

ANNEX II: TERMS OF REFERENCE

Project No: 14SER01/36/81; EuropeAid/137974/DH/SUP/RS

Supervision for the supply and installation project

Electrical equipment for the reaction in emergency situations
in the Republic of Serbia

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1. BACKGROUND INFORMATION

1.1. Partner country

Republic of Serbia

1.2. Contracting Authority

The contracting authority is the European Commission represented by the Delegation of the European Union (EUD) to Belgrade, the Republic of Serbia.

1.3. Country background

Basic facts

The Republic of Serbia is located at the crossroads of Central and Southeast Europe and is the central part of the Balkans, spreading over an area of 77.474 km². Its population is 7.498.000 with 1.576.000 living in Belgrade. Serbia is landlocked and borders Hungary to the north, Romania and Bulgaria to the east, Macedonia to the south, and Croatia, Bosnia and Herzegovina and Montenegro to the west. It also borders Albania through the territory of Kosovo*

The European Council granted Serbia the status of candidate country on 1 March 2012, on the basis of the Commission Opinion on Serbia's membership application adopted on 12 October 2011. In December 2013, the heads of the European Union states or governments confirmed the decision of the Council of Ministers to start membership negotiations with Serbia. The first intergovernmental conference took place on 21 January 2014, opening Serbia's EU accession negotiations. The negotiations will be based on the general Negotiating Framework adopted by the Council in December 2013, with particular focus on the chapters on judiciary and fundamental rights, and on justice, freedom and security.

The economic situation

Serbia has an emerging market economy in upper-middle income range. According to the IMF, Serbian GDP was worth \$42.52 billion in 2013. The GDP value of Serbia represents 0.07 percent of the world economy. GDP per capita in 2013 was \$3398, while purchasing power parity GDP was \$12124 per capita. The economy is dominated by services which accounts for 63.8% of GDP, followed by industry with 23.5% of GDP, and agriculture at 12.7% of GDP. The economy has been affected by the global economic crisis. After eight years of strong economic growth, Serbia entered the recession in 2009 with negative growth of -3% and again in November 2014 with -1.8%. As the government was fighting the crisis' effects, the public debt doubled in the last 6 years: from a pre-crisis level of 28.3% by the end of 2008, to 71.9 % in March 2015 . To address the situation, the Government has adopted a 3 year fiscal consolidation strategy and is considering structural reforms in the business environment, labour market, pension system, competition and public enterprises, aiming to cut the budget deficit to 4.75% of GDP by 2017 and reduce the public debt-to-GDP ratio.

1.4. Current situation in the sector

The **Ministry of Mining and Energy** is responsible for overall policy and oversight of the mining and energy sectors. The regulatory competencies are performed by the Energy Agency of the Republic of Serbia (AERS). Serbia's energy sector policy and regulatory development is largely driven by the EU accession process and the obligations under the Energy Community Treaty. Apart from the Ministry in charge for energy, other beneficiary is:

The **Public Enterprise Electric Power Industry of Serbia** (PE EPS) is a vertically integrated company. Its main objective is to cover the entire electricity needs both of the economy and population including the following activities: electricity generation; electricity distribution and distribution system control; electricity trade; coal production, processing and transport; steam and hot water generation in combined heating processes; water power utilization and services in river and lake traffic; wholesale trade in fuel and similar products; research and development; design, construction and maintenance of energy and mining plants; design, construction and operation of telecommunication facilities; engineering. Supply and sales of electricity to 3,553,988 customers on the territory of Serbia (without Kosovo and Metohija) are carried out in the scope of the electric power distribution activities of EPS. The distribution system in Serbia is operated by 5 Distribution system operators, 4 being affected by floods. The distribution network consist of 185 substation (TS) 110/x kV, 640 TS 35/10 kV, 35.800 TS 20/0,4 kV, 10 TS 10/0,4 kV. At the moment EPS does not have any mobile substation high to medium voltage, 110/35 kV, and there exist a need for that kind of equipment. For all distribution network there are currently only 3 mobile TS 35/10 kV. When it comes to emergency situations causing the unplanned outages distribution automation systems (monitoring and control of medium voltage network) is essential to enable efficient (fast) fault detection and isolation, reconfiguration of the medium voltage grid and provide majority of consumers with power supply during the shortest possible time.

To achieve system protection, reactive power and voltage control, loss compensation, load following and energy balance, as well as optimization and stabilization of RES power plants, EPS need some mobile equipment which will help to solve emergency situations

Consequences of floods

Overall damages in the power sector are estimated at 21,218 million RSD (181.6 million EUR). Over 90% of the damages are in the coal and power generation sectors, followed by the power distribution sector. Some damages were also registered in the power transmission, natural gas, and district heating sectors. All major enterprises affected by the floods are fully government owned.

Recovery of coal production is essential to ensure timely and sufficient availability of electricity supply to all consumers. The estimated recovery costs amount to 24,498 million RSD (211.8 million EUR), spread out in 2014 and 2015. The cost of reconstruction for the mining and energy sector has been estimated at 23,363 million RSD (202.0 million EUR).

Floods caused significant damages to the electricity distribution system. The distribution system in Serbia is operated by 5 distribution system operators, 4 being affected by floods. Up to 110,000 customers were affected by supply interruptions in 28 municipalities touched by the floods. Large portions of the distribution network were affected and to a lesser extent, the transmission network, more than 9 million EUR direct damage in distribution sector only.

Given that the floods also heavily affected EPS generation capacities drastically reducing coal production, the possibility of restrictions in electricity supply is not ruled out. This will put additional pressure on the distribution system and unplanned outages are a realistic scenario. Lack of mobile substations would also significantly increase the frequency and even more duration of the unplanned interruptions (indicators for distribution system SAIFI and SAIDI). Comparing the last distribution system report with the last year report can be noticed that SAIDI after the flow increased. To ensure security of electricity supply, to decrease the risk not to have stabile electricity supply, there is a need to ensure the mobile electrical equipment. There are mobile substations which would be of great assistance to EPS to maintain the distribution system stable and to keep electricity supply reliable. In case of emergency situations (outages due to different failures on the grid) distribution automation systems would significantly improve dispatching efficiency, shorten the time to fault detection, isolation of fault and restoration of the power supply to the majority of the consumers which could be supplied through alternative feeders. Distribution automation systems (primary equipment like new switchgear equipment both overhead lines, intelligent switchgear equipment like pole mounted auto-re-c controlled airbrake disconnectors, pole mounted remotely controlled SF6 load remotely controlled vacuum-brakers, adequate digital radio telecommunication equ

SCADA servers) would significantly improve network reliability indices like SAIDI, SAIFI). The said equipment would be strategically placed to be able to answer to emergencies and prevention in the most efficient way.

