EcoConsult Audit Advanced+ for Power

Statement of Work

Date: 7 September 2023

Prepared by Schneider Electric Services
Scope: Consulting Services

Contents

1.0 Executive Summary

EcoConsult Audit Advanced+ for Power by Schneider Electric Services is a service performed by Schneider Electric Consultants on the Customer's premises.

EcoConsult Audit Advanced+ for Power is a non-intrusive assessment of the installed base of the Customer's electrical equipment. The aim of the offer is to assess and provide:

- Conditions of the equipment;
- Audit about the risks to safety and electrical distribution performance;
- Solutions to manage the risks and optimize performance;
- Detailed maintenance and modernization plan; and
- Digital transformation roadmap within a monitoring plan.

As a trusted partner who is deeply knowledgeable in electrical distribution installed base equipment, Schneider Electric provide a clear status of life cycle and conditions of electrical distribution assets and a plan to mitigate the risks identified.

The EcoConsult Audit Advanced+ for Power is delivered by leveraging a powerful modeling platform which allows Schneider Electric to deliver a high level of technical value. Our smart, server-side technologies provide deep visibility into the health of critical systems.

For more info, please do not hesitate to contact your Schneider Electric Services Representative.

2.0 Features & Benefits

Features	Benefits
Assets and System Recommendations	Help improve safety and reliability of your Electrical Distribution system.
Scheduling	Execute efficiently within one to two weeks on site with a possible remote consultant support.
Global Consistency	Manage centrally with globally consistent tools, techniques, training, templates, and project management (when applicable).
Highly Trained Consultants	Assure the assessment is delivered effectively, consistently worldwide with valuable findings.
Proprietary Tools	Utilize a Schneider Electric professional installed base diagnostic platform powered by a world-class database of installed base knowledge to help ensure the excellence, consistency, and value of all audits carried out.
Web Portal	Support the implementation of the assessment's recommendations, access to your installed base information and audit's deliverables, request for technical support.
Site Report	Provide a detailed site report of findings with actionable next steps on site on the last day of the site visit.

3.0 Details of Service

The specific features and deliverables of this service are listed below. For each item listed, Schneider Electric Services qualified consultants' personnel will perform the work described and create a printed document summarizing the results.

Service Deliverables	
Activities	**Description**
Scope	The scope is related to electrical distribution assets and system. The main equipment within the scope is: • Medium voltage switchboards/breakers (including protection relays); • MV/MV & MV/LV transformers; and • Main LV power switchboards/breakers. The following assets when power-supplied directly downstream a main LV switchboard: ○ Capacitor banks and power factor correction units; ○ Harmonic Filters; and ○ Uninterruptible Power Supply (UPS).
Equipment's Conditions Evaluation	• Obsolescence; • Physical condition; • Environmental conditions (temperature, presence of dust, air humidity, etc.); and • Operating conditions (maintenance, overload condition, number of switching operations, harmonics level, spare parts, etc.).
Procedures and Policies Assessment	• Safety procedures; • Emergency planning; and • Switching and operation.
Computer Modeling	Modelling of the power system site, enriched with assets nameplates information.
Site Process Understanding and Redundancy	Build a high-level flow chart of the site process and product sensibility to process shutdown.
	Identify sensible steps and required utilities (air compressor, boilers, chillers,…) and their redundancy to run site processes.
Site Shutdown Costs' Assessment	Identify financial losses due to unexpected process shutdown.
Sensible loads mapping in power system	Map utilities and sensible load in power system, identify the supply path from loads to supplies, implement redundancy
Network Architecture Reliability Analysis	Evaluate the topology/architecture of the electrical distribution system thanks to a reliability analysis based on the "fault tree" approach and the mapping of the sensible load in the power system and completed with equipment repair time.

