



Sustainable Integration of Electric Vehicle Charging System (EVCS) to the SEC Distribution Network

Technical Pre-qualification Guidelines for EV Chargers Contractors (EVCS)

Table of contents

1	GLOSSARY.....	3
2	SCOPE.....	4
2.1	Notice to users	4
3	DEFINITIONS.....	5
4	REGISTRATION & PREQUALIFICATION.....	5
5	INFORMATION TO BE PROVIDED	6
6	MINIMUM TECHNICAL REQUIREMENTS:	7
6.1	EVCS Work Qualification	7
6.2	Personnel Experience	10
7	REFERENCES.....	10
	APPENDIX B: PRE - QUALIFICATION CHECKLIST TABLE.....	11

1 GLOSSARY

The following acronyms and symbols are used throughout the document:

WERA	Water and Electricity Regulatory Authority
EV	Electric Vehicle
EVCS	Electric Vehicle Station/ Charging System
IEC	International Electro-Technical Commission
IC	Internal Combustion
kW	Kilowatt
kWh	Kilowatt hour
LV	Low Voltage (namely 220/127 Vac or 380/220 Vac or 400/230 Vac)
MV	Medium Voltage (namely 13.8kV, 33 kV or 69 kV)
SASO	The Saudi Standards, Metrology, and Quality Organization
SEC	Saudi Electricity Company
V	Voltage
Vnom	Nominal Voltage

2 SCOPE

These Guidelines provide information meant for electrical contractors and installers of EV chargers, defined in the document as “EV contractors”, on the essential technical pre-qualification criteria that should be fulfilled to be registered with SEC to install an EV charging system/station to the Low Voltage or Medium Voltage Distribution Network of SEC.

Only qualified EVCS installers who are registered with SEC are eligible for executing the EV charger’s installation works in SEC Low and Medium Voltage Distribution Network in KSA.

The eligibility criteria listed in this document could be fulfilled by:

- 1- Comply with the company registration (CR) in accordance with the “*Procedure for Contractors Registration and Qualification*” document in SEC portal.
- 2- Comply with the technical qualifications mentioned in this document.

The document has been also based on the Regulatory Framework issued by WERA.

2.1 Notice to users

This document is for use by employees of SEC, Applicants, Consultants, Contractors, Vendors, and Manufacturers. Users of this guideline should consult the applicable Saudi Electricity Law and WERA EVCS Framework in addition to this document. Users are responsible for observing or referring to the applicable regulatory requirements. SEC does not, by the publication of its standards, intend to urge action that is not in compliance with applicable laws, and these documents may not be construed as doing so.

Users should be aware that this document may be superseded at any time by the issuance of new editions or may be amended from time to time through the issuance of amendments, corrigenda, or errata. All users should ensure that they have the latest edition of this document, which can be found on SEC website (<https://www.se.com.sa/en-us/customers/Pages/EVC/guides.aspx>).

3 DEFINITIONS

Electric Vehicles: Vehicles that are powered by one or more electric motors. It receives electricity by plugging into the grid and storing it in batteries, consumes no petroleum-based fuel, and produces no tailpipe emissions.

Mode 1 of Charging: is a method for the connection of an EV to a standard socket-outlet of an AC supply network, utilizing a cable and plug, both of which are not fitted with any supplementary pilot or auxiliary contacts. The use of this mode is prohibited in KSA.

Mode 2 of Charging: is a method for the connection of an EV to a standard socket-outlet of an AC supply network utilizing an AC EV supply equipment with a cable and plug, with a control pilot function and system for personal protection against electric shock placed between the standard plug and the EV. This mode is only limited to the single phase 230V – 16A.

Mode 3 of Charging: is a method for the connection of an EV to a permanently installed wall box or a fixed charging station (Electrical Vehicle Supply Equipment, or EVSE). The maximum charging power is 44 kW (3 phase, 63 A (AC), and 400 V (AC)).

Mode 4 of Charging: is a method for the connection of an EV to a DC charging with an external charging device. The charging operation is controlled by the vehicle. The maximum charging power is approximately 200 kW (400 A (DC) and 300 - 500 V (DC)).