The most vulnerable region is Central and Western Serbia, where most municipalities were affected. This area is covered by Distribution System Operator "Elektrosrbija", serving some 900,000 customers. The headquarters is based in the city of Kraljevo and the operations are conducted through 11 regional branches. Out of these 11 branches and 22 lower organizational units, 10 units were most severely affected by recent floods (Bajina Basta, Loznica, Sabac, Valjevo, Ljubovija, Kosjeric, Lazarevac, Trstenik, Varvarin and Kraljevo). Also, in 2010, a strong earthquake hit Kraljevo and surrounding areas leaving severe damages on private housing and infrastructure. Proposed areas are mainly rural and very often when it comes to outage for example during winter months, it takes maintenance utility people sometime days in the mountain to find cause and fault location since at present all manipulation on the grid were performed manually on the site. It is very time consuming and more importantly in case of natural disasters locations are not accessible. The targeted areas have mainly long, radial overhead lines and based on the experiences of developed European utilities such systems would improve significantly reliability factors of the grid (SAIDI, SAIFI) and provide customers with higher quality power supply. Implementation of digital packet data radio systems in licensed frequency bands will enable fast and reliable telecommunication infrastructure which will contribute to the development of the distribution system.

For that reason this region is selected for introducing the system of automation of the distribution medium voltage grid. As for the mobile substations, they will be kept on designated locations with the aim to be able to reach out in the most efficient way any location throughout the territory of Serbia, where needed.

1.5. Related programmes and other donor activities

The European Union, the United Nations and the World Bank – coordinated through in line with the 'Joint Declaration on Post-Crisis Assessments and Recovery Planning', subscribed in 2008 – provided financial and expert support to conduct the assessment. The assessment enabled to estimate disaster effects – damage and losses – and impacts as well as the financial requirements to undertake recovery and reconstruction. More than 14 sectors of social and economic activity and cross-cutting issues were analysed during the assessment.

The assessment revealed that the total effects of the disaster in the 24 affected municipalities amounts to 1,525 million EUR, of which 885 million EUR (57% of the total effects) represent the value of destroyed physical assets, and 640 million EUR (43% of the total) refer to losses in production. When considering the additional affected municipalities, the total value of disaster effects would rise to 1.7 billion EUR.

It was found that total disaster effects were concentrated mostly in productive activities (1,070 million EUR and 70% of the total), social services (242 million EUR and 16%), and infrastructure (192 million EUR and 12%); thus, disaster impact was highest in terms of production and access to social services, than in regard to destruction of infrastructures. In regard to individual sectors of economic and social activity, the most affected sector that require recovery and reconstruction financing was the one of mining/energy (494 million EUR and 32% of the total), followed by housing (231 million EUR and 15%), agriculture (228 million EUR and 15%), trade (225 million EUR and 15%) and transport (167 million EUR and 11%).

Financial requirements have been estimated for all sectors of social and economic activities, under both public and private domains, to ensure the recovery of personal income, access to basic services, production levels in agriculture, industry, trade and mining, as well as of the environment, together with the needs to rebuild destroyed assets following standards.

The financing of these post-disaster needs would come from a combination of government funds, EU funds, private sector resources, soft-term credit from local banking institutions, as well as cash grants and donations from the international community, and fresh and rescheduled loans from international financial institutions.

The Government of Serbia and Ministry of Mining and Energy of the Republic of Serbia (MEM) is initiating a **Flood Emergency Recovery Project (FERP)** to improve and rehabilitate infrastructure in Serbia including infrastructure in EP Electric Power Industry of Serbia after Flood in May 2014. The Flood Emergency Recovery Project will support the Government of Serbia (GoS) in the implementation of the first phase of FERP.

The FERP has three components related to EPS:

- Component 1 - The Project of pumping out water and sediment at the Open pit mine Tamnava – west field MB Kolubara;
- Component 2 - Emergency procurement and import of electricity for the needs of the population and the economy
- Component 3 - Emergency procurement of mobile power transformers.

2. OBJECTIVE, PURPOSE & EXPECTED RESULTS

2.1. Overall objective


The overall objective of the project of which this contract will be a part is as follows:

The objective of this Action is to assist Serbia in the recovery effort in the aftermath of the flood that hit the region during May and consequently in September of 2014 to improve prevention and emergency response system. More concretely, the Action is directed towards re-establishing of regular functioning of public services, through procurement of mobile electricity distribution equipment.

The Action will contribute directly to implementation of Government priorities in the post-flood period and concerns both the recovery needs as well as upgrading the emergency response and prevention systems. The activity is to be performed in the sector of energy, including flood prevention as part of disaster risk reduction, housing, income generation and further assistance to build the capacity of the Government Office for Reconstruction and Flood Relief.

Support required under this IPA 2014 Action is based on the needs assessment which was conducted by national authorities substantially backed-up by the internationally funded expert teams. Furthermore, estimated damages, losses and recovery needs are subsequently translated into National Recovery Programs for various sectors as formalised by respective Decrees. The present Action relies notably on the adopted National Recovery Programs for transport and water management sectors. Focal national institution for all the post-flood recovery developments is the newly established Government Office for Reconstruction and Flood Relief which undertakes comprehensive inter-institutional coordination, while the general legal framework is set by the special Law on post-flood rehabilitation in the Republic of Serbia (adopted in July 2014).