Service Deliverables	
Activities	**Description**

Final Report	A detailed report of findings with actionable next steps is delivered on site on the last day of the site visit. The report will contain:
	• Overview of study methodology;
	• Description of process critical activities/critical loads and electrical distribution system;
	• System technical findings/deficiencies;
	• Equipment stress assessment
	• Reliability analysis, assumptions and results
	• Equipment criticality assessment
	• Modernization Plan:
	  ○ Equipment lifecycle status (obsolescence);
	  ○ Equipment upgrades' needs - retrofit/replacement plan;
	  ○ Proposed modifications of electrical system topology/architecture to improve safety and reliability;
	• Maintenance plan including retrofit plan:
	  ○ Maintenance periodicity based on asset stress assessment and obsolescence status;
	• Monitoring plan with a digital transformation roadmap;
	• Spare parts management; and
	• Conclusions:
	  ○ A listing of findings and prioritized actions with estimated budget.

4.0 Assumptions & Exclusions

4.1 Assumptions

The successful performance of the tasks defined in this Statement of Work is based on the following key assumptions, which are agreed to by Schneider Electric Services.

4.1.1 Time, People & Location [(1)]

- The installation at the site has been done by Schneider Electric. If not, Schneider Electric will evaluate the installation before signing the contract;
- The system must be installed in an environment that adheres to manufacturer specifications;
- Services performed on site by Schneider Electric Field Services will be executed during Schneider Electric business hours unless otherwise requested by the Customer. Those hours are Monday through Friday from 8am to 5pm weekly, local time, unless otherwise specified;
- All services are performed on site by qualified Schneider Electric Services consultant personnel;
- Hours of Operation for Technical Support are Country specific and include either 24/7 or business hours coverage;
- Next-Business-Day is defined as the next day during the business week and normal business hours;
- Response time is defined as elapsed time between when Schneider Electric Services technical support determines an on-site visit is necessary and the time the Field Services Representative arrives at the Customer's site. Please verify the service coverage and response time for your location with your local Schneider Electric Services sales representative;
- Schneider Electric will provide Services with respect to equipment and assets that are inside the Service Area. "*Schneider Electric Services Area*" means a location that is within (i) one hundred (100) miles or one hundred and sixty (160) kilometers radius of a Schneider Electric Services' location; and (ii) the country in which the Installation site is located, unless otherwise defined in the governing agreement with Schneider Electric, in which case the definition in the governing agreement prevails;
- Geographical restrictions may apply. Some aspects of the service definition presented in this document may vary by location. In the case of a conflict between the service definitions contained in this Statement of Work and the local service definitions will prevail. For more information, please refer to your Schneider Electric Services sales representative; and
- This service applies to a Customer location with standard site and product access. Our services assume continuous uninterrupted and unobstructed access to the equipment, standby time may be chargeable.

4.1.2 Services Activities & Upgrades

- Services obtained from any Schneider Electric partner or reseller are governed solely by the agreement between the purchaser and the reseller. That agreement may provide terms that are the same as the Schneider Electric Services Solutions on this document. Please contact the reseller or the local Schneider Electric sales representative for additional information on Schneider Electric Services Solutions on Products obtained from a reseller;
- Schneider Electric Field Services will define with the Customer the best approach to find a solution and reserves the right not to execute any modification outside of its defined scope of responsibility; and
- The end user is responsible for ensuring that one staff member is always on duty, available to be contacted for an incident.

4.2 Exclusions

Any items not expressly included in this offer for the Services will be subject to a specific quotation from Schneider Electric and will be charged in addition subject to agreement with the Customer. This includes, for instance, but is not limited to:

4.2.1 Additional Scope of Work not expressly included in the order/contract

- Safety officer or security escort charges;

(1) All assumptions that refer to reaching a location within a certain time are subject to local variations. Please contact your local Schneider Electric Services sales representative for further information.

