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

**Contract title: Supply of** Improving infrastructure through installation of the equipment for urban bus stop facilities powered on sun power 2 units (D1.1.3), Installing bicycle and electric scooter stations whit solar power chargers and 5 units (D1.1.3) and supply bicycle seats for children 15 units (D1.1.3)

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**Publication reference:** IPA ADRION 53 CITYMOVE (B.L. 5.1.; 5.2 and 5.3.), Tender no 1

**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)
* 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** |
| --- | --- | --- | --- | --- |
| This contract concerns the procurement of supply, delivery, unloading, siting and installation, and technical check and commissioning of the equipment for urban bus stop facilities powered on sun power, Installing bicycle and electric scooter stations whit solar power chargers and 5 units and supply bicycle seats for children 15 units for the locations in Municipality of Sveti Nikole.  In several central urban and park locations, solar-powered public infrastructure will be installed in order to improve green mobility and urban sustainability.  This includes the delivery and installation of  2 smart solar bus stops, 5 solar-powered scooter and bicycle charging stations, and supply of 15 children’s bicycle seats.  The installations will provide public access to clean energy charging for micromobility and resting places for citizens, promoting a shift to sustainable transport. All units will include visibility signs and will be equipped with renewable energy components (solar panels, inverters, batteries, efficient lighting, and charging ports). The equipment will be installed in public areas and no infrastructural works are included. The installations will be placed on public property managed by the local self-government. The Municipality of Sveti Nikole is responsible for issuing installation permits and for the long-term maintenance of the installed equipment. | | | | |
| **1** | **Field preparation and istalation of concrete base for Instaalation urban bus stop facilities powered on sun power**  Preparation of the site, including leveling and compacting the ground, followed by the installation of a reinforced concrete base using concrete grade MB30.  Formwork, reinforcement (according to structural design), mixing, pouring, vibration, and curing of concrete.  Fild Preparation and installation of Concrete base MB30, whit volume 1.2 m³ per unit  **2 Unitits** |  |  |  |
| **2** | **Metal construction and urban equipment for bus stop facilities powered on sun power**  8 pcs anchors bolt per unit for fastening metal construction Dimension 200x200 mm  1 metal structure (profile) per unit dimension 80x60x3 mm coveret with 50 mm sandwich panel on three sides and on roof Dimension  2 Benches per unit Dimensions 1000х600х400 mm with wood finish seating, frame 40x40x2 mm  Metal waste bin made of 3mm sheet metal (metal holder dimensions 800x350mm) and bin whit dimensions 300x300 mm made of 1mm sheet metal 1 pc per unit  Metal cabinet for battery and electronic equipment with lock made of 1.5m thick sheet metal dimensions 1000х500х500 mm 1 pc per unit  Sheathing of installed metal structure (profile) and sandwich panels with plastic-coated sheet metal with a thickness of 0.5 mm min. Cladding of the entire structure and sandwich panels Total Length: 18000 mm  installation of gutters on the back of the roof made of plastic-coated sheet metal with a thickness of 0.5mm total Length:5500 mm  All the construction works are anti-corrosion coated  **2 Unitits** |  |  |  |
| **3** | **Unloading, siting and installation solar panels and electrical equipment for bus stop facilities powered on sun power**  **Supply , transportation and construction of metal structure** for installation of solar panels on roof panel 1 pc per unit  **Supply , transportation and instalation of Solar panel** **Type**: Monocrystalline photovoltaic panels; **Technology**: Half-cut (split 144 cells or equivalent technological standard); **Electrical Characteristics**: Nominal power ≥ 440W, Panel efficiency ≥ 20%, Voltage at maximum power (Vmp) ≥ 40V, Current at maximum power (Imp) ≥ 11A, Open circuit voltage (Voc)≥ 48V, Short circuit current (Isc) ≥ 11.4A 445W, **Thermal Characteristics**: Nominal Operating Cell Temperature (NOCT): ≤ 45°C, Temperature coefficient of power (Pmax): max -0.35%/°C , Temperature coefficient of voltage (Voc): max -0.28%/°C, Temperature coefficient of current (Isc): max +0.05%/°C; **Operating Conditions:** Maximum system voltage: 1500V DC, Maximum fuse rating per string: 20A, Operating temperature range: -40°C to +85°C, Load resistance: minimum 5400Pa (snow), minimum 2400Pa (wind); **Mechanical Characteristics:** Panel dimensions: approx. 