The proposed Action takes duly into consideration the assistance which is already being implemented under IPA 2012 program which was promptly processed during summer 2014. The 30 million EUR worth reallocation of IPA 2012 is by far the most substantial international support currently running in the field and is already providing first tangible results. In consent with the EU, it was designed in a manner to pilot some delivery models which are being built in the proposal for IPA 2014. To resume, the urgent support package from IPA 2012 concerns the following critical areas.



2.2. Purpose

The purpose of this supervision contract is to provide EPS with the necessary assistance in the coordination, supervision, and project and site management of Supply contract(s) as part of IPA 2014 National Programme for Serbia, Special measure on flood recovery and flood risk management.

The project provides the Contractor (Engineer) (meaning - Contractor providing the services under this contract) to be part of the Project Management Unit (PMU) with the following specific objectives:

- Assist EPS in the preparation of implementation plans and time schedules for all three lots.
- Participation in Factory Acceptance Tests following the accepted standard industry practice.
- Assist in supervision and monitoring site activities, e.g. construction, commissioning and testing of the equipment delivered and installed.
- Advise Contracting Authority and EPS on project and site management issues.
- Advise Contracting Authority and EPS in progress assessment and verification issues.
- Establish and assist in QA/QC procedures through witnessing and certification of acceptance testing at site and in workshops.
- Checks and approves payment requests and supporting documentation.
- Takes part in provisional and final acceptance of deliveries and installation.
- Prepares Provisional and Final Acceptance Certificates on behalf of the Contracting Authority.

This project, identified by the competent departments within the Ministry of Mining and Energy of the Republic of Serbia, will contribute directly to implementation of Government priorities in the post-flood period and concerns the upgrading the emergency response and prevention systems and it aims to ensure security of electricity supply, to decrease the risk not to have stable electricity supply. There is a need to ensure the mobile electrical equipment - mobile substations as well as automation systems for distribution system operator, which would be of great assistance to EPS to maintain the distribution system stable and to keep electricity supply reliable.

2.3. Results to be achieved by the Contractor (Engineer)

The Contractor (Engineer) shall assist Contracting Authority and beneficiary EPS to achieve the following results:

- Completion of the supply and supply&installation contracts on time
- Completion of the supply and supply&installation contracts within the budget cost
- Completion and implementation of the supply and supply&installation contracts in accordance with its contractual provisions
- Achievement of the technical standard specified in the technical requirements for the supply contracts.
- Visibility in accordance with Contracting Authority requirements.

3. ASSUMPTIONS & RISKS

3.1. Assumptions underlying the project

For the successful implementation of this project, it is assumed that:

- All involved local and state authorities will support the implementation of the Project, timely formulate formal and technical requirements and provide required comments and approvals in time;

- Good co-operation and co-ordination of activities amongst all involved parties must be achieved;
- All pre-requisites for the preparation and/or implementation of this project, such as necessary permits, legislation, etc. must be in place prior to the start of the project;
- The Contractor (Engineer) involves experts who are familiar with Conditions of the Works Contract financed by the European Union as well as relevant construction techniques, norms and standards;
- Successful tendering of the supply (and installation for Lot 3) contracts,
- All supply and installation works undertaken are in line with Serbian environmental legislation, the EU environmental requirements and best international standards.

3.2. Risks

The following risks can affect the project, if occurring:

- Delays due to unsuccessful tendering of supply and supply&installation Works Contractors;
- Potential changes in the Law on Planning and Construction might jeopardize smooth and timely implementation of the project
- Authorities not fully cooperative in administrative matters during the implementation of the project (permits and approvals, visas, taxation issues),
- Delayed commencement of the installation activities;
- Delays in performance of installation by the Works Contractor.
- Financial framework of the project not secured;

4. SCOPE OF THE WORK

4.1. General

4.1.1. Project description

The project aims to ensure security of electricity supply, to decrease the risk not to have stabile electricity supply. There is a need to ensure the mobile electrical equipment - mobile substations as well as automation systems for distribution system operator, which would be of great assistance to EPS to maintain the distribution system stable and to keep electricity supply reliable. It comprises supply of Mobile electrical substation 110/35 kV, Mobile electrical substations 35/10kV (three pieces), and remote supervision and control system for medium voltage distribution grid in the area of Elektrosrbija Kraljevo (to be installed and commissioned at several locations, as listed below).

Mobile electrical substation 110/35 kV, 20 MVA (Lot 1)

The Supplier shall design, manufacture, perform factory testing, transport to the site (in the area of Belgrade, Serbia), perform on-site connection, SAT testing, cold and hot commissioning, user training, and everything necessary in order to leave a fully functional subject of the supply contract.

Three (3) mobile transformer substations 35/10 kV, 8 MVA (Lot 2)

The Supplier shall design, manufacture, perform factory testing, transport to the site (in the area of Kraljevo, Kragujevac and Niš), perform on-site connection, SAT testing, cold

commissioning, user training, and everything necessary in order to leave a fully functional subject of the supply contract.

Remote monitoring and control system for medium voltage distribution grid in the area of Elektrosrbija Kraljevo (Lot 3)

The Supplier shall design, manufacture, perform factory testing, transport to the site, perform on-site connection, SAT testing, cold and hot commissioning, user training, and everything necessary in order to leave a fully functional subject of the supply contract.

Scope of Works Contractor's supply and installation are:

- Data concentrators,
- Surge arresters,
- Reclosers,
- RTU's
- RMU's,
- Antennas,
- Voltage transformers,
- SF6 Circuit breakers,
- Line disconnectors
- Cables and cable accessories,

Procurement and delivery of equipment with installation services including remote supervision and control of the medium voltage distribution grid in the consumption areas of the following branches of 'Elektrosrbija d.o.o.' Kraljevo:

- ED Čačak,
- ED Kraljevo,
- ED Užice,
- ED Kruševac,
- ED Jagodina,
- ED Loznica,

The supply contract, identified by the competent departments within the Ministry of Mining and Energy of the Republic of Serbia, will contribute directly to implementation of Government priorities in the post-flood period and concerns the upgrading the emergency response and prevention systems, and it aims to ensure security of electricity supply, to decrease the risk not to have stable electricity supply. There is a need to ensure the mobile electrical equipment - mobile substations as well as automation systems for distribution system operator, which would be of great assistance to EPS to maintain the distribution system stable and to keep electricity supply reliable.

