TOR – ARC ELECTRICAL/POWER ASSESSMENT

1. Introduction

The ARC operates within the National System of Innovation and has a mandate for innovative and creative agricultural research, technology development, and transfer aimed at the advancement of South African agriculture. The ARC conducts its business and all its operations on a number of Research stations, experimental farms, and other facilities across the country. These facilities are key to the ARC's operations and functions toward delivering excellence in Agricultural Research and Development.

2. Background

The ARC conducts its business and all its operations on a number of Research stations, experimental farms, and other facilities across the country, with Central Office located in Hatfield, Pretoria. This large geographical footprint of properties and facilities in its business portfolio provides the infrastructure that supports core business functions but also makes it a very complex and specialised area of management for the ARC. This also relates to power usage and the organization's planned implementation of renewable energy solutions.

South Africa is one of the best places to implement solar as a renewable energy solution. The sun is, without a doubt, one of the most reliable and abundant natural resources in South Africa. Currently, Eskom generates less power compared to what the country needs. This results in the national grid being constrained, with load shedding employed, as required, to stabilise the base and peak loads when power stations fail to produce sufficient electricity. Furthermore, some baseload stations need to be removed from service to undergo scheduled maintenance. The requirement for maintenance on S.A. power grip will increase as the network expands to accommodate more developments but increase the demand and risk of power load shedding.

The renewable energy market has grown and shown the potential for companies to invest in financially viable and reliable renewable energy (Grid-Tied generation plants). In the ARC, electricity, water, and municipal-related fees continue to be the highest operating cost of buildings, and the continuous effect of load-shedding has a huge negative effect on the operations of the organisation.

For more information about the ARC and its footprint, please visit www.arc.agric.za

3. Objectives

This RFQ aims to appoint a service provider with a proven track record and experience to evaluate and make recommendations to the ARC regarding power usage optimisation and renewable Energy to minimise the effect and impact of continued load-shedding and increased cost of electricity.

The facilities section has continually worked on monitoring the electricity consumption and implementing alternative energy solutions to reduce the electricity costs and impact of load-shedding (e.g., installing LED lights with occupancy sensors). However, we are not sure we are implementing the correct solutions and spending our investment correctly aligned to long-term solutions based on priority requirements. We would also like to separate and assess each building's critical, emergency, and general loads to determine the energy requirement for each during a "grid collapse," load shedding, and standard building operations. We're interested in different solutions suitable for alternative energy production at our different sites and funding models/return on investment options. We're therefore encouraging bidders to provide different options to enable us to investigate different solutions and their implementation costs on each site as part of our larger renewable energy plan. The potential supply to the regional grid as a potential income/cost reduction stream is also interesting.

In summary, the objectives are:

Determine the Power Loads per Building per Site

- A power logger should be used to determine the buildings' load characteristics (Peak Load, Total Load, Power Quality, etc.) to analyse and generate a report. The report must reflect all recommendations to optimise and correct the Electrical installation.
- Identify critical and non-critical loads in the buildings. Identify load types, i.e., data center, Lifts, Cooling, Lighting, etc.
- Confirm existing Electrical design against single-line design drawings if available; should these not be available, this must be created and supplied.
- Check Certificates of Compliance; if a current and valid COC is unavailable, a full inspection of the entire Electrical installation must be carried out to enable issues to be identified for correction (rollout project) to support future certification.
- Once all the above steps are completed, the feasibility of an Alternative Energy Solution can be investigated to determine the feasibility and implementation plan.

Building Structure

- A structural engineer will inspect the roof, buildings, and structures to determine the maximum load (Solar Panels P.V.) the structure/facilities can hold. Once this detail is confirmed, the Electrical Engineer will determine the maximum Energy generated from the P.V.

Compilation of a Solution

- Once all the above information has been collated, provide the ARC with a renewable energy roadmap with a priority rating.
- Include high-level specifications for roadmap implementation.

4. Scope of work

- Feasibility study topics to be covered, with the following outputs:
    - Status quo report
    - Needs analysis report
    - Solution option(s) report, i.e., type of solar system, size of the solar system, etc
    - Due diligence report
    - Value assessment report
    - Risk matrix
    - Economic evaluation report

- Structural integrity investigations and reports on the buildings and associated roofs.
- Install data loggers to determine the Energy needs of each building.
- Confirm electricity consumption requirements for each building using data loggers in conjunction with the electricity bill (to be provided by the ARC).
- Generate electrical network and P.V. solar systems diagrams.
- Check Certificates of Compliance; if a current and valid COC is unavailable, a full inspection of the entire Electrical installation will need to be carried out to identify issues that need to be corrected for future certification.
- To assist the ARC to get Energy Performance Certificates, *(EPCs)* for the ARC's buildings.

