# *ANNEX II + III:* TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

**Contract title: Early warning and disclosure system construction in Tsarevo, Ahtopol and Lozenets p 1 /…**

**Publication reference:** CB005.2.11.067-PRAG-SUPPLY-01

**Columns 1-2 should be completed by the contracting authority**

**Columns 3-4 should be completed by the tenderer**

**Column 5 is reserved for the evaluation committee**

Annex III - the contractor's technical offer

The tenderers are requested to complete the template on the next pages:

* Column 2 is completed by the contracting authority shows the required specifications (not to be modified by the tenderer),
* Column 3 is to be filled in by the tenderer and must detail what is offered (for example the words ‘compliant’ or ‘yes’ are not sufficient), please refer to article 24 of the Special conditions for additional notes regarding the rules for possible deviations of the specifications and accepted equivalents,
* Column 4 allows the tenderer to make comments on its proposed supply and to make eventual references to the documentation

The eventual documentation supplied should clearly indicate (highlight, mark) the models offered and the options included, if any, so that the evaluators can see the exact configuration. Offers that do not permit to identify precisely the models and the specifications may be rejected by the evaluation committee.

The offer must be clear enough to allow the evaluators to make an easy comparison between the requested specifications and the offeredspecifications.

| **1.**  **Item number** | **2.**  **Specifications required** | **3.**  **Specifications offered** | **4.**  **Notes, remarks,  ref to documentation** | **5.**  **Evaluation committee’s notes** |
| --- | --- | --- | --- | --- |
| **1** | **Stage 1 - Research and design of a System for Early Warning and Announcement (SEWA)** **of population on the territory of Tsarevo town, Ahtopol town and Lozenets village:**  ***Main activities to be performed in this stage:***  1.1 Acoustic planning on the territory of Tsarevo town, Ahtopol town and Lozenets village;  1.2 Determination of locations for installations of sirens - performing the necessary measurements and acoustic planning to determine the locations of the sirens, depending on the terrain, building stock and population. The contractor should prepare and present acoustic planning maps;  1.3 Design of siren systems on the territory of the aforementioned populated areas, performing and using the measurement of TETRA radio coverage in places for installation the system components. Ensuring reliable/stable communication through the Ministry of Interior's TETRA network;  1.4 Preparation of conceptual designs;  1.5 Preparation of work projects. |  |  |  |
|  | ***Main requirements for the content of the conceptual designs package****:*   * Includes design decision with the site and boundaries of the design scope and description of the functions and purpose of the project * Implementation of modern European standards * Detailed work drawings on the necessary parts, in accordance with Bulgarian Government Regulation No 4 of 21 May 2001 on the scope and content of investment projects Detailed description of the modes of normal operation * Detailed description of the emergency modes during operation * Technical specification of the equipment; * Bill of quantity for all types of construction works. |  |  |  |
|  | ***The documents should represent the required information for every construction site and be prepared as follows:***  A. Part "Construction", to include:   * Design of supporting structures of equipment accompanied by the necessary calculations - installation of sirens should not be performed on the constructive parts of the buildings; * Placement of the equipment in premises of a building in accordance with the floor static load capacity as not to exceed it. * Reinforcement proposal for structures with proven overload or load redistribution. * Technical solution for the installation that not affect the thermal and hydro insulation of the buildings; * Technical solution for the installation of the system that does not impeded the maintenance of machine rooms of elevators, or their technical safety * Drawing with the layout of the end acoustic devices and/or supporting structures; * Refurbishment or reinforcing proposal for an existing roof, that does not negatively impact the building material of the structural elements of the load-bearing structure of the building * Explanatory note with a detailed description of types of installation works associated with the newly designed system; |  |  |  |
|  | * Proposal for the most suitable type of supporting structure, depending on the type and location of installation; * Method Statement for Construction prepared and submitted together with the work projects by a designer with Full Designers’ License and certifying the capacity of existing structures to handle with the new loads.   B. Part " Technological " - specifies the technological solutions by presenting:   * Technical description of the system, basic technical parameters and description of the configuration and interconnections of the equipment and systems; * Components, modules and placement; * Details of the proposed solution; * Acoustic planning; * Constructive schemes of system components; * Bill of quantity of the equipment. |  |  |  |