4.1.2. Geographical area to be covered

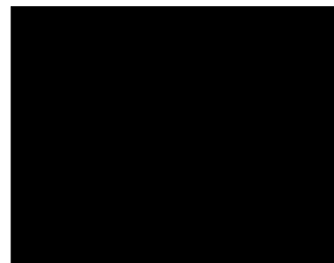
Belgrade, Kraljevo, Kragujevac and Niš (for Lots 1 & 2) Čačak, Kraljevo, Užice, Kruševac, Jagodina and Loznica (for Lot 3), but also other locations as found appropriate.

4.1.3. Target groups

Ministry of Mining and Energy, Electric Industry of Serbia, citizens of the flooded areas.

4.2. Specific work

Phase 1: Coordination and Supervision in the manufacturing phase



- a. Prepare – after the review of technical specifications - a detailed approach for implementation, i.e. *inter alia* a checklist for site specifics, technology application and regulatory compliance.
- b. Identify Project risks and allocation
- c. Prepare preliminary documents for Lot3:
 - Site establishment
 - Site establishment layout and formation
 - Site access procedure
 - Site regulations
- d. Review infrastructure necessary for equipment supply and facilities
- e. Review the scope of deliveries and installation, as well as all documents submitted by the Works Contractors
- f. Review *inter alia* the Works Contractors' quality assurance plan for design, procurement, installation and commissioning (Lot3)
- g. Once the contracts have been awarded, the Contractor (Engineer) will liaise with the Works Contractor to work out a detailed programme for the implementation of the project, to ensure proper sequence of construction, timely receipt of drawings and designs and relevant documents
- h. Lot 3: Review all Works Contractor's designs, drawings and documentation for proper compliance with the requirements of the agreed contract specification, review and approve plant and equipment to ensure compliance with the agreed contract document
- i. Provide engineering and project management procedures
- j. Review budget estimates periodically
- k. Advise on project cash flows

Phase 2: Coordination and Supervision of Installation, Commissioning Services and Testing Activities at Site

The Contractor (Engineer) should coordinate and monitor the site activities of the Works Contractors and ensure that installation is performed in accordance with Serbian standards, the design documents, the applicable codes and standards, accepted industry practices and other requirements. The Contractor (Engineer) shall act for the EU Delegation on all site related matters and provide the necessary liaison and co-ordination between the EU Delegation, EPS and the Works Contractor.

The Contractor (Engineer) together with EPS shall review the Works Contractor's commissioning plans and performance test procedures. They shall witness commissioning and testing, review the Works Contractor's performance test reports and provide the EU Delegation with recommendations regarding acceptance.

The responsibilities of the Contractor (Engineer) will be *inter alia* to:

- (a) Supervise and monitor the Works Contractor's performance against the baseline programme and provide reports regarding potential scheduling conflicts or delays by Works Contractor
- (b) Prepare and endorse the certifications for work accomplishment such as those for inspection, installation, erection and commissioning activity milestones
- (c) Review claims and change orders submitted by the Works Contractor, if any including the preparation of cost estimates to check the Works Contractor's claims and maintain appropriate records
- (d) Review the site quality assurance and commissioning procedures submitted by Works Contractor for construction and Coordinate, supervise and monitor their implementation
- (e) Prepare periodical progress reports and other reports, as may be required, and submit the reports to the relevant parties for information, review and action as necessary
- (f) Supervise and monitor details of installation to ensure conformance with the contract specifications and approve drawings made at site
- (g) Compile a project completion report. This report shall be ready not later than the taking –over of the equipment put in operation

- (h) Mitigate any contract claims and contractual disputes and take action to try to avoid any disputes that may arise.
- (i) Inspect major plant items at manufacturers' work shop where appropriate
- (j) Certify all invoices. When the Contractor (Engineer) issues a certificate, he/she must be satisfied that relevant, reliable and sufficient evidence exists that a) the tasks have been properly performed; and b) the amounts claimed by the Works Contractor have actually and necessarily been incurred in accordance with the requirements of the contract he/she is supervising.
- (k) Take care that the quality of Works Contractor's personnel is maintained up to the contracted level
- (l) Take care of safety on the site.

General Task and Organisation of the Project Management Units (PMUs)

- a) For the execution of the project EPS (with the assistance of the Contractor (Engineer)) will establish a project organisation which is capable to handle all different management, engineering and procurement, erection, commissioning as well as coordination and training activities. The PMU for the site will comprise the Contractor (Engineer) and EPS counterparts working together in a single unit. The PMU will be led by an EPS Project Manager assisted by the Engineer (the Team Leader). The project will be overseen by the Project Liaison Group (PLG) made up of EPS -EU Delegation Representatives.
- b) The specific responsibilities of all of the parties involved are set out in Section 4.3.1 below.
- c) After the PMUs are established they will take care that the required administrative procedures (classification system for documents and correspondence, arrangement and documentation of meetings, approval procedures, etc.) will be implemented.
- d) All technical and commercial matters related to the project shall be followed up by the Contractor (Engineer) and shall be checked for quality standards and for financial adequacy. In the case of claims, these shall be formulated and corrective measures shall be organised. The PMUs shall inform the PLG about all important technical and commercial decisions and corrective measures taken.
- e) For all problems that may arise, back up staff of the Contractor (Engineer) shall be available for consultation and co-ordination.
- f) Work organisation, interface engineering and progress control shall be supported by the introduction of computerised planning tools. A work break down structure (WBS) and project identification system shall be established at the beginning of the project in order to develop the project schedule.
- g) During the implementation period all Works Contractors shall be obliged to submit updated schedules, showing the actual status of their drawing release, manufacturing, delivery and installation progress. This information shall be incorporated in the project master plan to detect discrepancies to the planned project progress in time. If significant discrepancies are detected countermeasures should be initiated by the PMUs to avoid a shifting of the project key dates.

Cost Control

Cost control is a key function of the PMUs. Targets are set and monitored against the project budget established and manifested by the contract prices for the individual contracts.

