**CENTRICA DISTRIBUTED ENERGY & POWER (DE&P)**

**CORNWALL LOCAL ENERGY MARKET PROJECT**

**Pre-qualifying Questionnaire – Fully Integrated Energy Storage Solutions**

**Background**

Centrica plc’s Cornwall Local Energy Market project (LEM) is a part EU funded pioneering initiative involving the development of a virtual marketplace. The trial provides participants (homes and businesses) with a platform to buy and sell energy and flexibility both to the supply networks and the wholesale energy market. The project will also be installing new generation, and energy storage solutions, which will allow us to explore how individuals and businesses interact with the technology.

Project outputs include reducing GHG emissions by enabling more green energy onto the grid, as well as enabling asset energy flexibility in the most constrained areas on the distribution network.

The £19m three year trial is being delivered in partnership with the local distribution network operator Western Power Distribution, alongside National Grid, University of Exeter and other partners. It is being funded by Centrica and the British Gas Energy for Tomorrow Fund alongside a £13m grant from the European Regional Development Fund (ERDF).

We believe this hugely exciting project will provide major findings that can inform the Government, National Grid and regulators about how the UK can best develop new and effective markets for flexible energy. Further details, including a short film, are available on our website:  [https://www.centrica.com/about-us/what-we-do/distributed-energy-and-power/building-new-energy-future.](https://www.centrica.com/about-us/what-we-do/distributed-energy-and-power/building-new-energy-future)

**Requirement**

Centrica plc is seeking application from suitably experienced, capable and proven contractors to undertake the design, engineering, procurement, construction, commissioning and testing of energy storage systems ranging from 150kWp to 5MWP, and up to 5 hours of energy storage to suit the use case applications of the Cornwall LEM programme. It is anticipated that there will be 4 to 6 separate project sites, covering 2 to 3 use cases.

The scope will include input into the development of the project e.g. Support DNO G100 application, site surveys and pricing confirmation. In the construction phase, the scope will include the main energy storage and management system, cooling systems, electrical systems, fire protection, auxiliary and control systems. Noting that civil engineering, ground works, site management and specialist LV/HV connections are likely to be managed by the principal contractor.

Additional inclusions will include (but not be limited to):

* Minimum of 8 year warranty provision
* O&M requirements – 24/7 support:
	+ Details of planned preventative maintenance including spares for hardware
	+ Software licences updates necessary to maintain warranty
* Remote Monitoring including licences
* Ability to view, manage and change run strategy
	+ Ability to view and extract operational data for settlements
	+ Ability to remotely dispatch the storage system using an external system
* Training

The systems must comply with the relevant standards and CE requirements that the equipment, composite elements, sub-systems and systems need to comply with for use in the UK. Reference British Standards and Testing Questionnaire in Appendix A.

The PQQ responses shall form the basis against which Centrica will evaluate the selection process of which Applicants will be invited to submit a full tender. In addition to the questions contained within this PQQ please provide any further information that you deem relevant.

Please note references to this Pre-Qualification Questionnaire to “Applicant” means any individual bidder, partnership, consortium or other type of joint venture. All responses shall be provided by the Applicant or, if the Applicant is a consortium/partnership/joint venture, answers shall be provided jointly on behalf of all.

**Project Details**

Cornwall LEM are actively scoping out a number of development sites for energy storage systems in Cornwall. The use cases under consideration are as follows:

Use case 1 – Site management behind the meter

Project scale**:** Up to 3 projects > 100kWp and < 500kWp and up to 2MWh

Description: To maximise self-consumption of on-site renewables to be used later in supplying on-site load to Industrial &Commercial (I&C) Customers. There are secondary objectives to maximise revenue stacking from the storage solution e.g. FFR, capacity market, STOR, price arbitrage.

Use case 2 – Grid Support.

Project Scale: 1 project > 500kWp <= 5MWP with equivalent energy capacity rating (MWh)

Merchant power application, with primary objective of price arbitrage and secondary objectives to improve the stability and energy management of the distribution network at a constrained location e.g.