|  | C. Part “Electrical Installation” - to include an explanatory note detailing the types of activities and solutions with specific drawings and schemes for connecting the new equipment to the existing power supply:   * The power supply requirements of the equipment must be specified, covering the following parameters: * Power requirements related to reliability / availability and redundancy; * The power system must be 220V, 50Hz, single phase alternating current; * The requirements for grounding the system must be presented; * The cable traces must be described in the work design. |  |  |  |
|  | * The power cables must be with suitable cross-section to supply voltage with minimum drop, as well as to meet the requirements of Bulgarian government regulation № Iз-1971 (2009) from 29.10.2009 for building and technical rules and standards for assuring fire safety.   *Special requirements for the “Electrical Installation”*   * New internal installation must be built, to include new grounding system (if necessary) or connection to the existing system while providing the relevant electrical parameters for the equipment. * In case of using the existing grounding system, the resistance compatibility shall be checked and if necessary improvements to be made – this action shall be certified by protocol. * New lightning protection system may need to be built. When using an existing lightning protection system, the compliance of the resistance must be checked and if there is a non-compliance with the requirements, it shall be improved – this action shall be certified by protocol. |  |  |  |
|  | * The construction of new may be necessary if using existing grounding or lighting protection systems is not possible. The construction of new ones or the use of existing grounding or lightning protection installations shall be justified/accompanied by appropriate measurement protocols. * All lightning protection and grounding structures must be accompanied by a licensed meter. * Drawing of a route plan for connection to a point for switching on the power supply network or the one provided at the site (point, node, cabinet, dashboard, etc.) is required. * It may be necessary to build a switchboard 220 V for the site included overvoltage protection. * Drawing of a plan for the internal power supply installations, the grounding installation and the lightning protection installation is required. |  |  |  |
|  | D. Part “FS” (Fire Safety) is to be developed in accordance with the current regulatory framework, to the extent specified in Bulgarian government regulation № Iз-1971 (2009) from 29.10.2009 for building and technical rules and standards for assuring fire safety.  E. Part “Safety and Health Plan”:   * To be prepared in accordance with Bulgarian government regulation Ordinance No 2 dated 22.03.2004 on the minimum requirements to healthy and safe labor conditions in the course of construction and installation works. * The levels of electromagnetic fields around the sites must meet the requirements of Bulgarian government regulation Ordinance No 9 of 1991 on Maximum Admissible Levels of Electromagnetic Fields in Populated Territories and Determination of Hygiene Protective Zones around an emitted object * The boundaries of the hygiene protection zones are calculated at the design stage. The values of the electromagnetic field are measured for compliance with the limit levels when entering the facility into operation. |  |  |  |
|  | F. Part "Impact on the Environment":   * The technical parameters of the system components do not require their treatment in the legal field of Article 81, Paragraphs 1 and 2 of the Environmental protection law and should not be subject to environmental assessment. * The measures for environmental protection during the implementation of the project are described in accordance with the Bulgarian and European legislation.   ***Additional requirements:***  For each part of the project, the Contractor has to submit Explanatory note (Description of the design decision):   * Describes the adopted design decisions and the functions of the individual parts of the project, with the accepted operating modes, layout solutions and selected technological equipment; * Is prepared in a volume not less than those specified in Chapters 8 to 17 of Bulgarian Government Regulation No. 4 of May 21 2001 on the scope and content of investment projects. |  |  |  |
|  | * Presents the scope of design - the interconnections with other equipment and systems available, including the power supply of the new system, must be defined and described**.** * Describes specifically any additional requirements for interconnections with the existing project. * Calculations, confirmed experimentally by measuring, justifying the project in terms of coverage and readiness for operation in backup power mode. |  |  |  |
