LEBANESE REPUBLIC

GENERAL DIRECTORATE OF THE PRESIDENCY

PRESIDENTIAL PALACE COMPOUND - BAABDA

REHABILITATION OF MAIN ELECTRICAL ROOM & NEW GENERATORS ROOM

IN THE PRESIDENTIAL PALACE

TENDER DOCUMENTS

ANNEXES

A | Warranty, Responsibilities, Maintenance and Acceptance

B | Work Strategy

C | Price Adjustment Schedule

PROJECT REFERENCE L2026-14/2026

SOURCE DOCUMENTS OCTOBER 2026

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TENDER DOCUMENTS

ANNEX A

WARRANTY, RESPONSIBILITIES, MAINTENANCE AND ACCEPTANCE

L2026-14/2026

Prepared by

October - 2026

SPECTRUM ENGINEERING CONSULTANTS S.A.R.L.
ISO 9001:2000

REHABILITATION OF MAIN ELECTRICAL ROOM / NEW GENERATORS ROOM IN RESIDENTIAL PALACE

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ITEM 3.1 TO 3.4
SANITARY DRAINAGE PIPEWORK

1.01 WARRANTY

Minimum 2 years from the date of final acceptance, covering defects in materials, manufacturing, joints, leakage, pipe deformation attributable to defective materials or installation, and workmanship.

Exclusions shall be limited to damage caused by misuse, unauthorized modifications, external mechanical damage, or improper maintenance not attributable to the Contractor.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, testing, and commissioning all sanitary drainage pipes, fittings, joints, traps, cleanouts, supports, and accessories in accordance with approved drawings and specifications.

During the warranty period, defective materials or workmanship shall be rectified at no additional cost, including labor, replacement materials, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

The supplier/manufacturer shall provide product certificates, installation instructions, and applicable warranties.

1.03 MAINTENANCE

The Contractor shall provide maintenance instructions and a recommended maintenance schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final acceptance, including inspection of accessible drainage lines, cleanouts, and connections.

Blockages, leakage, or defects attributable to defective materials or installation shall be rectified under warranty.

Routine cleaning caused by normal use shall be the Employer's responsibility unless expressly included in the Contract

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of pipe sizes, gradients, supports, cleanouts, connections, and successful leakage or watertightness testing as applicable.

Final acceptance: Following rectification of deficiencies and submission of approved material certificates, test reports, as-built drawings, warranty certificates, and maintenance instructions. Staged acceptance may be granted for completed areas. Outstanding defects and warranty obligations shall remain enforceable after acceptance for their applicable periods.

ITEM 4.1
DOMESTIC COLD AND HOT WATER PIPEWORK AND ACCESSORIES

1.01 WARRANTY

Minimum 2 years from the date of final acceptance, covering defects in materials, manufacturing, pipe joints, leakage, pressure loss, pipe deformation, corrosion where applicable, insulation defects, and workmanship. The warranty shall include pipes, fittings, valves, supports, insulation, and associated accessories.

Exclusions shall be limited to damage caused by misuse, unauthorized modifications, external mechanical damage, or improper maintenance not attributable to the Contractor.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, testing, flushing, disinfecting where applicable, and commissioning all domestic cold and hot water pipework, fittings, valves, unions, flexible connections, supports, insulation, and accessories in accordance with approved drawings and specifications. The Contractor shall ensure correct pipe sizing, routing, pressure ratings, temperature ratings, jointing methods, thermal expansion allowances, and protection against condensation and heat loss.

During the warranty period, defects in materials or workmanship shall be rectified at no additional cost, including labor, replacement materials, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

The supplier/manufacturer shall provide product certificates, installation instructions, and applicable warranties.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance instructions and a recommended maintenance schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final acceptance, including inspection of accessible pipework, joints, valves, supports, insulation, leaks, and associated accessories.

Defects attributable to defective materials or installation shall be rectified under warranty at no additional cost.

Routine maintenance, normal valve operation, and replacement of consumables due to normal use shall be the Employer's responsibility unless expressly included in the Contract

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of pipe sizes, pressure ratings, supports, valves, insulation, connections, and successful hydrostatic pressure testing in accordance with the approved specifications and applicable standards. Flushing and disinfection shall be completed where required before the system is placed into service.

Final acceptance: Following rectification of deficiencies and submission of approved material certificates, pressure-test reports, flushing and disinfection records where applicable, commissioning reports, as-built drawings, warranty certificates, and maintenance instructions. Staged acceptance may be granted for completed areas. Outstanding defects and warranty obligations shall remain enforceable throughout their applicable periods.