According to the payment conditions of the Works Contractor's a financial plan for the whole project shall be established. The characteristic "S"-curve for the expenditures shall be plotted which indicates the expected cash flow on a monthly basis during the whole project.

Project Quality Assurance

The aim of project quality assurance is to prevent quality deficits and to adapt quality standards which are applied to all the work of the PMUs as well as to the work of the Works Contractor.

The PMUs shall elaborate quality assurance guidelines for all steps of the projects.

The quality requirements and the quality assurance procedures to be applied for the project shall be incorporated in the project manual of the project. During the project execution, the PMU shall supervise the compliance with the quality assurance procedures and give the necessary instructions.

Witness of Factory Inspections and Tests

The Contractor (Engineer) will review and approve a factory inspection and testing witness program covering major components developed by the Supplier(s). The PMUs will implement this programme and a report on each inspection and test witness will be submitted to the PLG.

Training / knowledge transfer

It is part of the Contractor (Engineer)'s tasks to provide training and knowledge transfer to EPS.

Training on the job shall be executed to make the delegated EPS Engineers familiar with the working methods of the Contractor (Engineer).

In the joint work the seconded EPS Engineers shall among others receive training in the following areas:

- reporting methodology
- procurement planning and control
- project management
- quality assurance
- site coordination and supervision
- field and workshop inspections

On-the-job-training shall mean technology transfer in day-to-day working during which a continuous exchange of experience and information between international engineers specialists and counterparts in the normal course of their work takes place.

The Contractor (Engineer) must develop a detailed training proposal. This proposal will be discussed and agreed with the PLG. The Contractor (Engineer) will implement the agreed training plan.

The Contractor (Engineer) shall ensure the capitalisation and sharing of knowledge related to the implementation of the project. It concerns observations of technical and pedagogical value, which are interesting for other professionals, and which do not infringe with the obligations of article 14 of the General Conditions of the Contract. For sharing such information, the Contractor (Engineer) shall use the capacity4dev.eu web platform.

Visibility

The Contractor (Engineer) shall organise visibility activities in line with EU requirements.

4.3. Project management

4.3.1. Responsible body

The Contracting Authority shall be the European Delegation in Belgrade, the Republic of Serbia. The present Terms of Reference concern this independent Contractor (Engineer): "The Contractor". The tasks required of the Contractor (Engineer) are listed above.

The EUD will retain the responsibility of Contracting Authority financing the Project (both works and supervision components) and will also monitor and supervise the program, in addition to any other possible form of involvement of the Contracting Authority in the Project, by

endorsement of progress reports provided by the Engineer. The Contracting Authority will assure periodic site visits and random checks of the work.

4.3.2. Management structure

The Contracting Authority shall have the sole responsibility for the executive management of the project. They will appoint the Project Manager as a person responsible for monitoring the implementation of a project on behalf of the Contracting Authority.

The Beneficiary of the project is Elektroprivreda Srbije (EPS)

EPS will appoint a project implementation unit (PIU), who will coordinate with the Contractor (Engineer) and act on behalf of the Beneficiary.

The Team Leader of the Contractor (Engineer) shall report directly to the Contracting Authority and will be responsible for all aspects of the project.

Operational level progress meetings shall be held on a regular basis between the Team Leader or his/her designated representative and the beneficiary institution and Contracting Authority.

A Project Steering Committee (PSC) will be established to supervise and ensure smooth implementation of the project, including monitoring the progress and ensuring achievement of the project objectives. Establishment of the PSC will be initiated by EUD during the inception period.

PSC members will include representatives from:

- i. Representative from EUD, as the chair of the PSC; bearing in mind its' responsibility,
- ii. Representative of the EPS;
- iii. Representatives of the Supplier(s), and
- iv. Representative of the Contractor (Engineer)

The PSC will meet on a regular basis, at least once in three months, in order to monitor the implementation of the project activities. It will also be convened in case of need to discuss specific project issues.

The role and main functions of the Project Steering Committee will be:

- To assess project progress and monitor the implementation of all project activities;
- To guide the Supplier(s) on all technical matters and review and make comments on all reports, including technical and working papers submitted by the Supplier(s);
- To assess the Supplier(s) performance, approve the Inception, Interim and Final reports and other reports;
- To jointly discuss any critical points, risks or bottlenecks of project implementation and to propose and discuss remedies in case of problems;
- To guide the development and monitor the implementation of experts' schedules and project work plans, and jointly take decisions on timing, costs and project contents;
- To ensure close co-operation among the relevant ministries and institutions;
- To closely coordinate with other EU projects related to this field and with other relevant donors' projects to promote synergies and integration.

The first Project Steering Committee meeting will be held at the end of the Inception Phase to examine and approve the Inception Report.

Under the supervision of the EUD as Contracting Authority (CA), the Contractor (Engineer) will ensure the secretariat function of the Project Steering Committee, including organization of meetings, preparing and circulating the agenda, writing and distributing PSC minutes to all members. Project Steering Committee meetings should be announced at least ten working days before the actual date and any materials should be distributed five working days before the meetings to the PSC members.

The Project Steering Committee will make recommendations that have to be for responsible parties. Project Steering Committee recommendations related to c

(e.g. as the formal approval of reports, extensions or addenda to contracts, replacement of key experts or contract suspension/termination) are non-binding and are under the formal responsibility of the Contracting Authority.

4.3.3. Facilities to be provided by the Contracting Authority and/or other parties

The Contracting Authority will not provide any facilities to the Contractor (Engineer).

The beneficiary, on request will provide the project experts with copies of legislation, regulations and other relevant documents necessary for the implementation of the project.

EPS as the beneficiary should also provide all possible assistance to solve unforeseen problems that the Contract may face. The possible failure to solve some of the Contractor (Engineer)'s problems encountered locally will not free the Contractor (Engineer) from meeting its contractual obligation with the Contracting Authority.

5. LOGISTICS AND TIMING

5.1. Location

The activities will be executed in Belgrade, Kragujevac, Kraljevo, Niš, Čačak, Kraljevo, Užice, Kruševac, Jagodina and Loznica, Republic of Serbia.

