

MILITARY LANDS & CANTONMENTS DEPARTMENT
WALTON CANTONMENT BOARD LAHORE

UAN: 111-925-866, Fax: 042-99220161

Ahmed Bukhsh Road, R.A Bazar Lahore Cantt



REQUEST FOR PROPOSALS (RFP)

**HIRING OF SERVICES FOR COMPREHENSIVE
ENERGY AUDIT, TECHNICAL ASSESSMENT &
DESIGN OF INTELLIGENT ENERGY ECOSYSTEM**

FOR

WALTON CANTONMENT BOARD LAHORE

(AS PER PPRA RULES, 2004 – QCBS METHOD)

REQUEST FOR PROPOSAL (RFP)

Project: **Comprehensive Energy Audit, Technical Assessment & Design of Intelligent Energy Ecosystem**

Client: **Walton Cantonment Board (WCB)**

Date: ___ / ___ / ____.

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PART I - SELECTION PROCEDURES AND REQUIREMENTS

SECTION 1: LETTER OF INVITATION

To:

Date: _____
____ / ____ / _____.

Subject: **REQUEST FOR PROPOSAL (RFP) FOR "COMPREHENSIVE ENERGY AUDIT, TECHNICAL ASSESSMENT & DESIGN OF INTELLIGENT ENERGY ECOSYSTEM"**

1.1 Invitation

Walton Cantonment Board (WCB) invites proposals from eligible International and Local Consortia to provide consulting services for the subject assignment.

1.2 The Vision

WCB intends to move beyond traditional energy audits. We seek a Technology Partner to conduct a holistic assessment and design a "Future State" information system that integrates Artificial Intelligence, IoT, and New Supply Mechanisms. This Intelligent Energy Ecosystem is expected to provide real-time energy monitoring, predictive maintenance capabilities, and dynamic optimization of energy usage across all WCB assets.

1.3 Preferred Bidder Structure

To ensure both global technological expertise and local operational capability, WCB strongly encourages Joint Ventures (JVs) or Consortia between:

- **International Tech/Consulting Firms:** Lead on Innovation, Strategy, Digital Systems, and International Best Practices.
- **Local Engineering Firms:** Lead on Ground Logistics, Physical Surveys, Local Regulatory Compliance, and Field Implementation.

1.4 Innovation-First Policy

This procurement is driven by Innovation and Solution Design. Unlike traditional tenders where "Past Experience" is the sole metric, we are looking for breakthrough ideas. Bidders are strongly encouraged to present novel, demonstrable concepts supported by a rigorous implementation plan.

1.5 Procurement Method

The selection will be conducted via the Single Stage – Two Envelope Procedure (Rule 36(b) of PPRA Rules). Technical and Financial proposals must be sealed separately and submitted simultaneously.

Yours sincerely,

**Cantonment Executive Officer
Walton Cantonment Board, Lahore**

SECTION 2: INSTRUCTIONS TO BIDDERS (ITC) & DATA SHEET

A. GENERAL PROVISIONS

1.0 Introduction

- **1.1** The Client (Walton Cantonment Board) will select a consulting firm/consortium in accordance with the method of selection specified in the Data Sheet.
- **1.2** Consultants are invited to submit a **Technical Proposal** and a **Financial Proposal**.

2.0 Eligible Bidders

- **2.1 Single Entity or JV:** The bidder may be an individual entity or a **Joint Venture (JV)**.
- **2.2 Registration:** Bidders must hold valid **NTN** and **PRA (Punjab Revenue Authority)** registration. In the case of a JV, at least one member must be registered with PRA.
- **2.3 Conflict of Interest:** Bidders must not have any conflict of interest and will be disqualified if found to have one.
- **2.4 Blacklisting:** Bidders must submit an affidavit confirming they are **not currently blacklisted** by any public or private sector organization.

B. PREPARATION OF PROPOSALS

3.0 Language

The Proposal, all correspondence, and documents relating to the Proposal shall be written in the English language.

