Monitoring Period (Annex XII).
3. The Actual Financial Exchange of the Energy Service Provider is determined at the end of each Monitoring Period and summarised in a summary table in the Periodic Report Monitoring Report (Annex XII).
4. In the event of automatic termination of the Contract due to the achievement of the total guaranteed economic benefit within a period of shorter than the Contract Period, the Customer shall pay to the Energy Service Provider the remaining difference of the total Contractual Financial Exchange.

## 3.9 Implementation Programme

### 3.9.1 Description

The project implementation plan, with a detailed description of activities, resources and time schedules is reflected in the Implementation Plan (Annex IX).

### 3.9.2 Start of project implementation

The Energy Service Provider shall, within a period of \_\_\_\_\_ from the date of signing the Contract, initiate the execution of the Project on the basis of the Implementation Plan.

### 3.9.3 Legal compliance

The project must be implemented in accordance with the requirements of the applicable national legislation.

### 3.9.4 Quality control

The Energy Service Provider is responsible for the quality control of the Measures throughout the implementation period. The Energy Service Provider shall inspect and control each work performed to fulfil the requirements under the Contract.

### 3.9.5 Timetable

1. The Energy Service Provider shall perform the work of the Implementation Program in accordance with the schedule contained therein.
2. No modification of the Implementation Programme timetable shall be permitted, except in cases of extraordinary force majeure. Modification of the timeframe for implementation of the Measures in such cases is permitted by a supplemental agreement signed by the Parties and attached to the Agreement. In this case, the period of implementation of the Measures shall be extended no longer than that attributable to the extraordinary event/force majeure, as evidenced by an appropriate supporting document.

### 3.9.6 Access to the Contracting Facility

1. Facility for scheduling and performance of work, adjustments, inspection and monitoring of operation during business days and hours, provided that the normal operation of the Contractual Facility is not affected. Access may also be granted to outside working hours upon reasoned request of the Energy Service Provider.

2. The Customer may not prevent the Provider's access to the The Customer shall not be able to prevent the Energy Service Provider from accessing the Contractual Installation when prevent or respond to damage and other emergencies.

### 3.9.7 Equipment and materials used

1. The Energy Service Provider undertakes to ensure that the execution of the works and provision of services under the Contract is carried out with its own equipment and materials.
2. In carrying out the work and providing services, the Energy Service Provider shall use materials and equipment provided for in the Program of Measures and in accordance with the applicable technical regulations.
3. The Energy Service Provider may, with the written approval of the Customer, use similar materials and equipment that are equivalent or superior in technical characteristics to those provided for in the Program of Measures.
4. The materials and equipment used shall be labelled and accompanied by a technical file with all necessary information (technical characteristics, proposed operating/use conditions etc.). The Energy Service Provider shall provide copies of the above if requested by the Customer.
5. When carrying out the works, the Energy Service Provider shall comply with the technical instructions of the manufacturers/suppliers of materials and equipment and the installation, use and quality control procedures provided by them

### 3.9.8 Prerequisite Measures

The Energy Service Provider may not initiate the implementation of Measures for which there are, according to the Implementation Programme, pre-requisite Measures that have not been completed, such as certified by the Completion Reports. Otherwise, the Energy Service Provider shall, at its own expense, undertake all necessary remedial actions in accordance with the Customer's requirements and instructions.

### 3.9.9 Instructions - training

1. The Energy Service Provider shall provide the Customer with instructions for the operation and maintenance of the Contract Equipment and a complete list of spare parts for the Contract Equipment.

2. Within a period of \_\_\_\_\_ calendar days from the completion of the installation of each item of Contractual Equipment, the Energy Service Provider shall provide training to the Customer's designated personnel on the operation and maintenance of such equipment.

### 3.9.10 Saving Guarantee and Insurance

1. The Energy Service Provider shall perform the work set out in the Implementation Programme by providing the quality guarantees described for each task in the Implementation Programme (saving guarantees).
2. The effective date of the Saving Guarantee shall be the date the parties sign the Work Completion Report.
3. Energy Service Providers shall put in place professional indemnity insurance and any other type of insurance agreed in the Contract.

