

Tender

The Company below are seeking quotations for the project detailed in this document. Please ensure that proposals address every detail of the specification and general requirements in order for them to be considered. The company requesting the submission is not required to consider any quotations that do not meet all of the criteria outlined in this document.

BEST description

BEST is an energy efficiency improvement project, funded by the UK Government through the UK Shared Prosperity Fund with the North East Combined Authority and Gateshead Council as the lead authorities. Delivered by local Councils, BEST aims to reduce energy use and costs in small and medium-sized businesses (SMEs) and Voluntary, Community and Social Enterprises (VCSEs) in Newcastle, North Tyneside, Northumberland and Gateshead.

Details of the opportunity

The SME listed below is seeking quotations from suitably qualified and experienced contractors to supply and install solar PV at their premises.

- **Company requesting quotation:** Leisure United, Bochum Parkway, Sheffield, S8 8JR
- **Location for Solar PV installation:** Leisure United Bullocksteads, Ponteland Road, Kenton Bankfoot, Newcastle Upon Tyne, NE13 8AH
- **Contact Details:** Neil Cutts, Head of Finance and Resources, Tel: 0114 308 0938, Email: neil.cutts@leisureunited.com

Quotations should be submitted to the contact listed in this section. A site survey can be arranged in advance with the contact.

Quotations are now sought for the following works

Specification

Proposed Solar PV Arrangement

Leisure United, Bullocksteads is located on Ponteland Road, Kenton Bank Foot, Newcastle, NE13 8AH.

Bullocksteads opened in April 2023 and includes two new floodlit 3G sports pitches and a two-storey pavilion. At ground floor, the building has changing rooms for six teams and two officials, a community café, and meeting room. The first floor features a health and fitness club with a 70-station gym, spin studio, and multi-purpose studio. The plant room is located on east elevation and accessed externally. The building has an estimated floor area of 1538m².

There are seven grass pitches (including one rugby), large on-site parking facility and a children's adventure play area. The facility is home to several football clubs.

The site is operated by Leisure United; a registered Charity and all surplus income from the facility is re-invested back into grassroots football in Newcastle to help make football more sustainable.



The building has a mono pitch roof sloping upwards from the northern end to the southern end by approximately 900mm. The roof is not overlooked by other surrounding buildings. The roof area is approximately 760m².



External view of the building showing the roof area for the PV array.

It is estimated that the roof has space for approximately 150no PV modules, although alternative configurations may be possible.

Scope of Works

The services include the design, supply, delivery, off-loading, installation and services co-ordination, controls cabling and wiring, testing, commissioning, handing over on completion in a satisfactory working order and replacement of all faulty parts during the defects liability period of all systems, items, parts and apparatus specified in this document.

The Contractor shall employ or be a member of the Microgeneration Certification Scheme approved specialist to design, supply, install, test, commission and certify a roof mounted photovoltaic system.

The PV installation shall comply in all respects with the Standards stated elsewhere in this specification but in particular the IET Regulations, MCS Requirements MIS3002, RC62 and BS EN 62446.

The Contractor shall be fully responsible to order, pay for, liaise, negotiate, program, site manage and co-ordinate with a Microgeneration Certification Scheme Approved Specialist to present a co-ordinated fully operational PV infrastructure on and within the building.

The Contractor shall produce a Solar PV design using approved specialist software to demonstrate that their design will meet or exceed the outline criteria.

The Contractor shall include for all works and materials allied and incidental, which are not explicitly specified, but which are necessary to complete the installation as a working whole. All work shall conform to the best principles of modern practice and shall be carried out by competent tradesmen of the appropriate grades.

By acceptance of the contract, the successful Contractor shall accept full responsibility for the successful operation of all the works specified herein. Inclusion shall be made for transport of all materials, plant and equipment to site, for all necessary off-loading unpacking, storage and assembly. The Contractor shall pay for all associated charges for labour, freightage and demurrage.

The Contractor shall, wherever necessary, pay all fees to manufacturers, suppliers, inspectors etc for attendance installation, commissioning and testing of any part of the mechanical and electrical plant and / or items of equipment, included in this contract.

Study the building Asbestos report and ensure all site operatives are fully aware of its contents as detailed in the specification.