4.0 Documents Comprising the Proposal

The Proposal shall comprise two separate envelopes (to be uploaded on E-PADs):

- **Envelope 1:** Technical Proposal (Forms TECH-1 to TECH-3, Affidavit, JV Agreement).
- **Envelope 2:** Financial Proposal (Form FIN-1, Bid Security).

5.0 Technical Proposal Format

- **5.1** The Technical Proposal shall use the attached Standard Forms (Section 6).
- **5.2 No Financial Information:** The Technical Proposal **shall not** include any financial information.

6.0 Financial Proposal Format

- **6.1** The Financial Proposal shall list all costs, including **Remuneration for Staff** and **Reimbursable Expenses**.
- **6.2 Currency:** All costs must be expressed in **Pakistani Rupees (PKR)**.

7.0 Bid Security

- **7.1** The Bidder shall furnish a Bid Security in the amount specified in the Data Sheet.
- **7.2** The Bid Security shall be in the form of a **Pay Order, Demand Draft, or Call Deposit Receipt (CDR)** in favor of the Client.

C. SUBMISSION, RECEIPT, AND OPENING

8.0 Sealing and Marking

- **8.1** The original proposal (Technical and Financial) shall be prepared without any erasures or overwriting.
- **8.2 Envelope 1** must be labeled "**TECHNICAL PROPOSAL**".
- **8.3 Envelope 2** must be labeled "**FINANCIAL PROPOSAL**".
- **8.4** Both envelopes shall be enclosed in an outer sealed envelope marked: "DO NOT OPEN, EXCEPT IN PRESENCE OF THE EVALUATION COMMITTEE"

Title: Comprehensive Energy Audit & Design of Intelligent Energy Ecosystem.

D. DATA SHEET

Reference	Data
1.1	Client : Walton Cantonment Board (WCB), Lahore.
1.2	Method of Selection : Quality and Cost Based Selection (QCBS). Technical Weight : 70% Financial Weight : 30%
1.3	Assignment Title : Comprehensive Energy Audit, Technical Assessment & Design of Intelligent Energy Ecosystem.
2.1	Consortiums/JVs : Strongly Encouraged (International Tech Partner + Local Engineering Partner).
7.1	Bid Security : Rs. 100,000
9.1	Submission Deadline : 23-02-2026 at 03:00 PM
9.2	Address : Office of the Cantonment Executive Officer, Walton Cantonment Board, Ahmed Bakhsh Road, Lahore.
11.1	Proposal Validity : 90 Days from the date of submission.

SECTION 3: ASSIGNMENT BACKGROUND

3.1 Context

Walton Cantonment Board (WCB) manages a vast municipal jurisdiction, covering approximately 100 square kilometers and serving over 500,000 residents. Energy consumption is primarily driven by:

- **Water Supply Infrastructure:** A dense network of **95 tube wells and pumping stations**, accounting for the largest share of electricity costs.
- **Public Infrastructure:** Over **15,000 street lights** and public facility management.
- **Office Infrastructure:** Administrative buildings and operational centers.

Key Challenges include:

- **Financial Strain:** Reliance on peak-hour tariffs and Non-Revenue Electricity (NRE) losses estimated at **15%**.
- **Infrastructure Age:** Aging power and pumping infrastructure subject to breakdowns.
- **Data Silos:** Limited visibility into real-time energy flows, making data-driven decision-making difficult.

3.2 The Paradigm Shift

WCB seeks to transition from a passive consumer to an active, Intelligent Energy Manager. The project requires designing a future state where:

- **Digital Visibility (The Digital Twin):** A geo-spatial Digital Twin integrates SCADA and smart metering for real-time monitoring.
- **Smart Procurement:** Energy is procured through competitive mechanisms (e.g., Wheeling, B2B).
- **Intelligent Efficiency:** Loads are optimized dynamically using **AI/IoT-based algorithms** to synchronize pumping with off-peak hours.
- **Community Impact:** Benefits are shared with private consumers through Demand Response or Community Solar models.