* Voltage and frequency regulation
* Load shifting
* Peak shaving
* Ancillary services for grid support

Use case 3 - Managing intermittence of renewables

Project Scale: 1 project <= 1MWP, 1 to 2MWh)

Limiting the generation at a constrained substation location, based on dynamic signalling from the DNO, and injecting energy to compensate for variations.

**Provisional Programme Timescales (Calendar year)**

Centrica Issue Cornwall LEM ITT documents Q4 2017

Contract Award Q4 2017 / Q1 2018

Onsite Installation begins Q2/Q3 2018

Sites connected and operating Q3 2018

It is emphasised that the above timescales are purely indicative and may be subject to change.

**Pre-Qualification Returns:**

Note that questions will not be taken or answered at this stage of the tendering process.

**Please ensure that your completed response is returned no later than:**

**Wednesday 30th August 2017 at 12:00 GMT**

Completed Pre-qualification form (above) including sections 1, 2 and 3 plus Appendix A should be returned by email to:

Michelle Maas

Email: michelle.maas@centrica.com

Centrica Distributed Energy & Power

Successful Pre-qualification applicants will be subject to due diligence and HSE checks; then be sent an Invitation to Tender, following receipt of a signed NDA issued by Centrica plc.

**Please do not send any other information with this PQQ. We will request this at ITT stage.**

**Evaluation**

Centrica reserves the right to interview the provisionally selected firm/s and amend or alter the process as it sees necessary, subject to giving reasonable notice.

The Pre-Qualification Questionnaire will be scored against the following Criteria:

**Technical (60%)**

|  |  |
| --- | --- |
| **Criteria** | **Weighting (%)** |
| Capability against the 3 use cases outlined above | 25 |
| Lead time and flexibility | 15 |
| Experience & Regulatory requirements | 20 |
| System performance (against 5 KPIs) | 20 |
| Service | 15 |
| HSE | 5 |

**Commercial (40%)**

|  |  |
| --- | --- |
| **Criteria** | **Weighting (%)** |
| Financial | 80 |
| Other items in the section | 20 |

**SECTION 1 – Company Information**

**Please complete table below:**

|  |  |
| --- | --- |
| Company Name |  |
| Registered Address |  |
| Company Registration Number |  |
| Name of Proposed Contracting Entity |  |
| Post Code |  |
| Country |  |
| Telephone No |  |
| Contact Person |  |
| Position |  |
| Name and dates under which applicant has previously traded (if applicable) |  |

Please copy the above section for each partner if a consortium is presenting the PQQ and identify the lead.

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | Structure of the Applicant

|  |
| --- |
| Please confirm whether the Applicant is a single bidder, a partnership, a consortium or other type of joint venture.*Where the Applicant is a consortium/joint venture/partnership, please provide the following details:*1. Names and addresses of each Applicant member:
 |
|  |

 |
| 2 | Proposed legal form Is the Applicant already incorporated as a limited or unlimited company?*If the Applicant is already incorporated, please provide the following information*:1. *Registered Number:*
2. *Year of Incorporation:*
3. *Issued Share Capital:*
4. *Place of Registration:*
 |
| 3 | Parent or holding companies Is the organisation a subsidiary of another organisation?I*f yes, what interest does the parent have in the organisation?*  1. Wholly owned by a single ultimate parent company
2. Other (please specify including percentage shareholdings):
 |
| 4 | Availability Please provide details of current and projected work load for equivalent contracts up to 31/12/2019 and spare contracting capacity for the Cornwall LEM projects. |

|  |  |  |
| --- | --- | --- |
| **CONFLICTS OF INTEREST** |  |  |
| Before considering submitting any proposal, please ensure you would be sufficiently able to act from a conflict of interest perspective noting that relevant third parties include National Grid, Western Power Distribution, and Exeter University. We are willing to discuss any issues around this as necessary and, where possible, will seek to accommodate any proposals you have for managing potential conflicts. Please confirm Y/N if you have any potential conflicts with the following parties in relation to supporting Centrica on the Cornwall Local Energy Market project: | YES | NO |
| National Grid |  □ |  □ |
| Western Power Distribution |  □ |  □ |
| Exeter University |  □ |  □ |
| Where you have answered ‘Yes’ to any of the above, please give details of your intended plans for managing any such conflicts: |  |

**SECTION 2 - Health, Safety and Environment (HSE)**

Centrica’s core values highlight the importance of safety and the benefits of cooperation. It is our belief that outlining expectations from the beginning leads to a better working relationship and increased cooperation between Centrica and prospective suppliers.

