



E-Mobility EV Charging Station

ENGINEERING, DESIGNING, QUALITY INSPECTION &
CERTIFICATION FOR EV CHARGING STATIONS

EV CHARGING SERVICE OFFERINGS

Engineering Infra Design

Quality Control

BoQ Verification

Cyber Security Assessment

Site Certification

Introduction

The rapid adoption of electric vehicles (EVs) is driving an urgent need for a robust and widespread charging infrastructure. As the number of EVs on the road continues to grow, the demand for reliable and accessible charging stations has become more critical than ever. Ensuring the quality and safety of these stations through meticulous engineering and rigorous certification processes is essential for supporting this transition.

As a trusted design and quality partner, QACA can play a pivotal role in this landscape, ensuring that charging infrastructure meets the highest standards of safety, reliability, and performance. By maintaining these high standards, QACA helps to bolster consumer confidence and ensure the sustainability and efficiency of the emerging EV ecosystem.



ENGINEERING CONSIDERATIONS

Site Assessment

- Location analysis for optimal placement
- Power supply and grid connection

Design & Layout

- Station capacity planning (number of chargers, power levels)
- BOQ
- Accessibility and user experience

Safety Protocols

- Electrical safety standards
- Environmental impact considerations



DESIGNING EV CHARGING STATIONS

Architectural & Electrical Design

- Aesthetic integration with surroundings
- Wiring and Load Calculation
- Space optimization and future expansion

Technical Specifications

- Charger types (AC Slow & AC Fast Chargers, DC Fast and DC Ultra Fast chargers)
- Integration with renewable energy sources

User Interface Design

- Simple and intuitive user interactions
- Payment systems and mobile app integration



QUALITY INSPECTION PROCESSES

Inspection Stages

- Pre-installation checks (materials, site readiness)
- During installation (compliance with design specs)
- Post-installation (functionality, safety, BOQ Verification)
- Periodic Inspection (Thermal Imaging and Site Health Check)
- Pre Dispatch Inspection at the supplier end.

Tools & Techniques

- Use of advanced measurement and diagnostic tool.
- Continuous monitoring systems for ongoing quality assurance

CERTIFICATION & COMPLIANCE

Industry Standards

- Compliance with local and international standards (e.g., ISO/SAE 21434, ISO 24089)
- Adherence to government regulations

Certification Process

- Site Evaluation
- Testing & Validation
- Compliance Documentation
- Corrective Actions
- Builds User Trust and Confidence
- Enhances Market Competitiveness

Documentation

- Record-keeping and reporting for compliance
- Periodic audits and recertification

SECURING THE FUTURE: THE CRITICAL ROLE OF CYBERSECURITY IN EV CHARGING STATIONS

Why Cybersecurity Matters

Data Protection: Safeguarding sensitive user information and payment data.

System Integrity: Preventing service disruptions and potential equipment damage.

Grid Security: Protecting the power grid from cyber-attacks via charging stations.

KEY CYBERSECURITY MEASURES

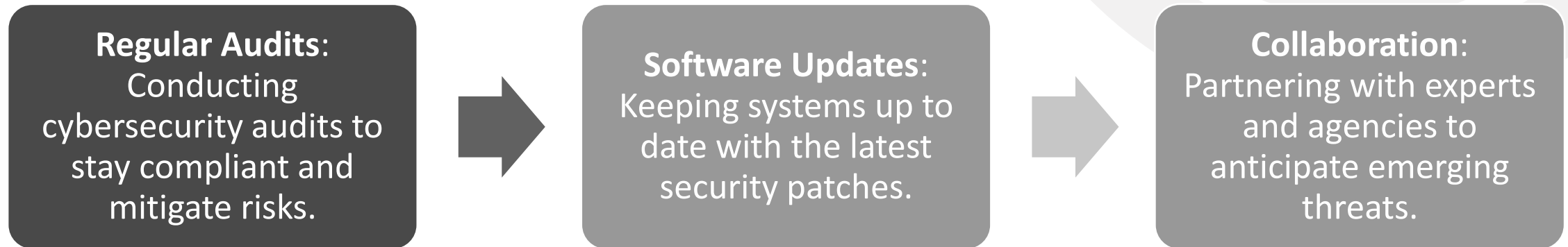
Vulnerability Testing:
Regular assessments to identify and address vulnerabilities.

Data Encryption: Ensuring secure transmission of user data.

Access Control:
Implementing strong controls to prevent unauthorized access.

Incident Response:
Maintaining a robust plan for quick breach response.

CYBER SECURITY – BEST PRACTICES



CHALLENGES & SOLUTIONS

Common Challenges

- Site-specific challenges (urban vs. rural, power availability)
- Evolving technology and standards

Proposed Solutions

- Modular design for scalability
- Collaborative approaches with local authorities and utility companies



Thank you



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