4 REGISTRATION & PREQUALIFICATION

EV Chargers Contractors shall follow certain steps that are generally conducted online for their prequalification process, the steps could be summarized as follow:

- 1) Before starting the prequalification process with SEC if the EV Chargers Contractors doesn't have a Vendor Number, EV Chargers Contractors shall be registered through the following link: (<https://www.se.com.sa> >> Our Partners >> Join Us >> Contractors and Suppliers Registration Portal >> Click on "Registration link") to have a Vendor Number.
- 2) After having the vendor number or already have a vendor number before; the EV Chargers Contractors can start the prequalification process through the following link: (<https://srm.se.com.sa:8011/irj/portal> >> Contractors Pre-qualification).

All details for how to register/prequalify will be found in the links mentioned above. For further inquiries and more details please contact us at: LAQ-CRQ@se.com.sa or Call the unified number (920000222).

5 INFORMATION TO BE PROVIDED

The information relevant to EVCS contractor requests will be provided by SEC Web Portal¹. The following information, but not limited to, will be required.

EVCS – Contact Information	
Contractor Company Details	
Company name as it appears in the license	
Type of the Company	<input type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Sole Proprietor <input type="checkbox"/> Other
Company's website	
Company's Profile	<u>Company's profile shall be attached</u>
Company owner's name	
Company's license number <u>Copy of licence shall be attached</u>
EV Charger Technology the company is willing to install (according to SASO/international standards IEC 61851-1)	<input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4 <input type="checkbox"/> Mode 2
Training provided to the EV contractors must be executed only with one of the companies certified with SASO.	<input type="checkbox"/> ABB
Company Contact Details	
Mobile Number of Managing Director	
Office phone number	
Email	
Company or Branch Address Details	
Region	<input type="checkbox"/> EOA <input type="checkbox"/> COA <input type="checkbox"/> SOA <input type="checkbox"/> WOA <input type="checkbox"/> NEOA <input type="checkbox"/> NWOA
City	Droplist
Company Address	

¹ <https://www.se.com.sa/en-us/customers/Pages/EVC/guides.aspx>

6 MINIMUM TECHNICAL REQUIREMENTS:

6.1 EVCS Work Qualification

Since the EVCS installer should initially be authorized by the responsible authorities to conduct electrical installation works in KSA, below are the different options that the contractor can select to comply with in order to be certified to install EVCS in KSA:

- Mode 2, Mode 3 and Mode 4: Requires the contractor to be authorized to conduct electrical installation works in KSA in addition to one of the below options:
 1. The contractor with experience in installing electric vehicle chargers (EVCS) or contractor with no experience but hired by a company that has the required experience (in both cases, contractors should provide the requirements as in Table 1 below).
 - Contractor with experience: He/She shall provide his experience certificate/letter from his previous employer including all the references of the previous projects and the phone numbers of a couple of ex-colleagues number (at least one of the 2 ex-colleagues must have a managerial level)
 - Company experience: The Company shall provide all references and details of previous EV installations and projects executed in KSA or abroad, these references must include all project details e.g., project price, location, size, team, etc.
 2. The contractor is certified by the EVCS manufacturer to install their chargers.
 3. The contractor has attended and passed the EVCS installation training delivered by SEC training institute.²

For options 1 and 3, the EVCS installer experience form shall present the below details as a minimum requirement: (at least 3 projects)

Table 1: EVCS Installation Experience

Field	Information
Project Names whether in KSA or Outside KSA *	Project 1:..... Project 2:..... Project 3:.....
Mode of charging for previous projects *	Project 1: <input checked="" type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4 <input type="checkbox"/> Mode 2 Project 2: <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4 <input type="checkbox"/> Mode 2

² This option is not available yet in SEC.

Technical Pre-qualification Guidelines for EV Chargers Contractors (EVCS)

	Project 3: <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4 <input type="checkbox"/> Mode 2
Charger Capacity (kW)*	Project 1:.....kW Project 2:..... kW Project 3:..... kW
Year of commissioning*	Project 1:..... Project 2:..... Project 3:.....
Brief description of the systems previously installed	Project 1:..... Project 2:..... Project 3:.....
Project Owner name and contact number*	Project 1 Owner Name: Project 1 owner Number: Project 2 Owner Name: Project 2 owner Number: Project 3 Owner Name: Project 3 owner Number:
Project Manager*	Project 1 PM Name: Project 1 PM Number: Project 2 PM Name: Project 2 PM Number: Project 3 PM Name: Project 3 PM Number:
System Cost in SAR	Project 1:..... Project 2:..... Project 3:.....
Indicate the number of EV charger units and EMS centers involved*	Project 1:..... Project 2:..... Project 3:.....
Describe the method(s) of communication (if any)	Project 1:..... Project 2:..... Project 3:.....
Indicate the Voltage at the Connection point with the local utility*	Project 1:..... Project 2:..... Project 3:.....