### 3.9.11 Supplementary Works Programme

1. If during the period of the saving guarantee deficiencies or defects in the work performed or in the installed Contractual Equipment will arise, the Parties shall jointly prepare and sign a Supplemental Work Program.
2. The Schedule of Supplementary Works, once signed by the Parties, shall be attached to the Contract and shall constitute and shall become an integral part thereof.
3. The Supplemental Work Program shall include all necessary remedial actions required and the schedule for their execution.
4. The Energy Service Provider shall, at its own cost and means, implement the Supplemental Work Program. In this case, the period of validity of the saving guarantee shall be extended accordingly.

### 3.10 Monitoring and verification programme

1. The Parties have agreed that all procedures for measuring and calculating the energy and economic benefits from the implementation of the Project will be based on the Monitoring and Verification Programme (Annex XI).
2. In preparing the Monitoring and Verification Program, various factors have been taken into account, including the type of energy saving measures, the projected energy savings and the resulting economic benefit, the degree of uncertainty about the savings, and the intended risk sharing between the Customer and the Provider.
3. The Monitoring and Verification Program shall be a reference point for the Parties in the preparation and review of the Reports Monitoring Periods.
4. The Monitoring and Verification Program shall specify the procedures and methodology for measuring and verifying each Measure. The Monitoring procedures and methodology (Annex XI) are in accordance with the International Monitoring and Verification Protocol (International Performance Monitoring & Verification Protocol IPMVP).

### 3.11 Obligations and rights of the Parties

1. The Parties shall be liable for defective performance of the Contract in accordance with applicable law and the terms of the Contract.
2. In the event of a delay by the Customer in fulfilling the obligations to pay the Actual Financial Exchange, the Energy Service Provider shall be entitled to claim a penalty amounting to ..... % of the amount due for each day of delay.
3. The Customer is exempt from the clause if he proves that the inability to fulfil the obligations payment of the Actual Financial Exchange is due to reasons of force majeure or the fault of third parties.
4. The Energy Service Provider shall be liable to the Customer for The Contractor shall be liable to the Energy Provider for any deviations from the requirements of the Contract as well as for any violations of applicable legislation and technical regulations.
5. The Energy Service Provider is responsible for the quality of the Contractual Equipment, materials and work performed during the duration of the warranty period.

6. In the event of delay in the fulfilment of the Energy Service Provider's performance provided for in the Contract, including delay in the performance of the Works and in the remedying of any identified defects and/or deficiencies, the Customer shall be entitled to claim compensation.
7. The payment of compensation or any other assumption of liability shall not relieve the Parties from the fulfilment of the obligations under the Contract.
8. The Parties shall not be liable for partial or total failure to perform their obligations under the Contract in the event of force majeure.
9. The Energy Service Provider shall be liable for compensation against damages caused to third parties as a result of work under the Contract, unless it proves that such damages are due to the fault of third parties.
10. If during the performance of work, it becomes apparent that it is not being carried out in a proper manner, the Customer shall be entitled to claim the Energy Service Provider to correct the deficiencies and defects, setting a reasonable period of time for this purpose, and, in the event that the Energy Service Provider fails to meet this requirement, to unilaterally terminate the Contract and claim compensation.

### 3.12 Modifications

The Agreement may be amended only by written and express agreement between the parties.



### 3.13 Termination of the contract

1. Termination of the Contract may be affected either by agreement of the Parties or by a court decision.
2. If the Contract is terminated by agreement of the Parties, this shall be done in writing, in a separate termination agreement.
3. Termination of the Contract by a court decision shall be made on the basis of civil law, law and the terms of the Contract.
4. Grounds for termination of the Contract by decision of a court include in particular
  - a. breach of essential terms of the Contract
  - b. systematic delays in the execution of the project in relation to the timetable on the part of the Energy Service Provider, without any fault on the part of the Customer
  - c. failure to secure the necessary permits and approvals for the execution of the Project
  - d. systematic failure of the Energy Service Provider to comply with the systematic failure of the Energy Service Provider to comply with the specifications and quality requirements of the project
  - e. the liquidation or bankruptcy of one of the contracting parties

### 3.14 Final provisions

1. The Contract and the rights and obligations of the Contracting Parties shall be governed by and construed in accordance with the national law.
2. Notifications and communications from a Contracting Party to the other shall be sent in writing by post or by electronic mail or by facsimile transmission, the original of which shall follow.
3. The Contract consists of \_\_\_\_\_ pages, is drawn up and signed by the parties in \_\_\_\_\_ copies.