As a new supplier to Centrica Distributed Energy we ask you to complete the comprehensive HSE document uploaded with this PQQ. Once completed this only needs refreshing for Centrica Distributed Energy every 3 years, unless you have changes you wish to inform us of.

**SECTION 3 – Technical**

**Assumptions**

Please provide the following information:

|  |  |
| --- | --- |
| 1 | Please indicate which of the Use Cases you are able to support:Use Case 1: Site Management Behind the MeterUse Case 2: Grid SupportUse Case 3: Managing Intermittence of RenewablesPlease confirm in your response your proposed Scope of delivery and Technology solution for each Use Case. |
| 2 | Please identify your typical delivery lead times from Order to Delivery to site. Please clarify in weeks and state any related assumptions. |
| 3 | Please detail any standard system product sizes and/or modular building blocks |
| 4 | Please confirm which capabilities you would intend to provide for these projects in Cornwall:1. Design
2. Supply
3. Manufacture
4. Delivery
5. Installation and Commissioning
6. Preventative Maintenance
7. Remote monitoring
 |
| 5 | Please provide details of other EPC work undertaken.  |
| 6 | Please provide client contact details from whom references can be obtained (3 minimum) |
| 7 | Please advise if it is foreseen that any part of the awarded contract(s) will be subcontracted and state the type of work to be undertaken by the subcontractor(s) |
| 8 | Please describe the in-house and contracted-out detailed design, engineering, purchasing, manufacturing and construction capabilities for the following items: 1. main energy storage island
2. electrical Installation
3. control and instrumentation
4. commissioning
5. civil engineers and civil works
 |
| 9 | Please detail previous experience in providing long term maintenance services and other post-construction services agreements |
| 10 | Please provide an indicative layout for this project clearly describing the method of installation for main components (indoor/outdoor/containers / buildings etc.) |
| 11 |

|  |
| --- |
| Please provide details of the following energy storage information:1. Manufacturer(s)
2. Manufacturer(s) location
3. Technology type (lithium ion, flow battery etc.), and specific chemistry (lithium iron phosphate, vanadium flow battery etc.)
4. Power and Energy Range
5. Energy Storage System Degradation Data
 |

 |
| 12 | Please provide details of the following key performance criteria, stating any range options:1. Reliability in delivery of Frequency Response
2. Turnaround Efficiency % (whole system including interface such as inverters)
3. C Rating
4. Response Time
5. Ramp rate (for input in G100 application)
 |
| 13 | Please provide details of Communication Protocol system  |
| 14 | Please provide details of software offering i.e. control system; user interface; optimisation algorithms |
| 15 | Please confirm installation method (container/build) |

**SECTION 4 – Commercial Gateway Criteria (PQQ Stage)**

All financial data is to be given in GBP ex VAT prices, except where financial information is being provided in a certified or audited supporting documents such as a set of financial statements/accounts in which case it is sufficient for the information to remain in its original currency.

|  |  |
| --- | --- |
| 1 | Please confirm certification to work in UK (proof will be requested at the next stage) |
| 2 | Please provide indicative cost to provide the equipment as per the Use Case you are able to support. Please breakdown these costs into high level elements as detailed below. Prices should be indicated in KWp and usable KWh and detailing a lump sum cost where possible.1. Plant
* Energy Storage Solution System
* Enclosure - Including Marine Paint Finish, Internal Cabling and Containment.
* Energy Management System/Control Unit
* Auxiliary Systems/HVAC/Fire Suppression System
* FAT/SAT
* FFR Panel System (if applicable)
* Please detail any other items
1. Installation
* Delivery DDP, Installation, Test & Commission
1. Annual O&M costs for stated warranty term