SECTION 4: TERMS OF REFERENCE (TOR)

4.1 Objectives

- **Audit & Digitize:** Conduct a **Level-II/III audit** and create a "Digital Twin".
- **Innovate Supply:** Develop a legal/technical framework for procuring cheaper electricity (e.g., Wheeling).

- **Optimize Load:** Deploy **Intelligent Energy Management Systems (IEMS)** to synchronize heavy loads with off-peak periods.
- **Consumer Framework:** Propose a mechanism to extend efficiency models to private residents.

4.2 Scope of Services

4.2.1 Comprehensive Energy Audit & Baseline Establishment:

- 4.2.1.1 **Detailed Assessment:** Conduct rigorous physical testing, data logging, and non-intrusive inspections of all electrical, mechanical, and civil infrastructure, including tube wells, disposal/pumping stations, public parks, buildings, street lighting, and major energy-consuming equipment.
- 4.2.1.2 **Energy Baseline:** Establish a verifiable, time-series energy consumption baseline (e.g., last 3-5 years) correlated with relevant drivers (e.g., temperature, occupancy, production) to accurately quantify existing energy performance and potential savings.
- 4.2.1.3 **Measurement & Verification (M&V):** Define a clear M&V plan compliant with international standards (e.g., **IPMVP**) for post-implementation performance tracking.

4.2.2 Technical & Operational Assessment:

- 4.2.2.1 **Current Workflow Evaluation:** Conduct a deep-dive evaluation of existing energy procurement, distribution, and consumption management processes, identifying all current operational bottlenecks and points of inefficiency.
- 4.2.2.2 **Grid Reliability & Power Quality Analysis:** Perform a technical analysis of the existing grid infrastructure, including load flow studies, power quality monitoring (harmonics, voltage stability), and assessment of current system readiness for integration of distributed energy resources (**DERs**).
- 4.2.2.3 **System Readiness for Automation:** The existing metering infrastructure shall be evaluated for compatibility with SCADA and IT/OT systems to determine its readiness for real-time data integration, remote control, and AI-based automation, and to identify any required upgrades.

4.2.3 Design of Intelligent Digital Ecosystem (Digital Twin & AI Platform):

- 4.2.3.1 **Centralized Information System Design:** Design a cloud-native, scalable Information System that acts as the core operating platform for the WCB's energy infrastructure.
- 4.2.3.2 **Digital Twin Creation:** Develop specifications for a **Digital Twin** model of the WCB's electrical and mechanical assets, capable of simulating "what-if" scenarios, predicting asset failure, and optimizing maintenance schedules.
- 4.2.3.3 **AI-Driven Load Management:** Design the framework for an **Artificial Intelligence engine** that provides real-time, predictive load forecasting, dynamic

peak-shaving, automated **Demand-Side Management (DSM)**, and optimal dispatch of internal and procured power.

4.2.3.4 **Real-time Monitoring & Visualization:** Specify the required sensor architecture, data ingestion pipelines, and a user-friendly dashboard interface (**HMI**) for real-time visualization of energy flow, cost, and system health.

4.2.4 Strategic Suctioning & Commercial Framework Development:

4.2.4.1 **Legal & Technical Frameworks for Cheaper Power:** Develop detailed legal, regulatory, and technical frameworks necessary for WCB to actively procure cheaper power, specifically through mechanisms like Wheeling and B2B trading. This includes drafting model contracts, identifying necessary regulatory approvals, and defining technical interconnection requirements.

4.2.4.2 **Consumer Interface & Engagement Design:** Design a robust, multi-channel consumer interface (e.g., web portal, mobile app) for billing transparency, consumption monitoring, energy-saving nudges, and two-way communication regarding system-wide load management events.

4.2.4.3 **Financial & Economic Analysis:** Provide a detailed financial model, including **Total Cost of Ownership (TCO)**, projected **Internal Rate of Return (IRR)**, and a clear payback period for the proposed "Future State" Intelligent Energy Ecosystem.