Technical Pre-qualification Guidelines for EV Chargers Contractors (EVCS)

EV Contractor declares that he/she wouldnt execute or install EV chargers outside the connection process defined by SEC and if this requirement is not respected, the EV Contractor will take full responsibility for this act and the risk to encounter any applicable penalties or actions according to the kingdom law and regulations*

EV Contractor declares that he/she would install and commission the EV chargers in accordance with the technical requirements defined by SEC EV Technical Standards. The EV contractor declares his responsibility in choosing the right components and install all the needed equipment necessary for guaranteeing the performance defined by SEC Technical Standards for EV connection*

*mandatory information

To better clarify the qualifications and certificates that the contractor/Installer shall have, the below table is reporting the requirements based on the charging mode.

Table 2: EVCS Installares qualification

	Mode 2	Mode 3	Mode 4	Ranking System
Minimum Qualification required	Electrical Diploma	Electrical Diploma	Electrical Technician or Electrical Engineer	20 points for submitting the qualification certificate
Minimum years of experience in electrical work. <u>CVs Shall be attached</u>	1 year	2 years	4 years	20 points if the years of experience are satisfied
Documents and Certificates <u>Shall be attached</u>	<ul style="list-style-type: none"> - ID/Residency Visa - Diploma Certificate - Signed and stamped Manufacturer training certificate signed and stamped by manufacturer. - Experience certificate 		<ul style="list-style-type: none"> - ID/Residency Visa - Bachelor Certificate - Signed and stamped Manufacturer training certificate signed and stamped by manufacturer. - Experience certificate 	10 points for each item, if all items are fulfilled a total of 40 points are awarded.
Job Title	Junior Technician	Junior Technician	Senior Technician/ Senior Engineer	20 points for the job title
Final Score	/100			
	<input type="checkbox"/> Passed <input type="checkbox"/> Failed			

For a contractor to be pre-qualified with SEC, He/She must get at least 70 points out of 100 following the above ranking system described in Table 2 and based on the latest decision from the Executive Vice President for distribution and customer services, a prequalification team has been created to pre qualify contractors for EV installation.

Technical Pre-qualification Guidelines for EV Chargers Contractors (EVCS)

The prequalification team is consisting from members from different departments and lead by the Division Manager, Studies, legislation and qualification representative. The prequalification members are selected from different departments as follow:

1. A representative from the Smart Metering Department
2. A representative from Engineering and Project Monitoring Department
3. A representative from Digitalization and Telecommunication Department
4. A representative from Qualification and Sauditaization Department

It must be noted that the above list of representative and the organization of the prequalification team is subject to continuous revision and reorganization based on SECs needs, market development or governmental regulations or decreets.

6.2 Personnel Experience

The applicant shall provide proof of qualification of his team personnel:

First Name & Family name*	ID/Residency Visa Number *	Years of Experience in Electric Installation*	Years of Experience in EV chargers (if any) *	Qualification Certificate *

*mandatory information

7 REFERENCES

- [1] Regulatory Framework for EV charging activities. WERA January 2021.
- [2] IEC 61851-1:2017 - Electric vehicle conductive charging system

APPENDIX B: PRE - QUALIFICATION CHECKLIST TABLE

Field	Results	Notes
Company Contact Information*		
- Company Details	<input type="checkbox"/> Yes <input type="checkbox"/> No	
- Contact Details	<input type="checkbox"/> Yes <input type="checkbox"/> No	
- Address Details	<input type="checkbox"/> Yes <input type="checkbox"/> No	
EVCS Work Qualification		
Qualified for Mode 2, Mode 3 & Mode 4*	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1. Is the Applicant authorized to conduct electrical installation works in KSA? *	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
2. Does the contractor have experience in installing electric vehicle chargers for at least 3 projects? *	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
3. Does the contractor have a certification from the EVCS manufacturer to install their chargers? *	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
4. Has the contractor attended and passed the EVCS Charger training delivered by SEC training institute? (option not yet available) *	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
Personnel Experience		
Is the personnel experience table filled? *	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
Final Result	<input type="checkbox"/> Accepted <input type="checkbox"/> Not Accepted	
SEC Engineer Signature:		
SEC Manager Signature:		