2100mm x 1040mm x 35mm, Weight: max 25kg, Front glass: Tempered, anti-reflective, minimum thickness 3.2mm, Frame: Aluminum, anodized, corrosion-resistant Junction box: IP68 protection or higher Connectors: MC4 compatible Cables: UV resistant, minimum length 1200mm; **Certifications (Mandatory**) The panels must hold valid international certifications: IEC 61215 (Durability and performance) IEC 61730 (Safety requirements) ISO 9001 (Quality management system) ISO 14001 (Environmental management system) ISO 45001 (Occupational health and safety management system) |  |  |  |
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| **3** | **Warranty** Product warranty: minimum 12 years Linear performance warranty: minimum 25 years, not less than 80% of retained output power at the end of the period 1 pc per unit  **Supply , transportation and instalation of** **Hybrid inverter Electrical Characteristics:** Rated Power From 3000W to 5000W, Surge Power Min. 2x rated power (6000W to 10000W), Output Voltage (AC) 220–240V AC, programmable Frequency 50/60 Hz (auto-sensing), Inverter Efficiency ≥ 90% (peak ≥ 93%), Transfer Time ≤ 20ms, Battery System Voltage 24VDC or 48VDC Battery Charger (AC), Selectable current (min. 20A–60A), Max Combined Charging Current ≥ 80A, Protection features Overload, short circuit, deep discharge: **Built-in MPPT Controller** Max PV Input Power ≥ 4000W, Max PV Open Circuit Voltage (VOC) ≥ 145VDC, MPPT Voltage Range Min. 60–130VDC, Max Solar Charge Current, 60A or 80A Charge Controller Type, MPPT Max Efficiency (MPPT) ≥ 98%; **Mechanical and Environmental**: Cooling Forced air (fan) IP Protection Min. IP21 (indoor use) Operating Temperature 0°C to +50°C Storage Temperature -15°C to +60°C Humidity 5% to 95% RH (non-condensing) Weight ≤ 16.5 kg dimensions (approx.) Up to 297.5mm x 468mm x 125mm. **Certifications:** The inverter must be CE certified and conform to: EN 61000 (EMC), EN 62109 (Safety of power converters). Warranty Minimum 12-month full product warranty. 1 pc per Unit  Supply , transportation and instalation of Gel Battery 12V, 200Ah 1 pc per unit |  |  |  |
| **3** | A Supply , transportation and instalation AC/DC cables, mounting substructure  A Supply , transportation and instalation of Charging sockets (5 USB A type + 5 C-type) 5V/3A  A Supply , transportation and instalation of LED roof lights, max 18W 3 pcs per unit  **2 Unitits** |  |  |  |
| **4** | **Field preparation and istalation of concrete base for Instaalation bicycle and electric scooter stations whit solar power chargers**  Preparation of the site, including leveling and compacting the ground, followed by the installation of a reinforced concrete base using concrete grade MB30.  Formwork, reinforcement (according to structural design), mixing, pouring, vibration, and curing of concrete.  Fild Preparation and installation of Concrete base MB30, whit volume 1.2 m³ per unit  **5 Unitits** |  |  |  |
| **5** | **Metal construction and urban equipment for bicycle and electric scooter stations whit solar power chargers**  8 pcs anchors bolt per unit for fastening metal construction Dimension 200x200 mm  1 metal structure (profile) per unit dimension 80x60x3 mm coveret with 50 mm sandwich panel on three sides and on roof Dimension  2 Benches per unit Dimensions 1000х600х400 mm with wood finish seating, frame 40x40x2 mm  Metal waste bin made of 3mm sheet metal (metal holder dimensions 800x350mm) and bin whit dimensions 300x300 mm made of 1mm sheet metal 1 pc per unit  Metal cabinet for battery and electronic equipment with lock made of 1.5m thick sheet metal dimensions 1000х500х500 mm 1 pc per unit  Sheathing of installed metal structure (profile) and sandwich panels with plastic-coated sheet metal with a thickness of 0.5 mm min. Cladding of the entire structure and sandwich panels Total Length: 18000 mm |  |  |  |
| **5** | installation of gutters on the back of the roof made of plastic-coated sheet metal with a thickness of 0.5mm total Length:5500 mm  metal racks for electric scooters and bicycles with parking spaces for 5 scooters and 3 bicycles Dimensions 1500x720mm per unit  Electric charging ports for electric scooters and bicycles for 5 scooters and 3 bicycles  All the construction works are anti-corrosion coated  **5 Unitits** |  |  |  |