4.3 Deliverables & Timeline (8 Weeks)

1. **Inception & Innovation Strategy Report** (Week 2)
2. **Technical Diagnostic Data & Digital Baseline** (Week 4)
3. **Draft Intelligent Ecosystem Framework** (Week 6)
4. **Final Comprehensive Report & Roadmap** (Week 8)

SECTION 5: QUALIFICATION & MARKING CRITERIA

Core Philosophy: The emphasis is on **demonstrable technical innovation** and **clear strategic implementation**.

5.1 Mandatory Eligibility (Pass/Fail)

1. **Registration:** Valid Registration with SECP/Registrar of Firms & Tax Authorities.
2. **Affidavit:** Non-Blacklisting (Global) for the last 5 years.
3. **Consortium/JV:** Signed MOU or Joint Venture Agreement.
4. **Financial Capability:** Audited financial statements (last 3 years) OR Bank Solvency Certificate.

5.2 Technical Scoring (Total: 100 Marks)

Qualifying Score : 70 Marks

Category A: Innovation & Solution Design (50 Marks)

- **Proposed Intelligent Framework Design (20 Marks):** Clarity of IoT/AI Architecture and Viability of "New Supply Mechanism".
- **Algorithmic Load Management (15 Marks):** Software-based load shifting and AI/ML for demand prediction (e.g., MAPE < 5%).
- **Strategic Vision (15 Marks):** Consumer Interface Strategy and Long-term Sustainability Roadmap.

Category B: Consortium Strength & Expertise (20 Marks)

- **International-Local Synergy (10 Marks):** Clear division of labor (Tech vs. Logistics).
- **Relevant Projects (10 Marks):** Minimum 2 projects in Smart Grids, AMI, or Automation (min 20 Million PKR value) in the last 2 years.

Category C: Key Professionals (20 Marks)

- **Team Leader (Energy Strategist) (6 Marks):** Min 10 years exp. (PMP/Master's preferred).
- **Smart Grid / IoT Architect (6 Marks):** Min 7 years in sensors/dash boarding (CCIE preferred).
- **Regulatory/Legal Expert (4 Marks):** Min 5 years in energy regulations.
- **Data Analyst / Simulation Expert (4 Marks):** Min 5 years in Python/R and Energy Modeling.

Category D: Technology Stack & Tools (10 Marks)

- **Hardware Availability (5 Marks):** Guaranteed availability of Power Analyzers, Ultrasonic Flow Meters, Thermal Imagers.
- **Software/Platform (5 Marks):** Demonstration of proprietary/licensed Energy Management Software.

PART II - STANDARD FORMS (SECTION 6)

FORM TECH-1: ORGANIZATION & CONSORTIUM STRUCTURE

A. Lead Firm Profile

- Name of Firm:
- Country of Registration:
- Core Expertise:
- Key Contact Person:

B. Partner Firm Profile

- Name of Firm:
- Country of Registration:
- Role in Assignment (e.g., Local Logistics):

C. Joint Venture Strategy

Describe the division of labor. How will the International Partner's technology be effectively integrated by the Local Partner? (Max 500 words).

FORM TECH-2: INNOVATION PROPOSAL (CONCEPT NOTE)

A. Audit Approach

- **Equipment:** Usage of calibrated ultrasonic flow meters (+/- 0.5% accuracy) and IP67-rated Power Quality Analyzers.
- **Data Accuracy:** Pre-audit calibration, redundancy checks (10% spot-checks), and post-processing validation.

B. Digital Ecosystem Vision

- **Architecture:** Three-tier cloud-native architecture (Edge Layer, Core Cloud Layer, Presentation Layer).
- **AI Logic:** Predictive Maintenance (Random Forest/LSTM) and Energy Optimization (Reinforcement Learning) models.

C. Supply Strategy

- **Grid Reduction:** Maximizing Behind-the-Meter Solar PV and BESS.
- **Wheeling:** Securing PPAs with IPPs for lower fixed rates.
- **B2B Procurement:** Direct purchase under Open Access regulations.