## 3.15 Annexes

### 3.15.1 Annex I - Description of the contractual installation

This Annex provides a detailed description of the Customer's premises and the characteristics of the buildings and/or parts of buildings which are the subject of the activities of the Contract.

### 3.15.2 Annex II - Feasibility Study

(carried out by the Energy Service Provider in order to determine the technical and economic potential for energy savings)

#### **Data provided by the Customer**

- Historical energy consumption data and corresponding costs
- Description and drawings of installations
- Uses and operating conditions of installations
- Description of electromechanical equipment and type of energy consumed energy consumed
- Operating hours
- Copies of energy supply contracts
- Copies of energy consumption bills
- Copies of maintenance contracts
- Other information that may be required

#### **Content of feasibility study**

- Analysis of energy consumption and loads
- Inventory of energy consuming equipment/systems
  - o Electrical systems
  - o heating, cooling and air conditioning systems
  - o lighting systems
  - o electric motors
  - o boilers
  - o steam generators
  - o compressed air systems
  - o other
- Proposals for replacement measures and energy upgrading of existing equipment
- Proposals for organisational management measures to improve energy efficiency and energy saving

- Description of proposed Monitoring and verification procedures
- Identification of energy savings and economic benefits
- Costs financial analysis
- Proposed financing scheme
- Proposed method of determining the financial compensation and payment procedure
- Draft energy services contract
- List of permits required by legislation

### 3.15.3 Annex III - Categories of technological measures

(non-exhaustive list)

#### **TM.1 Boiler room.**

- Boiler control systems
- Replacement of boilers with high efficiency boilers

#### **TM.2 Cooling installations.**

- Improvements/replacement of refrigeration units
- Improvements/replacement of pumping systems, piping and control systems for refrigeration units

#### **TM.3 Building automation/energy management systems**

- Upgrading of heating, cooling and air conditioning (HVAC) systems from pneumatic control systems to digital control systems
- Upgrading or replacement of building automation systems / Building automation systems
- energy management systems

#### **TM.4 Lighting**

- Improvements and replacements of indoor and outdoor systems lighting
- Lighting control systems
- Motion sensors
- Use of natural lighting

#### **TM.5 Building shell**

- Thermal insulation
- Weather protection
- Window replacement

#### **TM.6 Cold water, hot water and steam distribution systems**

- Insulation of pipes
- Repair and replacement of water heaters
- Repair and replacement of steam traps
- Repair and replacement of existing return systems and installation of new condensate return systems

#### **TM.7 Electric motors and drive systems**

- Replacement of motors by high efficiency motors

- Variable speed motors and transmission systems

**TM.8 Decentralised electricity generation**

- Cogeneration units

**TM.9 Renewable energy systems**

- Photovoltaic systems
- Solar hot water systems
- Passive solar systems
- Biogas
- Geothermal heating and cooling pumps

**TM.10 Energy distribution systems**

- Transformers
- Capacitive compensation and power factor correction
- Natural gas distribution systems

**TM.11 Reduction of energy costs through**

- Switching to more favourable tariff time zones
- Search for a more economical energy supplier
- Energy tariff and meter control procedures

**TM.12 Energy interventions in the production process**

- Improvements in the production process
- Recovery of waste heat

**TM.13 Advanced metering systems**

### 3.15.4 Annex IV - Categories of organisational measures of an administrative nature

(non-restrictive list)