- Physical security;
- Fire detection and fire suppression;
- Structural analysis;
- Circuit Tracing / Fault tree analysis;
- Stress & Reliability analysis;
- Repair of damage due to abuse, misuse, lack of maintenance or other damage caused by outside forces;
- Any oil sample analysis (transformers);
- On site condition maintenance;
- Costs and charges associated with switching and isolation operations;
- Any specialized testing;
- Additional type test, test or FAT with reports or other reports outside the Schneider Electric standards; or any specialized testing and commissioning;
- Low voltage sub-distribution panels;
- Electrical generators and end-user equipment such as: motors, pumps, etc.;
- Communication, Automation, and Control equipment/system;
- HVAC and Building Management Systems;
- Repair of damage caused by abuse, misuse, improper storage conditions, lack of maintenance, maintenance not in accordance with Schneider Electric's/the manufacturer's instructions, non-compliance with Schneider Electric instructions for installation or energizing, mechanical, electrical or electronic overload or other events outside Schneider Electric's control;
- Replacement or repair work resulting from normal wear-and-tear of equipment, damage or accidents owing to insufficient monitoring of the equipment or use that is non-compliant with the purpose of the equipment and/or Schneider Electric's/the manufacturer's instruction;
- Cabling or wiring external to equipment;
- In case of cabling problem, or wrong phase rotation, Schneider Electric Field Services will not carry out any rework on the cabling;
- Software programing and configuration;
- Process design, civil and other mechanical works;
- Consumables, additional spare parts, cables or other materials and related labor and travel costs (e.g.: batteries, wearing parts, including, but not limited to, capacitors and fans);
- Supply or installation of additional equipment or raw material required to perform and related labor costs (site busbar, cabling, generators, lifts, testing kit, lift, crane, ladder, containment and cable glands, including connection to site ground, unless specifically detailed as included);
- Removal and disposal of legacy equipment;
- Support for third-party equipment;
- Intervention in a different location than planned;
- Adaptations required due to insufficient nature of, or error in, the information sent by the Customer, a change to the location of the equipment or its environment;
- Equipment not provided by Schneider Electric Services. Examples include, but are not limited to:
    - Third-party components;
    - Switchgear;
    - Information Technology (IT) Equipment;
- Installation activities not provided by Schneider Electric Services as part of this service include, but are not limited to:
    - System installation;
    - Battery assembly;
    - Information Technology (IT) Equipment migration services; and
    - Specialized testing or commissioning services.

4.2.2 Additional time or fee not planned to access or exit from Customer site

- Delay in gaining access to or obtaining work permits for the utility substation or other aspects of the site;
- Delays incurred due to compliance with exceptional background check requirements or due to required medical or drug tests;
- Additional health and safety, environmental or security requirements at the Customer's site which were not previously agreed to Schneider Electric;
- Induction, Safety or Cybersecurity training longer than planned;
- Access to final on-site destination longer than 30 minutes from gate to the equipment; and
- Delays related to IT (no camera, no laptop, format disk after mission).

4.2.3 Stand by time/Waiting Time more than 30 minutes unless caused by Schneider Electric

- Unavailability of Customer or its third-parties required for the performance of the services;
- Unavailability of equipment, tools, hardware, software, internet connectivity, or office space required for the performance of the services;
- Cancellation or postponement of the services by the Customer (unless in accordance with the contract with Schneider Electric); and
- Delay or unavailability of transport either when not organized by Schneider Electric or outside of Schneider Electric's control.

4.2.4 Extra working hours not included in order/contract

- Schedule modification or acceleration plan requested by the Customer;
- Additional expenses (accommodation, catering and transportation);
- Delay in decisions and approvals by the Customer; and
- Delay or unavailability of accurate and complete information as requested by Schneider Electric.

4.2.5 Other circumstances that increase the time or costs of performing

- Other events or circumstances outside of Schneider Electric's reasonable control which increase the time or costs of performing the services.

Please contact your local Schneider Electric Services sales representative for clarification.

COVID-19: The company reserves the right to amend, withdraw or otherwise alter this submission without penalty or charge as a result of any event beyond its control arising from or due to the current COVID-19 pandemic or events subsequent to this pandemic, including changes in laws, regulations, bylaws, or direction from a competent authority.

5.0 Scope of Responsibility

The items stated here are responsibilities of both Schneider Electric Services and the Customer.