FORM TECH-3: TEAM COMPOSITION

List all key experts as required in Section 5 (Category C).

Role	Name of Expert	Qualification	Years of Exp.	Specific Task
Team Leader (Energy Strategist)				
Smart Grid / IoT Architect				
Regulatory/Le gal Expert				
Data Analyst / Simulation Expert				
Other Support Staff				

Authorized Signatory: _____

Name: _____

Designation: _____

Stamp & Signature: _____

FORM FIN-1: FINANCIAL PROPOSAL

To:

**Cantonment Executive Officer,
Walton Cantonment Board.**

Subject: **Financial Proposal**

Total Bid Amount (PKR): _____ (above amount inclusive of all the applicable taxes)

Sr. No	Activity / Deliverable	Cost (PKR)
1	Mobilization & Inception Report	
2	Comprehensive Physical Energy Audit & Baseline	
3	Design of Intelligent Energy Ecosystem (IoT/AI)	
4	Strategic Roadmap & Financial Modeling	
	GRAND TOTAL	

Authorized Signatory: _____

Name: _____

Designation: _____

Stamp & Signature: _____

PART III - CONTRACT (SECTION 7)

DRAFT CONSULTANCY SERVICES AGREEMENT

Project: **Comprehensive Energy Audit, Technical Assessment & Design of Intelligent Energy Ecosystem**

Contract Ref: WCB/ENG/2026/[Contract Number]

1. SCOPE OF SERVICES

- **1.1 General Scope:** The Consultant shall perform services in accordance with the TOR (Annexure A). Objectives include Physical Level-III Energy Audit, Digital Twin Design, and Regulatory Framework Development.
- **1.2 Deliverables:** Submission of reports and digital assets as specified in Payment Terms.

2. INNOVATION & PERFORMANCE STANDARDS

- **2.1 Solution-Design Assignment:** The Consultant guarantees the design will be **Actionable**, **Scalable**, and based on **Modern Standards** (Industry 4.0, IoT, AI).
- **2.2 Standard of Care:** Services shall be performed with the highest professional integrity using advanced analytical tools.

3. DURATION OF AGREEMENT

- **3.1 Term: Eight (08) Weeks** from the Effective Date.
- **3.2 Timeline Adherence:** Time is of the essence. Extensions only granted in writing with valid justification.

4. PAYMENT TERMS

- **4.1 Total Contract Value:** PKR _____
- **4.2 Payment Schedule:**
 - **10%:** Inception Report.
 - **30%:** Audit Findings & Baseline Data Report.
 - **30%:** Digital Ecosystem Design Document.
 - **30%:** Final Strategic Roadmap & Financial Model.

5. INTELLECTUAL PROPERTY (IP)

- **5.1 Ownership:** All data, models, and "Digital Twin" blueprints remain the **exclusive property** of Walton Cantonment Board.
- **5.2 Transfer of Rights:** The Consultant assigns all rights to the Client and shall not use data for other purposes without consent.

6. CONFIDENTIALITY

The Consultant agrees to keep all project information confidential for a period of [5] years.

7. TERMINATION

- **7.1 Default:** Termination with immediate effect for failure to perform services or meet milestones (cure period: 7 days).
- **7.2 Convenience:** Termination with 15 days' written notice.

8. DISPUTE RESOLUTION

- **8.1** Amicable settlement first.
- **8.2** Arbitration. Venue: Lahore.

9. GOVERNING LAW

This Agreement shall be governed by and construed in accordance with the laws of the Islamic Republic of Pakistan.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives on the date first above written.

For and on behalf of **WALTON CANTONMENT BOARD**

**Cantonment Executive Officer,
Walton Cantonment Board**

Date : _____

Witness 1(Name) : _____

CNIC No : _____

For and on behalf of **[NAME OF CONSULTANT]**

Authorized Representative Designation : _____

Date : _____

Witness 2 (Name) : _____

CNIC No : _____