#### **OM 1 Regulation of operating conditions**

#### **OM.2 Monitoring of the operation of energy systems**

- Recording of energy use
- Energy data analysis
- Energy indicators

#### **OM.3 Setting and monitoring of energy targets**

#### **OM.4 Equipment maintenance**

- Periodic equipment maintenance programme
- Checking compliance with custodians' instructions
- Monitoring of failures

#### **OM.5 Staff training**

- Operation and maintenance of equipment
- Implementation of energy management system
- Improvement of energy behaviour

3.15.5 Annex V - Monitoring periods

**MONITORING PERIODS**

Number	Start Date	End date



### 3.15.6 Annex VI - Basic energy consumption of monitoring periods

(the Baseline Monitoring Period Energy Consumption is used as the basis for comparison with the Actual Monitoring Period Energy Consumption to determine the energy benefit)

Monitoring Period		Basic Energy Consumption (kWh)
Number	Time Period	
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....

		<ul style="list-style-type: none"><li>- electricity .....</li><li>- natural gas .....</li><li>- oil .....</li><li>-LPG .....</li><li>- thermal energy .....</li><li>- other energy product .....</li></ul>
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### 3.15.7 Annex VII - Energy prices of monitoring periods

(The Monitoring Period Energy Values for the various forms of energy used for the cost and economic benefit calculations)

Monitoring Period		Energy Prices (euro/kWh)
Number	Time Period	
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....

		<ul style="list-style-type: none"><li>- electricity .....</li><li>- natural gas .....</li><li>- oil .....</li><li>-LPG .....</li><li>- thermal energy .....</li><li>- other energy product .....</li></ul>
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### 3.15.8 Annex VIII - List of measures and contracting equipment

#### MEASURES

Description	Start implementation date	Completion date	Budget cost

#### NEW EQUIPMENT

Description	Point installation	Quantity	Technical characteristics	Budget supply cost and installation costs

#### EQUIPMENT UPGRADED/MODERNISED

Description	Type of intervention	Technical characteristics	Budget cost upgrade and modernisation



### 3.15.9 Annex IX - Implementation programme

(Project implementation plan with full breakdown by measure, activities and tasks)

Hierarchical structure: Measure > Activities > Tasks

#### Measure

- Category
- Installation point
- Detailed description
- Date of commencement
- Date of completion
- List of activities
- Cost budget
- Expected energy and economic benefit
- Monitoring of implementation (progress reports, completion report)

#### Activity

- Detailed description
- Resources required
- Start date
- Date of completion
- List of works
- Work programme
- Cost budget
- Monitoring of implementation (progress reports, completion report)

#### Work

- Detailed description
- Technical specifications, standards
- Execution procedures
- Licensing, approvals
- Resources required
- Start date
- Date of completion

- Cost budget
- Implementation monitoring (progress reports, completion report)



3.15.10 Annex X - Guaranteed benefits of monitoring periods

1. Guaranteed energy savings of monitoring periods

Monitoring Period		Guaranteed energy savings (kWh)
Number	Time Period	
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....
		- electricity ..... - natural gas ..... - oil ..... -LPG ..... - thermal energy ..... - other energy product .....

		<ul style="list-style-type: none"> <li>- electricity .....</li> <li>- natural gas .....</li> <li>- oil .....</li> <li>-LPG .....</li> <li>- thermal energy .....</li> <li>- other energy product .....</li> </ul>
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**2. Guaranteed financial benefits of monitoring periods**

Monitoring Period		Guaranteed financial benefit (euro)
Number	Time Period	

### 3.15.11 Annex XI - Monitoring and verification programme

#### **1. Risk taking, obligations**

Summary of allocation of obligations and risk taking for the main elements of the Monitoring and Verification Programme (sharing matrix risk sharing).

#### **2. Reporting Timeline**

	Submission time	Audit and verification time
Periodic Monitoring reports and verification		
Other Monitoring and verification reports calculations		

#### **3. Format and content of reports and reports**

3.1 Periodic Monitoring and verification reports

3.2 Other Monitoring and calculation reports

#### **4. Summary of methodology**

4.1 Summary description of the project, location/sites of the Contractual Facility and how the energy and cost savings were achieved.