Site survey, development and production of fully detailed installation and working drawings, schedules, risk assessments, method statements, programmes etc. necessary to fully describe and implement the proposed installations.

The proposal must include the supply and installation of all PV modules, framing and fixing systems, and all associated cabling. The system must be designed to meet current industry best practices. The contractor will be responsible for creating and completing all necessary connections for the PV connection to the 3-phase supply to the site.

The provision of "As Installed" drawings and Operational and Maintenance manuals, CDM and Health and Safety documentation for and associated with the above contract works including all associated system and building log books.

Handover procedures and employer/end user training and instruction.

The Contractor shall provide all necessary attendance and services requirements associated with all other trades, Sub-Contractors and System Specialists requiring electrical supplies, containment services, interfacing, integration and builder's work.

Any tasks or items required for the system to be fully operational that have not been allowed for, must be clearly stated within the proposal

Roof Loads

It has been identified that the roof may have sufficient structural integrity to deflect the additional loadings of a Solar PV installation. The as built structural drawings for the building can be provided upon request. However, it shall be the responsibility of the Contractor to undertake full structural survey and carry out calculations to ensure their proposed system loadings shall be admissible by the structural steel framework of the building. The Contractor shall consider the loadings of:

- Solar Photovoltaic Modules
- Solar array framework
- External containment
- System weightings to secure the full installation

The Contractor shall be responsible for the system design, ensuring that the proposed system is compatible with the existing roof coverings, and that the roof structure can accommodate the mass and wind loading expected from the installed PV equipment.

Generation

The Contractor's proposals should provide details of their system design. System performance should be detailed in relation to estimated total and monthly generation, self-consumption and export.

Generation and Export Metering

The Contractor shall design, supply and install a generation and export meter for the Solar PV arrays to allow the business to measure accurately the performance. The Contractor shall allow for liaising with user and their electrical supplier to ensure that the Solar PV installation is approved and accepted for schemes such as the Smart Export Guarantee with all relevant documentation required.

G99 Application

The Contractor must comply with the requirements of the local Distribution Network Operator (Northern Powergrid) G99 Grid Connection requirements and other relevant national and international standards. The Contractor shall be responsible for making the G99 application with Northern Powergrid and make regular contact with Northern Powergrid engineer on the application progress. The G99 application shall be submitted at the start of the project commission.

Planning Applications

A pre-app for planning will be submitted by the selected Contractor for the proposed Solar PV installation on the roof. The application will seek formal planning approval under permitted development for the proposed Solar PV Works.

Below is the link to the planning portal for non domestic buildings

<https://www.planningportal.co.uk/permission/common-projects/solar-panels-non-domestic/planning-permission-solar-panels-mounted-on-a-non-domestic-building>.

Key summary of Planning Permission: Solar panels mounted on a non-domestic building.

All the following conditions must be observed:

- Equipment should be sited, so far as is practicable, to minimise the effect on the external appearance of the building and the amenity of the area.
- When no longer needed the equipment should be removed as soon as reasonably practicable.

All the following limits must be met:

- Solar panels installed on a wall or a pitched roof should project no more than 200mm from the wall surface or roof slope.
- Where panels are installed on a flat roof the highest part of the equipment should not be more than one metre above the highest part of the roof (excluding the chimney).
- Equipment mounted on a roof must not be within one metre of the external edge of that roof.
- Equipment mounted on a wall must not be within one metre of a junction of that wall with another wall or with the roof of the building.
- The panels must not be installed on a listed building or on a building that is within the grounds of a listed building, or on a site designated as a scheduled monument.
- If the building is on Article 2(3) designated land* the equipment must not be installed on a wall or a roof slope which fronts a highway.
- If the equipment is on the roof of the building the capacity for generation of electricity across the whole of the site cannot exceed 1 megawatt.
- Other than microgeneration solar thermal equipment or microgeneration solar PV equipment, if there is to be any other solar PV equipment installed on the roof of a building then the Prior Approval (56 days) of the Local Planning Authority is required. This will assess the design and external appearance of the development, particularly in respect of the impact of glare on occupiers of neighbouring land.

The selected contractor shall allow for submitting all relevant and required supporting information.

Site Delivery

The Contractor shall allow for all deliveries of their PV systems and equipment in a controlled and managed sequence of work. All deliveries shall be programmed with at least 2 weeks' notice.