| **6** | **Unloading, siting and installation solar panels and electrical equipment for** **bicycle and electric scooter stations whit solar power chargers**  **Supply , transportation and construction of metal structure** for installation of solar panels on roof panel 1 pc per unit  **Supply , transportation and instalation of Solar panel** **Type**: Monocrystalline photovoltaic panels; **Technology**: Half-cut (split 144 cells or equivalent technological standard); **Electrical Characteristics**: Nominal power ≥ 440W, Panel efficiency ≥ 20%, Voltage at maximum power (Vmp) ≥ 40V, Current at maximum power (Imp) ≥ 11A, Open circuit voltage (Voc)≥ 48V, Short circuit current (Isc) ≥ 11.4A 445W, **Thermal Characteristics**: Nominal Operating Cell Temperature (NOCT): ≤ 45°C, Temperature coefficient of power (Pmax): max -0.35%/°C , Temperature coefficient of voltage (Voc): max -0.28%/°C, Temperature coefficient of current (Isc): max +0.05%/°C; **Operating Conditions:** Maximum system voltage: 1500V DC, Maximum fuse rating per string: 20A, Operating temperature range: -40°C to +85°C, Load resistance: minimum 5400Pa (snow), minimum 2400Pa (wind); **Mechanical Characteristics:** Panel dimensions: approx. 2100mm x 1040mm x 35mm, Weight: max 25kg, Front glass: Tempered, anti-reflective, minimum thickness 3.2mm, Frame: Aluminum, anodized, corrosion-resistant Junction box: IP68 protection or higher Connectors: MC4 compatible Cables: UV resistant, minimum length 1200mm; |  |  |  |
| **6** | **Certifications (Mandatory**)The panels must hold valid international certifications: IEC 61215 (Durability and performance) IEC 61730 (Safety requirements) ISO 9001 (Quality management system) ISO 14001 (Environmental management system) ISO 45001 (Occupational health and safety management system) **Warranty** Product warranty: minimum 12 years Linear performance warranty: minimum 25 years, not less than 80% of retained output power at the end of the period, 1 pc per unit  **Supply , transportation and instalation of** **Hybrid inverter Electrical Characteristics:** Rated Power From 3000W to 5000W, Surge Power Min. 2x rated power (6000W to 10000W), Output Voltage (AC) 220–240V AC, programmable Frequency 50/60 Hz (auto-sensing), Inverter Efficiency ≥ 90% (peak ≥ 93%), Transfer Time ≤ 20ms, Battery System Voltage 24VDC or 48VDC Battery Charger (AC), Selectable current (min. 20A–60A), Max Combined Charging Current ≥ 80A, Protection features Overload, short circuit, deep discharge: **Built-in MPPT Controller** Max PV Input Power ≥ 4000W, Max PV Open Circuit Voltage (VOC) ≥ 145VDC, MPPT Voltage Range Min. 60–130VDC, Max Solar Charge Current, 60A or 80A Charge Controller Type, MPPT Max Efficiency (MPPT) ≥ 98%; **Mechanical and Environmental**: Cooling Forced air (fan) IP Protection Min. IP21 (indoor use) Operating Temperature 0°C to +50°C Storage Temperature -15°C to +60°C Humidity 5% to 95% RH (non-condensing) Weight ≤ 16.5 kg dimensions (approx.) Up to 297.5mm x 468mm x 125mm. **Ccertifications:** The inverter must be CE certified and conform to: EN 61000 (EMC), EN 62109 (Safety of power converters). Warranty Minimum 12-month full product warranty. 1 pc per Unit |  |  |  |
| **6** | Supply , transportation and instalation of Gel Battery 12V, 200Ah 1 pc per unit  A Supply , transportation and instalation AC/DC cables, mounting substructure  A Supply , transportation and instalation Charging ports scooter/bike compatible, 5V3A, 8 pc per unit  A Supply , transportation and instalation of LED roof lights, max 18W 3 pcs per unit  **5Unitits** |  |  |  |
| **7** | **Supply Bicycle seats for children**  Mounting System: The seat must be mountable on the front frame tube of the bicycle. Compatible with oval or round tubes with a diameter between 22 mm and 30 mm. Installation and removal must be simple and tool-free or require only basic tools.  Designed for children approximately 9 months to 3 years of age. Maximum load capacity: at least 15 kg.  certified according to EN 14344.  -3 point locking belt,  Straps for the child's feet  New, unused, and in original packaging  The product must be delivered with **installation instructions** in English and/or Macedonian.  **15 units** |  |  |  |
| **8** | **System parameter commissioning, and technical chek 7 units** |  |  |  |
| **9** | **A permanent visibility board (42cm x 60 cm - in accordance to Special conditions Article 9)**  **7 units** |  |  |  |