4.2 Guidelines and options for Monitoring and verification procedures (A, B, C, D) from those provided by the International Performance Monitoring & Verification Protocol (IPMVP).

4.3 A summary description of the Monitoring and verification activities for each energy saving measure.

4.4 A summary description of the methods for calculating the savings for each energy saving measure.

#### **5. Basic energy consumption**

5.1. Description of all parameters defining the Basic Energy Consumption. Include parameters such as weather conditions, operating hours, etc. A clear description of how each parameter is determined (Monitoring, monitoring, calculation, manufacturer's data, etc.).

5.2 Detailed reporting of the data used to determine the baseline energy consumption:

- Parameters monitored
- Details of the equipment monitored (location, type, model, etc.)
- Sampling and Monitoring schedule
- Monitoring and monitoring equipment (description, calibration procedures, errors)
- Data collection format
- Monitoring results

## **6. Methodology for calculating energy savings**

6.1 Detailed description of the methodology for data analysis prior to energy savings calculations.

6.2 Data sources and assumptions.

6.3 Types and technical details of energy savings calculations.

6.4 Adjustments and corrections to energy consumption reference levels

6.5 Values used to calculate cost savings and the procedure for their adjustment.

## **7. Operation and maintenance cost savings**

7.1 Description of how the operation and maintenance cost savings are achieved.

7.2 Description of the procedure for calculating the cost savings operation and maintenance cost savings.

## **8. Monitoring and verification procedures**

8.1 Description of the parameters affecting energy consumption. For each parameter, a description of how it is quantified (Monitoring, monitoring, assumptions, manufacturer's data, technical calculations, etc.)

8.2. a detailed report on the data collected

- Parameters monitored
- Details of the details of the equipment monitored (location, type, model, etc.)
- Sampling and Monitoring programme
- Measuring and monitoring equipment (description, procedures calibration procedures, errors)
- Data collection format
- Monitoring results

8.3. Description of the data analysis procedure

### 3.15.12 Annex XII - Monitoring Period Report

#### A. Analytical calculations and Monitoring results

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 .....  
 .....

#### B. Actual Energy Savings for the Monitoring Period

Monitoring Period		Energy Product	Basic Energy Consumption (kWh)	Basic Energy Consumption (kWh)	Real Energy Saving (kWh)	Guaranteed Energy Savings (kWh)	Deviati on energy benefit
Number	Time Period		(1)	(2)	(3)= (1)-(2)	(4)	(5)= (3) - (4)
		Electricity					
		Natural gas					
		Oil					
		LPG					
		Thermal energy					
		Other energy					
		Total:					

**C. Real Economic Benefit of the Monitoring Period**

Monitoring Period		Energy Product	Actual economic benefit from energy savings (EUR)	Actual economic benefit from Maintenance cost savings and operation costs (EUR)	Total Actual Economic Benefit (EUR)	Guaranteed Financial Benefit (EUR)	Variance economic benefit (EUR)
Number	Time Period		(1)	(2)	(3)= (1)+(2)	(4)	(5)= (4) - (3)
		Electricity					
		Natural gas					
		Oil					
		LPG					
		Thermal energy					
		Other energy					
		Total:					

**D. Summary table for the determination of Economic Exchange**

Monitoring Period		Economic Exchange Percentage (%)	Total Real Economic Benefit	Actual Economic Exchange (euro)	
		(1)	(2)	(3)	= (1)+(2) if (2)<0 = (1) if (2) >0
Number	Time Period				

\* Total Economic Benefit Deviation: the sum of the deviations for all energy products resulting from Table C.

\* For the determination of the Actual Economic Exchange, the Contractual Economic Exchange is reduced by the sum of the negative economic benefit deviations identified in Table C.

\* The positive economic benefit deviations do not enter into the process of determining the Actual Economic Exchange, since the additional economic benefits from the overcollateralisation of the Guarantees belong to the Customer.

\* In case the total of the negative economic benefit deviations exceeds the Contractual Economic Exchange, the resulting difference is determined as a compensation debt of the Energy Service Provider to the Customer.