As the building is a 'live' active site, used by members of the public, it is important that all deliveries of equipment have accompanying Method statement and risk assessments submitted and an agreement in place.

Solar PV Panels

The following elements of the solar PV system shall be designed, supplied, installed and configured by the Contractor to produce a fully working and complete system.

The Contractor shall supply and install approximately 150No. 450Watt multi-busbar Half -cell PERC module cells with a module efficiency of 21%.

Expected Solar PV dimensions are:

The solar PV module shall comply with the following

- IEC 61215, IEC 61730, UL 61215, UL 61730
- ISO 9001: 2015 quality management system
- ISO 14001:2015 environmental management systems
- IEC TS 62941:2016 Terrestrial photovoltaic modules

The solar PV module junction box shall be rated to IP68, 3 diodes, capable of terminating 4mm² cable.

Electrical Parameters at STC

- rated maximum Power (Pmax) 450w
- Open circuit voltage (Voc) 53.58v
- Maximum Power Voltage (Vmp) 45.515v
- Short circuit current (Isc) 10.523a
- Operating temperature -40C to 85C
- Safety Class – Class II
- Fire Safety Class C

The solar PV shall be complete with 12years product warranty and 25years linear power output warranty. Each panel shall be complete with a suitable stainless-steel Solar drain clip or clamp to bottom edge of the panel to allow rainwater to discharge completely.

Mounting System

The roof is a mono pitch roof with an approximately 10degree incline. It has a single ply roof covering. The mounting system shall be a manufacturer for the PV panels on a non-penetrative weighted flat surface framework suitable for mono pitched roof.

The system shall have flexible, soft rubber feet for absorbing expansion and shrinkage to protect the roofs. A sacrificial Sika Sarnafil single ply cover or felt pad shall be installed directly under each solar mounted frame foot support.

The panel clamps shall be complete with stainless steel plate for electrical bonding. The mounting system shall be designed in accordance to the latest Building Regulations.

The Contractor shall consider maintenance of the roof as part of the Solar PV layout and design, to ensure sufficient space is provided to maintain the roof and the Solar PV. The Contractor shall design, supply and install a man-safe system to allow safe access on the roof and around the roof.

On completion of the Solar PV a bird exclusion mesh system shall be installed. The hot dipped steel wire shall stop roosting and nesting in the void are between the PV solar panels and the roof, using manufacturer mesh clip and stainless-steel corner joints. The bird mesh system shall not negate the manufacturer warranty on the solar panels or the roof membrane.

Inverter

The Contractor shall design, supply and install an adequately sized solar PV inverter to work in conjunction with the Solar PV system outlined in the section above. The inverter shall be three phase and, shall have integrated Type 2 DC surge protection to withstand lightning and arc fault protection with option rapid shutdown.

The inverter shall be wall mounted within the ground floor electrical switch room, at a working height within a mutually agreed location of the building. The Contractor shall survey the site and agree the location for operation and maintenance.

The inverter shall have remote control and monitoring, to allow the system to be reviewed via smartphone app and web portal. The Contractor shall include to set up and fully demonstrate of the App/portal operation and controls to the end user. The inverter shall come with a 20-year warranty.

Inverter connections

The inverter system shall be complete with a suitable App/ software via a Wi-Fi and 5G connection on a Smartphone.

The App/ software shall have the following characteristics

- Username and passwords
- My sites, daily yield, month yield and total yield (kWh)
- Status – normal, alarm or offline
- Power graph, output power, feed in power and load power
- Energy flow diagram

The Contractor shall include to set up and full demonstrate of the App/ software operation and controls to the end user.

Cabling

The contractor shall design, supply and install an electrical mains connection for the Solar PV installation within the building.

The Contractor shall supply and install a new suitable sized MCCB Schneider electric ComPacT MCCB in the Main section board. There are spare capacity ways within the MCCB main section board.

The contractor shall supply and install a 5core SWA cable, terminating in a suitable 4 pole metal clad switch fuse isolator.

From the new 4pole AC isolator to the inverter, a 5core SWA cable shall be installed and adequately supported before termination into the new 3phase inverter. Outgoing from the new 3phase inverter to the DC Isolator shall be a correctly sized solar photovoltaic cable. With the final outgoing cables of the DC isolator to the PV modules and array, being external quality photovoltaic solar cable.