| **2** | **Stage 2 - Supply, delivery, installation and commissioning of SEWA:**  ***To include the following activities:***  2.1 Delivery of equipment according to the technical specification and licenses for connection between the components of the systems;  2.2 Installation and testing of the equipment according to the technical requirements and work projects;  2.3 Integration of the newly built SEWA to NSEWA in compliance with the proposed technical solution (including update and configuration of NSEWA components);  2.4 Conducting functional tests for integration following specific methodology and submitting protocols;  2.5 Submitting of executive drawings describing the SEWA implementation in Tsarevo town, Ahtopol town and Lozenets village;  **Main requirements for the provided equipment (the provided equipment should be the same or equivalent):**  A. Acoustic device (siren) according to the acoustic planning |  |  |  |
|  | To be provided at the following locations:   * Tsarevo – 5 units * Ahtopol – 1 unit * Lozenets – 1 unit   To meet the following minimum technical requirements:  - Frequency: 415/425 Hz;  - Number of signals: According to Ordinance, adopted by Council of Ministers Decree No. 48 from March 1, 2012.  - Humidity: 0 – 100 %;  - AC power: 230 V ± 10 %;  - Batteries: 2 x 12 VDC;  - Time in standby mode in case of power supply failure: min. 15 days;  - Number of alarms that can be activated within 48 hours without AC: minimum 15;  - Ambient temperature range for cabinet: от - 25 °C до + 65 °C;  - The cabinet must have at least IP65 rating; |  |  |  |
|  | - Modular construction of siren head;  - Aluminums horns;  - The siren must allow update of the software, pre-recorder messages and alarm signals via SD card.  - The sirens’ acoustic output power shall be from 109 dB (А) to 123 dB (А) in 30 m  Hardware of the siren  Each electronic siren shall include all necessary functional units such as:  - Charger and power supply unit;  - Communication / control unit;  - Voice and acoustic messages module with SD card;  - Following the requirements of Ordinance, adopted by Council of Ministers Decree No. 48 from March 1, 2012.it must be possible to trigger a pre-recorded messages in memmory on the sirens and live PA messages;  - Microphone / torch for broadcasting live PA messages  - TETRA modem compatible with the digital radio network of the Ministry of the Interior according to TETRA standard; |  |  |  |
|  | Class-D / PA-D8 digital amplifier with minimum technical parameters:   * 300W at 5-7 Q * Frequency band 100 Hz - 20 kHz * Distortion of less than 4% * Built-in overload protection * Built-in short-circuit protection * Built-in LED status indicators * Management and control module (s); * Control panel with local trigger display * Rechargeable batteries; * Horns with speakers; * Power and communication cables; * The main modules have been designed to be replaceable   Each electronic siren shall be equipped with local control panel with the following functions:  -activation a signal from a siren;  -activation of pre-recorded messages;  -broadcasting live PA messages; |  |  |  |
|  | -deactivation of alarm;  -change the siren parameters;  -initiating self-test standard programs;  -generating messages from electronic siren on a display;  -the CP must be equipped with a protected built-in keyboard;  -activation from unauthorized access and activation must be provided.  Electronic sirens should be powered by rechargeable batteries  - Batteries: 2x12 VDC;  - Capacity ≥ 75 Ah;  - Weight ≤30 кг.;  - Dimensions: Length ≤275 mm, Width ≤171 mm., Height ≤ 250 mm.  - Minimum operating temperature range from -15° С to +40° С;  - Internal resistance ≤ 7 mΩ; |  |  |  |
|  | - Voltage cyclic use from 14.4 to 15 VDC  - Max. discharge current > 750 А  - AB to be of non-flammable material  - AB to be rechargeable  - The batteries should be lead, unattended  - The batteries should be specially designed for deep discharge cycles  - It should be possible to install two batteries in one siren cabinet.  - The place for the batteries has the following dimensions: Length: 345 mm; Width: 280 mm; Height: 230 mm  - Stand-by time period in case of lack of power: min. 15 days;  The minimum design life of the batteries must not less than 8 years. The poles must be permanently marked. "CE" mark should be affixed to the batteries. |  |  |  |
|  | B. Equipment for RCC  *Main control equipment (MCE)*  MCE shall provide:  - communication and provide information from sirens;  - monitoring of the functions of the main control equipment;  - monitoring of the status of all modules of the main control equipment (MCE);  - monitoring of modem/external connections;  - in case of error, it should be indicated.  *Touchscreen control panel*  To meet the following minimum technical requirements:  Opportunity to easily display icons for at least 30 sirens;  - The control panel shall be connected to the main control equipment via the RS 232 / Ethernet interface;  - The CP shall allow the activation of individual sirens as well as siren groups;  - Desk mount option;  - The CP should be equipped with a 7 "colour touchscreen display with a resolution of 800 x 480 pixels;  - Equipped with a microphone;  - Equipped with a button for live PA messages;  - Equipped with a trigger switch;  - Have the following interfaces:   * RS 232 – 1 pcs.; * RS 485 – 1 pcs.; * **USB – 1 pcs.;** |  |  |  |