5.1 Schneider Electric Services Responsibilities

- Schedule qualified and approved consultant personnel to perform services;
- Meet the pre-determined scheduled service date;
- Perform all onsite service tasks in accordance with this Statement of Work;
- Perform services to manufacturer's specifications and conform to local health and safety regulations;
- Meet manufacturer and Customer safety requirements;
- Submit site forms, documentation/report to the Customer;
- Ensure all action items described in this Statement of Work are completed;
- Inform and provide recommendations to the Customer about any action items not included in this Statement of Work;
- As part of the EcoConsult Audit Advanced+ for Power Service:
    - Identify and document open Schneider Electric Services and/or Customer problems; and
    - Provide a signed copy of the activities' report to the Customer.

5.2 Customer Responsibilities

- Prior to order, inform Schneider Electric Services Sales of any special site conditions that could prohibit the successful execution of this standardized service, i.e., security clearance, site access requirements, unions, no truck access, no loading dock, no elevator access, no inside moving equipment available, etc.; Once agreed upon with Schneider Electric Services Sales, acceptable special site conditions must be clearly identified on the Customer Purchase Order;
- Provide dates and times when the scheduled work can be performed;
- Provide Schneider Electric with 5 business days' notice of any required reschedule;
- Facilitate site access for Schneider Electric Services personnel;
- Provide a suitable location for the staging of the old components nearby the UPS system location.
- If possible, allow the use of Customer on site moving equipment, such as, moving dolly, two wheeled truck, pallet jack, etc.
- Provide a named resource for scheduling of the services;
- Notify Schneider Electric Services personnel of any security clearance and/or safety training and equipment requirements in advance of arrival;
- Ensure safety plan is in place prior to intervention;
- Set-up EcoStruxure IT Free and maintain the contact list on the web profile;
- Provide a point of contact during time of service;
- Provide a point of contact at the completion of service to sign off on completed work;
- Provide the name of the project manager (if applicable);
- Have the parties responsible for operation of the equipment present for basic operator training after the system start-up; and
- Schneider Electric will make multiple attempts to proactively contact the Customer to schedule maintenance services due. However, it is finally the Customer's responsibility to ensure all services due are scheduled in advance of contract expiration.

6.0 Project Work Details

The project work details listed below are provided by Schneider Electric Services for the Customer with regard to services date, place and completion criteria.

6.1 Schedule

Actual set dates will be discussed and approved between Schneider Electric Services and the Customer.
The work plan follows a four to five-phase approach based on the execution model:

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Software connectivity testing	Kick-off meeting	Data collection (installed base & manufacturing process)	Assessment, analysis, and deliverables' preparation	Report, final presentation, and next steps

Customer involvement plays a key role in achieving the quality of EcoConsult Audit Advanced+ for Power. The detailed sections that follow describe the participation required in each phase. In addition, a working area will be required during all phases for Schneider Electric Services Representative on the customer's premises (an office or conference room is preferred).

6.1.1 Phase 1 - Software connectivity testing (in remotely supported execution only)

Objectives:

- Help ensure that there is a stable internet connection between our Services Representative's device and our consultant computer;
- Test the functions of the application including sound and on-screen annotation; and
- Assist the Customer to install the application if required.

Key Success Factors:

- Good internet connection and successfully able to install application on Customer's qualified person; and
- Availability of Customer representatives.

6.1.2 Phase 2 - Kick-off Meeting

Objectives:

- Orient the Customer on the EcoConsult Audit Advanced+ for Power process execution, methodology, expectations, execution schedule, and deliverables;
- Understand the current situation and future plans related to the electrical installation;
- Identify known issues and critical risks concerning electrical power supply.

Agenda & Attendees:

Attendees	Customer: Plant manager, Maintenance manager, and Electrical staff Schneider Electric: consultant or local FSR, and the customers' regular contacts
Time	1 hour
Agenda	• Introduction of attendees and presentation of assessment methodology; • Discussion of current issues/critical risks, review execution schedule and walkthrough of the site.

Requirements:

- A meeting room for 10 people with a video-projector;
- Single-line diagram of the electrical network; and
- An internet connection to let the consultant share kick-off meeting presentation in remotely supported execution.