Please exclude all civil work but outline any complex civil work that would be required. |
| 3 | Please provide an indicative schedule to provide the plant as described above for different use case and size scenarios. Please state your assumptions. |
| 4 | Please provide indicative cost of a Long Term Service Agreement (LTSA) offering.  |
| 5 | Please provide details of the Plan Preventative Maintenance servicing regime and European spares holding. |
| 6 | Please provide details of standard warranty provision (note provision for indicative price for 8 years warranty). Does this include for travel, Labour and Parts? |
| 7 | Please identify all energy storage power plants that have not met performance guarantees and specification criteria in the last 3 years.  |
| 8 | Please provide details of ISO Accreditations  |
| 9 | Please confirm the insurances you have in place to cover any works in the UK, e.g. professional indemnity, public liability, contractor  |

Answers must be provided to all questions in the Pre-Qualification Questionnaire. If any of the questions or items in the Pre-Qualification Questionnaire are not considered relevant to a particular Applicant, this should be clearly stated and not left blank.

1. Failure to provide a sufficient level of detail or to explain adequately any relevant matters in response to questions in this Pre-Qualification Questionnaire may result in such information not being taken into account in the evaluation process.
2. All documents submitted by the Applicant shall be treated as strictly confidential. Where project specific financial information cannot be provided for reasons arising from contract confidentiality obligations, this should be stated clearly. Documents submitted by Applicants with their Pre-qualification Questionnaire will not be returned.
3. Please add clearly identify any appendices and which question they are relevant to.

**Please do not send any other information with this PQQ. We will request this at ITT stage.**

**Evaluation**

Scoring Criteria are outlined above the Questionnaire (please complete Sections 1, 2 and 3). Centrica reserves the right to interview the provisionally selected firm/s and amend or alter the process as it sees necessary, subject to giving reasonable notice.

**DECLARATION**

 **The preceding questions have been completed using the best and most accurate information available at time of the reply and it is agreed that all responses can be substantiated, if required to do so. It is agreed that the information supplied in this questionnaire may subsequently be used as grounds to exclude or remove the Applicant from the tender process.**

Signed:

Authorised Signature …………………………………………………………..

For and On Behalf of: ………………………………………………………….

Position in the Company. ………………………………………………………..

Date: ………………………………………………………..

**Questions:**

Note that questions will not be taken or answered at this stage of the tendering process.

**Pre-Qualification Returns:**

**Please ensure that your completed response is returned no later than:**

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**APPENDIX A**

**Energy Storage System - British Standards and Testing Questionnaire**

1. Provide documentation and feedback on the following in Tab.1:

Please use one of the options: (Yes, No, Not Applicable)

|  |
| --- |
| Tab.1 |
| Energy Storage System | Yes, No, N/A |
| Documentation detailing the energy storage testing programme. This should include the scope and objectives of the testing, the extent of the testing (hours and volume), and the headline results of the testing.  |  |
| Abuse tests for the energy storage system |  |
| Protection for Thermal Runaway |  |
| Fire Cascade Tests for the energy storage system |  |
| Capacity and Cycle life test results for the cells (where applicable |  |
| Description of the inherent safety features of the Storage system (Overcharge safety device, safety functional layer, overpressure vent, fuse). |  |
| Documentation supporting the energy storage technology and C-rate selection |  |
| Enclosure  |  |
| Documentation/testing results detailing that product is approved for costal installations and its construction materials will prevent fire to be spread.  |  |
| Power Converter System(PCS)  |  |
| Documentation detailing Harmonic Emissions data |  |
| Documentation detailing Flickering data |  |
| Fire Suppression System |  |
| Testing results & Risk Assessment |  |
| A review of all alternative technologies/systems |  |
| Independent 3rd party specialist recommendation (e.g from a fire expert) |  |
| Cooling -HVAC |  |
| Documentation and test results which verify that the HVAC system can provide optimal temperature conditions, for the selected energy storage technology  |  |
|  |  |