Installation works for the Automation systems for distribution system operator will be executed in Čačak, Kraljevo, Užice, Kruševac, Jagodina and Loznica, Republic of Serbia.

The Contractor (Engineer) shall attend Project Steering Committee meetings and other meetings with the Contracting Authority, Beneficiary, etc., in Belgrade, Republic of Serbia, and will operate at the locations as listed above.

5.2. Start date & period of implementation

The intended start date is October 2016 and the period of implementation of the contract will be 38 months from this date. Please see Articles 19.1 and 19.2 of the Special Conditions for the actual start date and period of implementation.

The expected period of implementation of the contract will be 38 months in total (1 month inception phase, 24 months for Implementation phase, 12 months for the Defect Liability Period and 1 month activities after Defect Liability Period).

Work plan shall be determined with the Contracting Authority and EPS at the beginning of the assignment. The Contractor (Engineer) shall be responsible for organization and time management, which is crucial for the efficient and successful completion of the assignment. The Contracting Authority may, in accordance with the Contractor (Engineer), modify the provisional time table according to external constraints.

The services to be provided by the Contractor (Engineer) can be divided into four main phases:

- Inception phase
- Implementation phase
- Activities during the Defects Liability Period (DLP)
- Activities after the DLP

The Inception phase: foresees an input of four (4) calendar weeks. During this phase the Contractor (Engineer) shall carry out all necessary project start-up activities including among other:

- (i) Identify and establish contacts with all relevant stakeholders,

and

(ii) Collect necessary data for development of the Supervision Procedure Methodology and the Work Programme for project implementation.

During the inception phase the inputs of each expert shall be defined and submitted for approval to the Contracting Authority.

At the end of the Inception phase the Contractor (Engineer) shall prepare, based on the collected information, assessment and the contacts with the relevant stakeholders present, a project plan of activities, the logical framework, methodology, resource allocation and report accordingly in the project Inception Report, which is due at the end of the inception phase (see section 7).

The expected duration of Implementation phase is twenty four (24) months: During this period the experts shall coordinate the activities with the Contracting Authority, EPS and other relevant stakeholders, in order to ensure smooth implementation of the foreseen works.

The Contracting Authority may, in coordination with the Beneficiary and the Contractor (Engineer), modify the schedule of the work plan according to unforeseen activities at the site. All the changes and modifications will be duly forwarded to the Works Contractor selected for the implementation of the works. In the course of the accomplishment of the required services, the Contractor (Engineer) shall maintain regular communication with the Works Contractor, Contracting Authority, Beneficiary and all other relevant and involved parties.

The Defect Liability Period is twelve (12) months. The defects liability period shall commence on the date of the provisional acceptance. The Contractor (Engineer) has to perform at least two site visits, including the final inspection on expiry of the Defect Liability Period and shall prepare reports from these missions which will be part of the Final Report. In the case of any unforeseen circumstances (defects, damages etc.), if there is a necessity for inspection, the Contracting Authority may request the Contractor (Engineer) to perform additional (unscheduled) inspections.

The Activities after the DLP (30 days) upon the expiry of the defects liability period, in his capacity as the Contractor (Engineer), the Contractor (Engineer) shall issue to the Works Contractor a final acceptance certificate and a copy thereof to the Contracting Authority stating the date on which the Contractor (Engineer) completed its obligations under the contract to the Contractor's (Engineer's) satisfaction. The final acceptance certificate shall be given by the Contractor (Engineer) within 30 days after the expiration of the defects liability period, or as soon as any works ordered under PRAG Conditions of Contract have been completed to the satisfaction of the Contractor (Engineer)

6. REQUIREMENTS

6.1. Staff

Note that civil servants and other staff of the public administration, of the partner country or of international/regional organisations based in the country, shall only be approved to work as experts if well justified. The justification should be submitted with the tender and shall include information on the added value the expert will bring as well as proof that the expert is seconded or on personal leave.

All experts must be independent and free from conflicts of interest in the responsibilities they take on, and have to spend at least 80% time in the country.

The presented number of working days for the experts is absolute minimum of man days. It is up to the tenderer to propose more than the indicated days, if it is thought to be necessary for the successful implementation of the project.

Expert	Position	Total Working Days (Indicative)
Key Experts	Key Expert 1 - TL	300
	Key Expert 2	220
	Total Key Experts	520
Non-Key Experts	Senior Experts	240
	Junior Experts	240
	Total Non-Key Experts	480

6.1.1. Key experts

Key experts have a crucial role in implementing the contract. These terms of reference contain the required key experts' profiles.

All Key experts shall possess:

- Fluency in English, both written and spoken;
- Excellent organisational, communication and report writing skills,
- Computer literacy.

Knowledge of Serbian would be an advantage.

Team Leader shall have project management skills.

The tenderer shall submit CVs and Statements of Exclusivity and Availability for the following key experts, with the total input of minimum 520 working days:

Key expert 1: Team Leader - Electrical Engineer (300 working days)

Qualifications and skills

- University degree in Electrical Engineering with BSc degree or equivalent;

General professional experience

Minimum ten (10) years, but preferably fifteen (15) years, of general professional experience in the field of telecommunication grids and systems (design / construction / maintenance/ management / supervision / reconstruction).

Specific professional experience

- Previous experience in managing a supervision team (Team leader, Chief/Deputy Resident Engineer, Chief Engineer) at least in one (1) project of similar size both for complexity and value;
- Previous experience in supervision of supply / supply and installation / works contract in at least one project;
- Licensed in accordance with the national Law on Planning and Construction of the Republic of Serbia (licence No 353 or 453);

[Key expert 2: Electrical engineer (220 working days)

Qualifications and skills

- University degree in Electrical Engineering with BSc degree or equivalent;

General professional experience

Minimum ten (10) years, but preferably fifteen (15) years, of general professional experience in the field of power transformers (design / construction / maintenance / management / supervision / reconstruction).