|  | * Ethernet - 1 pcs.; * SD card slot - 1 pcs.; * Audio output - 1 pcs.; * Built-in ARM 11 – PC; * The CP must be in Bulgarian language. * The CP must work with the operating system   Software for monitoring and control and Personal Computer (PC)   * To be compatible withOperating System Microsoft Windows 10 * Fast accessible maps (zoomfunction < 2 s ) * Zoom and panning functions * Coloured overlaid symbols for status information * Graphical user interface (GUI) * Vector graphics for maps   Workstation will be a standard product:  Intel Pentium G2120 3.1GHz socket 1155 processor  - RAM Memory 2GB RAM DDR 3  - Optical drive DVD drive  - Hard Disk 500GB SATA HDD (24/7 such as Western Digital RE4)  - RS232 port  - LCD monitor, keybord and mouse  C. Antenna Feeder System  - All fasteners for antennas and feeders for the radio modules should be provided.  - Suitable outdoor antennas and feeders for radio modules of the electronic sirens and control centers should be delivered and installed. |  |  |  |
|  | D. Network equipment and integration to NSEWA  Minimal technical requirements:   * The existing equipment in NSEWA uses Hörmann communication protocols and CCCS Control Software; * The software of NCC/ACC/LCP should be upgraded to the last version or CCCS Software version BUL 18; * The system should be integrated to NSEWA via RCC Burgas by private VLAN, built in Internet environment with min capacity of 2Mbit; * The integration of RCC Tsarevo to NSEWA can be verified by successfully conducted tests as follows: * Conducting a work capacity check, functionality check and possibilities for control and monitoring of the newly built SEWA from NCC and ACC; * Activation of all sirens, part of SEWA Tsarevo, from NCC with a signal and/or pre-recorded voice message; * Activation of a siren from RCC Burgas with a sound signal and pre-recorded voice message. Performing an information check regarding the time of activation, the signal, the duration as well as the technical parameters of the siren; |  |  |  |
|  | * Activation of a siren from RCC Tsarevo with a signal and/or pre-recorded voice message - this particular action should be indicated in NCC/ACC of NSEWA. Performing an information check regarding the time of activation, the signal, the duration as well as the technical parameters of the siren; * Unauthorized opening of siren cabinet from SEWA Tsarevo, simulating unauthorized access, theft attempt and switching off the power supply and other unauthorized actions – these actions should be reported to RCC Tsarevo * Performing an information check for the problem that has arisen - Unauthorized opening of siren cabinet door, lack of power supply, lack of connection and other. * Unauthorized opening of siren cabinet from SEWA Tsarevo, simulating unauthorized access, theft attempt and switching off the power supply and other unauthorized actions – these actions should be reported to RCC Burgas/NCC/ACC of NSEWA. Performing an information check for the problem that has arisen |  |  |  |
|  | E. Power supply  ***General requirements:***   * operation with single phase power supply, mains voltage ~230 V, 50Hz and should be provided with uninterrupted power supply. * Dedicated grounding system should be built (if necessary) or it could be connected to the existing network in case of providing the respective electrical parameters of the equipment. * Dedicated lightning protection system should be built (if necessary) or it could be connected to the existing network.   *Requirements for the Power Supply of RCC/LCP:*   * Uninterruptible power supply (UPS) shall be provided to grant the operation in stand-by mode for at least 4 hours in case of failure of mains power. * An electrical installation for the emergency power supply shall be foreseen to connect all components of the system control units (including network equipment) to it. * The power of the UPS should be consistent with the installed equipment, providing sufficient reserve |  |  |  |
|  | *Requirements for the Power Supply of Sirens:*   * Radio modules and sirens shall be able to operate minimum 15 days on a battery power in case of lack of mains power. * The Executor shall connect the equipment to the electrical network taking into consideration the features of the particular site for installation. * Mains power for the system components shall be connected via a separate fuse * A dedicated electrical panel shall be foreseen if necessary. * Dedicated internal installation shall be built. * In order to provide uninterrupted power supply and at the same time to extend the batteries life in sites with special procedure/mode for power supply (like kinder gardens, schools, state buildings and etc.) it shall provide connection of the sirens to the constant power circle from the electricity transmission network. |  |  |  |
|  | **Additional requirements and/or services:**   * All necessary stands/poles and fasteners shall be provided for installation of system components. * The type of installation shall be consistent with the specifics of the location; the whole construction shall resist to wind load and heavy snow. * For installations of siren system components in elevator machine rooms it shall not be accepted the presence of pipelines in the elevator shafts as well as cables and other installations which are not part of the elevator construction. System components shall be installed in a way that does not impedes the operation of other systems. * The end acoustic devices shall be firmly fastened with stable construction, protected against corrosion for the period not less than 10 years, resistant to severe climate conditions (strong winds, storms, high and low temperatures and etc.) |  |  |  |