5. Assessment Approach

- This project will only focus on the ARC's 12 main sites per the list below.
  - ARC-OVR: Onderstepoort Veterinary Research in Pretoria.
  - ARC-BTP: Biotechnology Platform at Onderstepoort Pretoria
  - ARC-VIMP: Vegetable, Industrial, and Medicinal Plants at Roodeplaat Pretoria.
  - ARC-PHP: Plant Health & Protection at Roodeplaat Pretoria.
  - ARC-Irene: Animal Production at Irene Pretoria.
  - ARC-CO: Central Office at Hatfield Pretoria.
  - ARC-SCW: Soil, Climate, and Water at Arcadia Pretoria
  - ARC-AE: Agricultural Engineering at Silverton Pretoria
  - ARC-TSC: Tropical and Subtropical Crops at Mbombela
  - ARC-SG: Small Grains at Bethlehem Free-State.
  - ARC-GC: Grains Crops at Potchefstroom N.W.
  - ARC-INFRUITEC: Deciduous Fruit, Vine, and Wine at Stellenbosch WC.
- Detailed assessment of the current Power Load per Building and Building Structures on the facilities portfolio within the main sites.
- The assessment will be a mixed method, including onsite assessments, desktop exercises, and interviewing key stakeholders.
- Some sites have multiple buildings spread over huge areas; others will only have one building (see ARC website www.arc.agric.za and Google Earth for more detail).
- Envisaged Interview Sessions with Key Stakeholders (Business Representatives).
  - Group Executive of I.S. and Infrastructure – 1 session.
  - Facilities Management team – 1 session.
  - Research Institute Management – 10 sessions.
  - Broader Facilities Management team – 1 session.
- The current power usage and infrastructure should be assessed to advise on a renewable energy roadmap and implementation plan. The proposed Plan must help the ARC mitigate the impact of load-shedding and high electrical usage costs.
- The assessment must be concluded within three (3) months from engagement with interim reports presented at specific stages, and management inputs at specific stages will be required. Regular meetings during the progress of the study will be part of the process to keep the ARC informed of progress.

6. Service Provider Compliance

- The service provider must have at least three (3) years of experience in doing similar work (provide at least three (3) reference letters of work studies completed);

- Provide CVs of key staff that will be allocated to this project to enable evaluation of their qualifications and experiences;
    - The professional team must comprise a Professional Registered Structural Engineer and Electrical Engineer.
    - Registered licensed installation Electrician must be used to carry out all electrical work or connections.
- Provide a High-level project plan on approach and methodology.
- Provide proof of a relevant professional body affiliation.

7. Expected outcome

- Final Electrical/Power assessment report with an associated presentation outlining detailed analysis and the proposed renewable energy roadmap, including rollout plan, prioritisations, and estimated cost implications.
- Solution requirements per site and building to be translated into an RFP specification later.
- To assist the ARC to get Energy Performance Certificates, *(EPCs)* for the ARC's buildings.

8. Evaluation Criteria

Criteria	Weight
1. Company Experience	
The bidder must demonstrate that they can render the required service. Proof of experience in similar projects. Must provide at least three (3) reference letters for similar work done in the past three (3) years.	**45%**
2. Qualifications and experience.	
Provide C.V.s of key staff that will be allocated to this project to enable evaluation of their qualifications and experiences. The professional team must comprise a Professional Registered Mechanical Engineer, Structural Engineer, and Electrical Engineer	**40%**
3. Project Plan / Methodology	
Provide a high-level project plan. Approach and Methodology	**15%**
TOTAL	**100%**

Bidders that do not obtain a minimum score of 65 points for functionality will be disqualified.

9. Detailed Evaluation Criteria Scoring

1. Company Experience	ARC SCM Evaluation Score
1 point: less than 3 reference letters with less than **3** years' experience.	1= Poor
2 points: less than 3 reference letters with at least **3** years' experience.	2= Acceptable
3 points: **3** reference letters with at least **3** years' experience.	3= Good
4 points: More than 3 reference letters with at least **3** years' experience.	4= Very good
5 points: **More than 3** reference letters with more than **3** years' experience.	5= Excellent

2. Qualifications and experiences	ARC SCM Evaluation Score
1 point: 1 CV submitted with relevant qualifications.	1= Poor
2 points: 2 CVs submitted with relevant qualifications.	2= Acceptable
3 points: **3 CVs** submitted with relevant qualifications and experience.	3= Good
4 points: More than 3 CVs submitted with relevant qualifications and **at least 5 years** of relevant experience.	4= Very good
5 points: **More than 3 CVs submitted with relevant qualifications and more than 5 years of** relevant experience.	5= Excellent

3. Project Plan / Methodology	ARC SCM Evaluation Score
1 point: Did not provide Plan and Methodology	1= Poor
2 points: Did not meet minimum Plan and Methodology requirement specification.	2= Acceptable
3 points: Meets minimum requirements of the Plan and Methodology requirement.	3= Good
4 points: Meet more than the Plan and Methodology requirement with some technology solutions to support.	4= Very good
5 points: Detailed Plan and Methodology with high technology solutions to provide support.	5= Excellent

All price quotations that have a rand value of R 2,000.00 to below R 50,000,000.00, including VAT will be evaluated by applying the 80/20 principle as prescribed by the Preferential Procurement Policy Framework Act 5 of 2022 and its Regulations.

The lowest acceptable price will score 80 points, Specific goals for the RFQ and points claimed are indicated on the table below:

The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (80/20 system) (To be completed by the tenderer)
Percentage (%) Ownership by HDIs	**Points 8**	
91-100%	8	
81-90	7	
71-80	6	
61-70	5	
51-60	4	
41-50	3	
21-40	2	
1-20	1	
0%	0	
Percentage (%) ownership by Women	**Points (4)**	
81-100%	4	
51-80	3	
31-50	2	
1-30	1	
0%	0	
Percentage (%) Ownership (by Youth	**Points (4)**	
81-100%	4	
51-80	3	
31-50	2	
1-30	1	
0%	0	
Percentage Ownership by PwD	**Points (2)**	
51-100%	2	
1-50	1	
0%	0	

RDP Goals	Points (2)	
EMEs/QSEs	2	