1. Please specify if the System is compliant with the following Legislation, Codes and Standards in Tab.2.

Please use one of the options: (Yes, No, Not Applicable)

|  |
| --- |
| Tab.2 |
| Batteries and Electrical Equipment within a Battery Storage System(BSS) | Yes, No, N/A |
| British Standards in relation to BSS |  |
| BS 7671:2008(2015). Requirements for Electrical Installations (IET Wiring Regulations, 17th Edition)  |  |
| BS 7430:2011+A1:2015. Code of practice for protective earthing of electrical installations  |  |
| BS EN 50171:2001. Central power supply systems.  |  |
| BS EN 50272-1:2010. Safety requirements for secondary batteries and battery installations. General safety information  |  |
| BS EN 50272-2:2001. Safety requirements for secondary batteries and battery installations. Stationary batteries  |  |
| BS EN 60950-1:2006+A2:2013. Information technology equipment. Safety. General requirements  |  |
| BS EN 62040-1:2008+A1:2013. Uninterruptible power systems (UPS). General and safety requirements for UPS  |  |
| BS EN 62040-2:2006. Uninterruptible power systems (UPS). Electromagnetic compatibility (EMC) requirements  |  |
| BS EN 62040-3:2011. Uninterruptible power systems (UPS). Method of specifying the performance and test requirements  |  |
| BS EN 62040-4:2013. Uninterruptible power systems (UPS). Environmental aspects. Requirements and reporting  |  |
| BS EN 62305-1:2011. Protection against lightning. General principles  |  |
| BS EN 62305-2:2012. Protection against lightning. Risk management  |  |
| BS EN 62305-3:2011. Protection against lightning. Physical damage to structures and life hazard  |  |
| BS EN ISO 7010:2012+A5:2015. Graphical symbols — Safety colours and safety signs — Registered safety signs (ISO 7010:2011)  |  |
| IEC 61427-2, Secondary cells and batteries for renewable energy storage – General requirements and methods of test – Part 2: On-grid applications |  |
| IEC62619: Safety requirements for secondary lithium cells and batteries, for use in industrial applications |  |
| International Standards/Codes/Legislation in relation to BSS |  |
| UL1642- Standard for Safety. Lithium Batteries |  |
| UN 3480: Li-ion batteries transportation regulation |  |
| UN 38.3: UN Transportation Testing for Lithium-ion Batteries |  |
| UL1973: Batteries for Use in light electric rail (LER) applications and stationary application |  |
| IEC 61000-4-2: Electrostatic Discharge Immunity Tests |  |
| Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators |  |
| Directive 2012/19/EU on waste electrical and electronic equipment directive (WEEE directive) |  |
| Directive 2011/65/EU on Restriction of Hazardous Substances in Electrical and Electronic Directive (RoHS Directive) |  |
| ANSI C57.12.28 Pad mounted equipment enclosure integrity |  |
| IEE P2030.3- Standard for Test procedures for electric energy storage equipment and systems for electric power systems applications |  |
| ANSI/IEEE C2-1997 National Electrical Safety Code |  |
| Batteries and Accumulators Directive (SI 2008 No.2164) |  |
| Waste Batteries and Accumulators Directive (SI 2009 No.890) |  |
| The carriage of dangerous goods and use of transportable pressure equipment regulations 2009 (SI 2009 No.1348) |  |
| Fire Suppression System  |
| British Standards in relation to fire suppression systems: |  |
| BS EN 15004-1:2008- Fixed firefighting systems. Gas extinguishing systems. Design, installation and maintenance |  |
| BS 6266:2011: Fire protection for electronic Equipment Installations. Code of practice |  |
| BS 7273: Code of practice for the operation of fire protection measures. Actuation of release mechanism for doors |  |
| BS 5839-1:2002+A2:2008: Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises |  |
| Power Converter System(PCS)  |
| British Standards in relation to bidirectional converters |  |
| UK Grid Code: Engineering Recommendation G59/3: Recommendation for the Connection of Generating Plant to Distribution Systems & IEC 62116 |  |
| ENA Engineering Recommendation G5/4-1 Managing Harmonics |  |
| International Standards/Codes in relation to bidirectional converters |  |
| IEEE 1547-2003. Standard for Interconnecting Distributed Resources with Electric Power Systems |  |
| IEEE P1547.1. Standard test procedures for equipment interconnecting distributed resources with electric power systems |  |