The Contractor shall ensure all works are carried out in a safe manner by a competent, and suitability qualified electrician.

Any electrical isolation shall be coordinated with the facilities manager of the site.

Sub Mains Cable

The Contractor shall design, supply and install any new sub mains cables from the agreed main electrical board or switch fuse isolator to the associated inverter. The proposed cable routes shall be clearly identified.

The sub main cable will be a multicore XLPE/SWA/ LSZH fixed securely direct to the building structure by cable cleats or galvanised steel cable trunking or tray, as appropriate with metal fixings.

Photovoltaic Solar Cable

The photovoltaic cable shall be to the updated harmonised (H1Z2Z2-K) European standard solar cable intended for the interconnection within photovoltaic systems such as solar panel arrays. The solar PV cable shall be suitable for fixed installations, internal and external, within conduit or systems. With impact tested - Suitable for direct burial. Also, for installations where fire, smoke emissions and toxic fumes create a potential risk to life and equipment.

Cable Construction

- Conductor Class 5 flexible tinned copper conductor
- Insulation Halogen-free cross-linked compound
- Sheath Halogen-free cross-linked, flame retardant compound
- Sheath Colour Black

Cable Standards

- EN 50618, TÜV 2 PFG 1169/08.2007, EN 50288-3-7,
- EN 60068-2-78, EN 50395
- Flame retardant to IEC/EN 60332-1-2
- Low Smoke Zero Halogen to IEC/EN 60754-1/2,
- IEC/EN 61034-1/2, EN 50267-2-2
- Ozone and UV Resistant to EN 60811-403, EN 50396,
- EN ISO 4892-1/3,
- Water Resistant to AD8

Containment Systems

The Contractor shall design, supply and install cable containment and support systems for all new AC, DC cables, and sub main cables for the proposed solar PV systems. The contractor shall allow for any unistrut framing system to mount the inverter unit and a suitably sized, fire rated 18mm marine plywood back board.

The proposed cable containment systems are generally intended to provide containment for cabling of all types, throughout their lengths. The Contractor shall install main cable containment routes and additional subsidiary routes so that all cables are contained/secured from their point of supply to their point of use.

All containment systems installed shall be continuous, installed to the manufacturers recommendations and shall include for all of the required component elements (including metallic compartmental segregation where necessary) in order to present a completed installation. This shall include for all separation and compartmental segregation of different services, particularly between mains power, fire alarms and SELV/data/communications cabling.

The following list defines the cable containment types proposed, their installation and general usage:

- Galvanised steel tray/ trunking for sub-main cable.
- Galvanised steel tray for roof mounted DC cables

The Contractor shall ensure that the installation of all containment systems proposed ensures adequate separation of cabling having differing classification bands, with particular attention paid to separating data/communications from power services. The Contractor shall ensure that separation distances are compliant with the distances recommended in the relevant British Standards.

The Contractor shall supply and install suitable fire-resistant material where containment systems pass through walls and/or fire compartments.

Roof mounted Containment

The Contractor shall install a Flexi Support System 'Flexi foot with strut' suitably sized width support system on the roof for the galvanised steel cable tray carrying the new DC cables. The Contractor

shall allow for the installation of a sacrificial Sika Sarnafil single ply cover to be installed directly under the flexi foot support system.

The flexi foot system shall be installed at a minimum distance of 1500mm apart. The galvanised steel cable tray with return flange shall be secured to the flexi foot system at each point utilizing galvanised steel fixings. The complete installation shall be covered with 50mm gauge weld-mesh to prevent any nesting and shall be securely fixed to the flexi foot system or the cable tray.

Earthing

The earthing system shall satisfy BS7671: Requirements for Electrical Installations IET Wiring Regulations 18th Edition, including amendments, BS7430 and in line with the local private and DNO network.

Labelling

All AC and DC isolator, inverters, switches, distribution boards, etc., and all items of electrical equipment on the Solar PV system shall be identified in accordance with Section 514 of BS 7671 and shall have securely fitted externally.

Distribution board charts shall be supplemented with copies of NICEIC test results applicable to each distribution board within a sealed plastic wallet within the distribution board lid.