Key Success Factors:

- Availability of customer representatives and quality of information (risks, context, etc.).

6.1.3 Phase 3 - Data collection (installed base & manufacturing process)

Installed Base and Maintenance

Objectives

- Build an inventory of the installed base equipment and collect information about maintenance procedures and policies.

Agenda & Attendees

Attendees	Customer: Electrical maintenance representative Schneider Electric: EcoConsult equipment consultant
Time	Generally, this stage can take 2 to 7 days for sites up to 15 MVA.
Agenda	• Visit each substation/electrical room and photograph and document installed base & deficiencies; • Review single-line diagram and develop understanding of system operating modes; • Review available technical documents and review maintenance procedures/policies; and • Review electrical asset management policies.

Requirements

- Access to the electrical substation/electrical rooms with the power still on (authorization, keys, etc.); and
- Authorization to take photos.

Key Success Factors

- Availability of customer's electrical maintenance representative(s).

Manufacturing Process

Objectives

- Understand the stages of the manufacturing process and the Customer's sensitivity to process interruptions;
- Map utility use at each stage of the manufacturing process and define the financial implications of a process interruption; and
- Map the sensitive process stages to the electrical single line diagram.

Agenda & Attendees

Attendees	Customer: Process manager, Financial representative, and Maintenance/Operations manager Schneider Electric: EcoConsult network consultant
Time	Generally, this stage can take 1 to 2 days and involves multiple meetings with the above attendees.
Agenda	• Develop a manufacturing process flowchart; • Assess the financial impact of a manufacturing interruption (production losses, scrap, recovery, etc.); • Map sensitive process stages to the electrical single line diagram.

Requirements

- Manufacturing process flow chart and single line diagram.

Key Success Factors

- Availability of financial and process representatives.

6.1.4 Phase 4 – Assessment, Analysis, and Deliverables' Preparation

Objectives:

- Assess the equipment operating condition and environmental conditions;
- Model the single-line diagram for reliability computation purposes;
- Define stress level on equipment and compute reliability to define equipment importance;
- Define equipment reliability index and criticality index based on stress and reliability index;
- Create plans for modernization, maintenance, monitoring, and management of the electrical distribution;
- Provide recommendations to address deficiencies and prioritize recommendations based on the criticality; and
- Produce final report and presentation.

Agenda & Attendees:

Attendees	This phase is mainly carried out by Schneider Electric consultants. Maintenance Manager and Electrical staff should be available on request but only for short periods (5 to 15 minutes) to explain specific points.
Time	Generally, this stage can take 3 to 4 days for sites up to 15 MVA.
Agenda	• Software modeling & analysis by consultants; • Short final inspections in substations/electrical rooms, if needed; and • Specific brief interviews of customer representatives and preparation of report and presentation.

Requirements:

- All available technical documents.

Key Success Factors:

- Availability of customer representatives.

6.1.5 Phase 5 - Report, optional final presentation, and next steps

Objectives:

- Present EcoConsult Audit Advanced+ for Power findings and recommendations; and
- Provide deliverables to the Customer.

Agenda & Attendees:

Attendees	Customer: Plant manager, Maintenance manager, and Electrical staff Schneider Electric: consultants and the customers' regular contacts
Time	2 Hours
Agenda	• Presentation of main findings & recommendations; • Review of 4 plans: ○ Maintenance – Modernization – Monitoring – Management; • Delivery of draft report and define next steps.

Requirements:

- A meeting room for 10 people with a video-projector
- An internet connection to let the consultant share assessment presentation for the remotely supported execution.

Key Success Factors:

- Perform the five phases without a break in the schedule; and
- Availability of customer representatives.

6.2 Location

The location of this service will be on-site and will be agreed to by Schneider Electric Services and the Customer prior to the service delivery.

6.3 Completion Criteria

Schneider Electric Services is expected to have finished its written duties when any of the following occurs:

1. Schneider Electric Services completes all the tasks described in Section 3.1 of this Statement of Work document; and

This service and Statement of Work are terminated for other reasons within the Service Customer Agreement