Specific professional experience

- Previous experience in managing a supervision team (Deputy Resident Engineer, Deputy Chief Engineer) at least in one (1) project of similar size both for complexity and value;
- Previous experience in supervision of supply / supply and installation / works contract in at least two projects,
- Licensed in accordance with the national Law on Planning and Construction of the Republic of Serbia (licence No 351 or 451);

All experts must be independent and free from conflicts of interest in the responsibilities they take on.

6.1.2. Non-key experts (Senior key experts 240 and Junior key experts 240 working days)

CVs for non-key experts should not be submitted in the tender but the tenderer will have to demonstrate in their offer that they have access to experts with the required profiles.

The Contractor (Engineer) must select and hire other experts as required according to the profiles identified in the Organisation & Methodology and these Terms of Reference. It must clearly indicate the experts' profile so that the applicable daily fee rate in the budget breakdown is clear. All experts must be independent and free from conflicts of interest in the responsibilities they take on.

The selection procedures used by the Contractor (Engineer) to select these other experts must be transparent, and must be based on pre-defined criteria, including professional qualifications, language skills and work experience. The findings of the selection panel must be recorded. The selected experts must be subject to approval by the Contracting Authority before the start of their implementation of tasks.

The pool of non-key experts is expected to be provided in order to support/complement all the activities of the key experts. Possession of relevant Serbian license for design/construction would be required, as applicable. It is expected that general professional experience of non-key experts (senior/junior experts) will be required in the following fields: Civil, electrical, hydro, mechanical and any other related field needed for completion of the Contractor's (Engineer's) supervision activities.

Senior experts shall have minimum ten (10), and junior experts minimum five (5) years of general professional experience in the relevant field, and shall be licensed in accordance with the national Law on Planning and Construction of the RS.

Their requirements and their profiles shall be defined, as much as feasible, during the Inception Period. These experts will complement activities as outlined in the specific activities.

All non-key experts shall possess:

- Fluency in English, both written and spoken;
- Computer literacy.

Knowledge of Serbian would be an advantage.

The Contractor (Engineer) shall provide non-key experts with the total output of not less than 518 working days.

6.1.3. Support staff & backstopping

The Contractor (Engineer) will provide support facilities to their team of experts (backstopping) during the implementation of the contract. Minimum support staff to be included is one secretary /interpreter and one driver. The Contractor (Engineer) shall ensure that all services are delivered and, where necessary, supplementary support/expertise will be provided through. Backstopping and support staff costs must be included in the fee rates.

6.2. Office accommodation

Office accommodation of a reasonable standard and of approximately 10 square metres for each expert working on the contract is to be provided by EPS

6.3. Facilities to be provided by the Contractor (Engineer)

The Contractor (Engineer) must ensure that experts are adequately supported and equipped. In particular it must ensure that there is sufficient administrative, secretarial and interpreting provision to enable experts to concentrate on their primary responsibilities. It must also transfer funds as necessary to support their work under the contract and to ensure that its employees are paid regularly and in a timely fashion.

Local transportation is at the cost of Contractor (Engineer).

At the start of project implementation, the Contractor (Engineer) shall organize a kick-off meeting with the representatives from the Beneficiary Institution and the Contracting Authority to confirm project requirements, present and discuss the work plan, to introduce all parties formally, to discuss and agree on outstanding matters, etc. No additional costs shall be charged to the Contracting Authority for organizing such meetings by the Contractor (Engineer).

The Contracting Authority will deal with any issue that will arise on the daily management level, if the Contractor (Engineer) considers being necessary for the Contracting Authority to intervene.

6.4. Equipment

No equipment is to be purchased on behalf of the Contracting Authority / partner country as part of this service contract or transferred to the Contracting Authority / partner country at the end of this contract. Any equipment related to this contract that is to be acquired by the partner country must be purchased by means of a separate supply tender procedure.

6.5. Incidental expenditure

The provision for incidental expenditure covers ancillary and exceptional eligible expenditure incurred under this contract. It cannot be used for costs that should be covered by the Contractor (Engineer) as part of its fee rates, as defined above. Its use is governed by the provisions in the General Conditions and the notes in Annex V to the Contract. It covers:

- Visibility activities ensuring proper representation of the project,
- Travel costs and subsistence allowances for missions outside the normal place of posting, undertaken as part of this contract.
- Expenditures such as, translation, interpretation, preparation and printing of materials,
- Fees for data collection, laboratory tests, if necessary;

The provision for incidental expenditure for this contract is EUR 25.000. This amount must be included unchanged in the Budget breakdown.

Daily subsistence costs may be reimbursed for missions foreseen in these terms of reference or approved by the Contracting Authority, and carried out by the Contractor's (Engineer's) authorised experts, outside the expert's normal place of posting.

The per diem is a flat-rate maximum sum covering daily subsistence costs. These include accommodation, meals, tips and local travel, including travel to and from the airport. Taxi fares are therefore covered by the per diem. Per diem are payable on the basis of the number of hours spent on the mission by the Contractor's (Engineer's) authorised experts for missions carried out outside the expert's normal place of posting. The per diem is payable if the duration of the mission is 12 hours or more. The per diem may be paid in half or in full, with 12 hours = 50% of the per diem rate and 24 hours = 100% of the per diem rate. Any subsistence allowances to be paid for missions undertaken as part of this contract must not exceed the per diem rates published on the website -

http://ec.europa.eu/europeaid/funding/about-calls-tender/procedures-and-practical-guide-prag/diems_en - at the start of each such mission.

The Contracting Authority reserves the right to reject payment of per diem for time spent travelling if the most direct route and the most economical fare criteria have not been applied.

Prior authorisation by the Contracting Authority for the use of the incidental expenditure is not needed.

6.6. Lump sum – not applicable

6.7. Expenditure verification

The provision for expenditure verification covers the fees of the auditor charged with verifying the expenditure of this contract in order to proceed with the payment of any pre-financing instalments and/or interim payments.

The provision for expenditure verification for this contract is EUR 6,000. This amount must be included unchanged in the Budget breakdown.

This provision cannot be decreased but can be increased during execution of the contract.