|  | * The siren cabinet shall be installed in a way, which allows easy maintenance and local control/activation if necessary. * For the process of deployment of the equipment, it is important to consider the floor static load capacity. The new equipment shall not exceed the load capacity of the particular floor construction. In case where there are risks of overloading, it shall be necessary to provide reinforcing or load redistribution. * In case of any reconstruction or reinforcement of existing roof, these actions must not affect the supporting structure of the building. * The Executor must repair all damages made on the building and/or the site during the installation of the equipment.   *Functional tests*   * The functional tests shall be conducted according to the methodology by employees of MoI and representatives of the Executor after the integration of newly built SEWA to NSEWA within two days.   *Licenses*   * The Executor shall provide all necessary licenses for the functioning of all system components.   The following standards or equivalent must be observed when designing and upgrading the system: |  |  |  |
|  | DIN EN 610003-2 Electromagnetic Compatibility (EMC) Part 3-2 or equivalent.  DIN EN 610003-3 Electromagnetic Compatibility (EMC) Part 3-3 or equivalent  DIN EN 55011 Industrial, Scientific and Medical Apparatus (ISM) or equivalent  DIN EN 50130-4 Alarm systems - Part 4: Electromagnetic compatibility or equivalent  ISO 9001: 2008 Quality systems. Model for quality assurance in design, development, production, installation and after-sales service or equivalent  ISO 13475-1 Stationary sound signaling devices for outdoor installation, Part 1: Acoustic determination of sound emission levels or equivalent  ISO / TS 13475-2 Stationary acoustic signaling devices for outdoor installation, Part 2: Methods for the accurate determination of sound emission levels or equivalent  - All devices and their components must be new, unused, and not discontinued at the time of the offer.  - The Contractor must carry out the installation/setting-up of all components supplied to the system.  - All components should be marked with information stickers in accordance with the information and publicity requirements of the INTERREG-IPA Program for CBC Bulgaria - Turkey 2014-2020,  - All end acoustic devices (sirens) must be affixed with stickers indicating that the equipment is the property of the MoI, as well as the contact point |  |  |  |
| **3** | **Stage 3 - Additional requirement – warranty support**  Providing warranty support not less than 36 months, based on 24x7principle and following the specific methodology.  ***Main requirements for the warranty support:***   * Includes software upgrades to the system; * Includes the services of service support centre for granting the warranty support of the system. * The service support center shall provide 24-hour service, 7 days a week with corresponding reaction times. Description of the technology for performing the maintenance should be presented for the warranty period. * The Executor shall react (give instructions, re-installing a software, boards replacement and other) to the service calls within 4 hours during the working time, 24 hours for service calls beyond the working hours. * The maximum deadline for fix/repair damages on basic components, which affects the general operation of the system – 48 hours.   The maximum deadline for fix/repair damages on components which does not affects the general operation of the system –7 days |  |  |  |
| **4** | **Stage 4 - Training to work with the system:**  ***Main activities to be performed in this stage:***  3.1 Preparation of training materials and certificates for the trainees;  3.2 Conducting a training for the employees from Communication and Information Systems Directorate (CISD), Regional Directorate “Fire Safety and Civil Protection” – Burgas town and Regional Service “Fire Safety and Civil Protection” – Tsarevo town. The training will cover administration and technical support of the system;  ***Main requirements:***   * Training shall be conducted for the employees who will be involved to work as operators and administrators of the system – the duration of the training shall be 3 days, 6 hours – 1 trainer. * The Executor must prepare the certificates for all trained employees. * The Executor must present all tests results, questionnaires together with the program, presence lists and scanned certificates. |  |  |  |
|  | * The Contractor must train the employees to work with the system for operators and administrators. The training must be conducted in Bulgarian with the necessary quality; * The training should be conducted according to the traditional didactic method; * The Contractor shall provide a program, training materials and specific technical documentation for the training; * The Contractor prepares and provides to the trainees' manuals for operator and administrator; * The Contractor shall issue a certificate to the successfully passed employees through training, the template for which shall be agreed with the Contracting Authority; * The Contractor shall submit to the Contracting Authority a report on the completed training and also present the results of the questionnaires; * Training costs shall be the obligation of the Contractor. |  |  |  |