All final connections shall be identified to enable phases, neutral and CPC conductors to be quickly located and identified. This shall be carried out by the installation of Critchley "Z" type tags for individual circuits, i.e. phase, neutral and CPC to be identified.

Upon completion of the installation the Contractor shall test and record the Prospective Short Circuit current and Earth Fault Loop Impedance at LV switchboard. A traffolyte label showing the designated reference, prospective short circuit current and earth loop impedance measured at the LV switchboard together with the supply cable and associated CPC sizes shall be affixed to the front cover.

Builders Work

It shall be the responsibility of the Contractor to identify ALL builders works and incorporation of associated costs into submitted quotation. No additional costs shall be permitted nor accepted for non-conformance with this requirement. The Contractor shall be responsible for all cutting away of holes and chases in brickwork, concrete or other building materials and making good with relevant fabric/ building material to match area.

The Contractor shall obtain the permission of his Structural Engineer before drilling any holes/apertures/changes in structural steelwork or structural beams, columns or decks etc.

All holes through building fabric/walls, etc. shall be cut as carefully as possible and made up solid after completion.

Roofing Penetration

For any roof penetrations, the contractor shall run the DC Solar cables from the roof into the building via a Klober flavent flat roof kit or equivalent suitable for the roof type. The outlet kit shall provide full protection from wind and rain from entering the roof/ ceiling voids with an elastic EPDM sealing collar, and with low structural height.

Fire Stopping

BS7671:2018 Regulation 527.2 sets out the requirement for the sealing of wiring system penetrations through elements of a building construction. The Contractor shall appoint a specialist third-party accredited installer to carry out fire stopping works.

Maintenance and Operating Instructions

For the electrical installation, system, and individual equipment forming part of the Works, the O&M instructions shall include:

- A description of the extent and manner of operation.
- A copy of any certificates of compliance with relevant standards or schemes as required.
- Comprehensive instructions for the switching on, operation, switching off and isolation of circuits/systems and for dealing with emergency conditions.
- Instructions for any precautionary measures necessary.
- Instructions for servicing, including frequency and materials to be used, to maintain the equipment in good and safe condition.
- The names and addresses of suppliers of all major components together with the type and model reference, serial number, duty rating and the order number and date.

O&M instructions shall be indexed and contained in ring binders with rigid covers. The name of the site and the contract number shall be printed on the front and spine with a suitable identification title (where more than one volume is necessary). The date of completion of the Works shall be included on a flyleaf.

Example Manufacturers (alternatives may be considered if meeting the minimum requirements detailed in this specification).

Galvanised and PVC Trunking, Tray and Conduit

Marshall Tufflex
MK
Legrand

Solar PV module

Tongwei Solar,
J A solar

Mounting System

ValkPro+ for the PV panels mounted in a flat roof, fixed at a tilt angle 10degree.

S:Flex

Weighted Solar Panel Railing System (No specific manufacturer)

Inverter

Solis 3phase

SolarEdge

Fox ESS

Interested parties must include the following in their quotation:

- Clearly identify the legal entity quoting name (ie name of limited company) on letterhead
- Refer to this tender document
- A minimum 30day validity period
- All elements of the specification must be addressed, or explain how an alternative solution would be more appropriate
- The manufacturer and model number (s) being specified, and the quantity and proposed onsite locations of each product.
- Manufacturer datasheets for products and the exact number of each specific product to be installed
- Warranty period for the proposed equipment and workmanship
- Demonstrate full compliance with all Health and Safety requirements.
- The total cost including and excluding VAT

The procurement decision will be made by the SME requesting the quotation.

Assessment criteria (continues on next page)

Quality

Quality Scoring Weighting	Scoring	Weighting
Degree to which the proposal meets the specification and requirements outlined	/5	40%
Qualifications and level of relevant experience of the supplier/installer	/5	20%
Added value (eg. aftersales support, enhanced warranty, performance tracking)	/5	10%

Cost

Cost	Scoring	Weighting
Total cost per kWp installed	Lowest tendered £/kWp	30%
	Other bidder £/kWp	

Deadline

This opportunity was published on 20th September 2024 and the deadline for responses is 23:59 on 2nd October 2024