7. REPORTS

7.1. Reporting requirements

Please see Article 26 of the General Conditions. Interim reports must be prepared every six months during the period of implementation of the tasks. They must be provided along with the corresponding invoice, the financial report and an expenditure verification report defined in Article 28 of the General Conditions. There must be a final report, a final invoice and the financial report accompanied by an expenditure verification report at the end of the period of implementation of the tasks. The draft final report must be submitted at least one month before the end of the period of implementation of the tasks. Note that these interim and final reports are additional to any required in Section 4.2 of these Terms of Reference.

Each report must consist of a narrative section and a financial section. The financial section must contain details of the time inputs of the experts, incidental expenditure and expenditure verification.

In addition to any documents, reports and output specified under the duties and responsibilities of each key expert above, the Contractor (Engineer) shall provide the following reports:

Name of report	Content	Time of submission
The Inception report	This report, among others shall consist of: <ul style="list-style-type: none"> - the project plan of activities, - the logical framework and methodology, - review of the Design and other documents needed for the installation works. 	No later than 3 weeks after the commencement day.
Monthly Progress reports	These reports, among others shall consist of: <ul style="list-style-type: none"> - Main contractual details; - Progress achieved during the reporting period, detailing any delays and acceleration measures; - Cumulative progress achieved; - Progress achieved and planned for the next reporting period - Any problems encountered and proposed solutions; - List of variations; - Claims; - Risks and Mitigates; - Payments; - Photos. 	No later than 5 working days after the end of each month.
6-month Progress Report	Short description of progress (technical and financial) including problems encountered; planned work for the next 6 months accompanied by an invoice and the expenditure verification report.	No later than 3 weeks after the end of each 6-month implementation period.
Provisional acceptance reports	The provisional acceptance report shall summarize the actions undertaken during the duration of the project, the financial data and technical and financial statistics explaining the overall process of the works and any other relevant facts from the commencement until the Provisional Acceptance Certificate of the works	No later than 1 month after the end of works performance of the works contracts.
Defect liability reports	Defect liability reports shall include the finding of the conducted mission, any problems encountered including activities undertaken for rectifying all defects in the works in a timely manner.	No later than 2 weeks after each conducted mission
Draft Final Reports	Short description of achievements including problems encountered and recommendations.	No later than 1 month before the end of the implementation period.
Final Report	The Final report shall summarize the actions undertaken during the duration of the project, the financial data and technical and financial statistics explaining the overall process of the works and any other relevant facts from the commencement until the Final Acceptance Certificate of the works after the expiry of the Defect Liability Period. The Final Report must be accompanied by the final invoice. The Final Report shall include: <ul style="list-style-type: none"> - a complete overview of all activities implemented during the project; - all outputs produced within project implementation, and critical analyses for any major problems that may have arisen during the performance of the contract, with recommendations regarding resolving similar problems in the future and proposals for future actions. - Defect liability period report The reports shall be drafted following the instructions and formats received from the Contracting Authority.	Within 1 month of receiving comments on the draft final report from the Contracting Authority

Additionally, the Contracting Authority may request ad hoc reports on project related issues, Contracting Authority may request ad hoc reports on project related. The content of the reports is to be provided to the Contractor (Engineer) by the Contracting Authority and agreed between the Contractor (Engineer) and the Contracting Authority at the start of the assignment.

All reports to be prepared under this Contract shall take into account the procedures laid down in the **Visibility and Communication Manual for EU external actions**, which can be download at: http://ec.europa.eu/europeaid/funding/communication-and-visibility-manual-eu-external-actions_en. The Contracting Authority may ask for additional reports/briefing notes during the time of the assignment.

7.2. Submission & approval of reports

Electronic copy and two (2) hard copies of the reports referred in the table above must be submitted to the Project Manager identified in the contract. The reports must be written in English. The Project Manager is responsible for approving the reports.

Monthly Progress Reports shall be submitted to the Contracting Authority for information purposes.

Electronic copy of the Draft versions of the Inception and Final report shall be submitted to the Contracting Authority for prior approval.

EPS will be involved in commenting all the reports prior to official approval by the Contracting Authority. In the absence of comments within the prescribed deadlines, and according to the Project Manual, the reports are deemed to be approved

8. MONITORING AND EVALUATION

8.1. Definition of indicators

The Contracting Authority and Beneficiary will take measures to monitor the process and to make timely evaluation on the base of the provided reports.

A specific judgment about the Contractor (Engineer)'s performance can be obtained from the following:

- i. Actual and timely deployment of the foreseen supervision team staff;
- ii. Manufacturing and delivery of equipment, installation works completed within the given time frame
- iii. Timely Approved Inception Report
- iv. Timely Approved 6-month Progress Report
- v. Timely Approved Provisional Acceptance Certificate
- vi. Timely Approved Defects liability reports
- vii. Timely Approved Final Report
- viii. Timely Approved Final Acceptance Certificate

8.2. Special requirements

In order to facilitate the processing of all the documents presented in the framework of reporting to the Contracting Authority, the Contractor (Engineer) shall also submit a digital version of the documents. The electronic version shall be identical to the original (printed) version, however in case of any discrepancies between the electronic version and the original (printed version), the latter will prevail.

The digital versions of the documents can be submitted on a CD or sent to the Project manager. The name of the Contractor (Engineer) as well as the contract number and title should be clearly indicated in the email subject or on the CD.

At the start of project implementation, the Contractor (Engineer) shall organize a kick-off meeting with the representatives from the Beneficiary Institution and the Contracting Authority to confirm project requirements, present and discuss the work plan, to introduce all parties formally, to discuss and agree on outstanding matters, etc. No additional costs shall be charged to the Contracting Authority for organizing such meetings by the Contractor (Engineer).

The Contracting Authority will deal with any issue that will arise on the daily management level, if the Contractor (Engineer) considers being necessary for the Contracting Authority to intervene.

Project Manual

- a) The "working tool" for the project administration shall be Project Manual.
- b) The Project Manual shall be developed by the Supervising Engineer and issued for comments and approval by the PMUs. Upon acceptance of the document, it shall be distributed to all responsible staff and later (at the kick-off meeting) to the selected contractors as administrative guidance.
- c) Updating of the Project Manual shall take place as necessary to reflect project developments or changed circumstances.

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