ITEM 4.2
ELECTRICAL WATER HEATER TANK, HEATING ELEMENT, THERMOSTAT AND CONTROLS

1.01 WARRANTY

The hot water storage tank shall be covered by a minimum 5-year warranty from the date of final acceptance, covering tank leakage, corrosion, manufacturing defects, and failure attributable to defective materials or workmanship. The electrical heating element, thermostat, independent high-limit safety cut-out, temperature controls, electrical connections, and associated accessories shall be covered by a minimum 2-year warranty from the date of final acceptance.

Exclusions shall be limited to damage caused by misuse, unauthorized modifications, improper maintenance, or unsuitable water conditions not attributable to the Contractor.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, connecting, testing, and commissioning the complete electrical water heater assembly, including the hot water storage tank, heating element, adjustable thermostat, independent high-limit safety cut-out, temperature controls, temperature and pressure relief valve where applicable, drain valve, isolation valves, electrical isolator, earthing, wiring, and accessories. The Contractor shall ensure compliance with approved drawings, specifications, applicable electrical codes, and manufacturer recommendations.

During the applicable warranty periods, defective materials, components, or workmanship shall be rectified at no additional cost, including labor, replacement parts, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

The Contractor shall provide separate warranty certificates clearly identifying the 5-year tank warranty and the 2-year warranty for the heating element, thermostat, controls, and associated accessories.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance manuals, thermostat adjustment instructions, recommended inspection intervals, and maintenance procedures at handover.
Where included in the Contract, scheduled maintenance shall be provided for 2 years from final acceptance, including inspection of the tank, heating element, thermostat, safety cut-out, relief valve, electrical connections, earthing, and insulation. Descaling and inspection of the heating element shall be carried out in accordance with the manufacturer's recommendations and local water conditions.

Defects attributable to defective materials or installation shall be rectified under warranty within the applicable warranty period.

Routine maintenance and replacement of consumables due to normal use shall be the Employer's responsibility unless expressly included in the Contract.

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, verification of tank capacity, heating element rating, electrical supply, thermostat settings, earthing, protective devices, valves, and connections. Testing shall include water-tightness verification, electrical safety checks, thermostat operation, independent high-temperature cut-out operation, heating performance, and correct operation of safety devices.

Final acceptance: Following rectification of deficiencies and submission of approved material certificates, manufacturer documentation, electrical and functional test reports, commissioning records, separate warranty certificates for the tank and electrical components, and operation and maintenance manuals. Staged acceptance may be granted for completed areas. Outstanding defects and warranty obligations shall remain enforceable throughout their applicable periods.

ITEM 6.1 TO 6.4
FUEL OIL CARBON STEEL PIPEWORK, STORAGE TANK AND ACCESSORIES

1.01 WARRANTY

Minimum 2 years from the date of final acceptance, covering defects in the aboveground carbon steel fuel oil storage tank, carbon steel pipes, fittings, welded joints, flanges, valves, flexible connectors, strainers, supports, nozzles, manholes, level indicators, overfill protection devices, protective coatings, and associated accessories. The warranty shall cover leakage, defective welding, manufacturing and fabrication defects, structural defects, and corrosion attributable to defective materials, protective coatings, or workmanship.

Exclusions shall be limited to damage caused by misuse, unauthorized modifications, external mechanical damage, or improper maintenance not attributable to the Contractor.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, fabricating, installing, testing, and commissioning the complete fuel oil storage and distribution system, including the aboveground carbon steel tank, carbon steel pipework, fittings, flanges, valves, flexible connectors, strainers, supports, filling and discharge connections, vent pipes, overflow connections where required, drain connections, manholes, level indicators, overfill protection devices, earthing connections, protective coatings, identification labels, and all required accessories.

The Contractor shall ensure compliance with approved drawings, specifications, applicable codes, and manufacturer recommendations. The scope shall include correct pipe sizing, material thickness, pressure ratings, welding, support arrangements, tank capacity, venting, corrosion protection, and leak prevention. Welding shall be performed by qualified personnel, with inspections carried out as required by the approved specifications.

During the warranty period, defects shall be rectified at no additional cost, including labor, replacement materials, transportation, removal, reinstallation, reinstatement of finishes, and retesting. Material certificates, welding records, inspection reports, and applicable manufacturer warranties shall be submitted.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance instructions and a recommended maintenance schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final acceptance, including inspection of the tank shell, welds, pipework, flanges, valves, flexible connectors, supports, vents, level indicators, overfill protection devices, earthing connections, and protective coatings. Maintenance shall include checking for leakage, corrosion, loose connections, and deterioration

of protective coatings. The Contractor shall provide procedures for safe tank inspection, sediment and water removal, and coating repairs.

Defects attributable to defective materials, fabrication, or installation shall be rectified under warranty.

Routine cleaning, inspection, and maintenance arising from normal operation shall be the Employer's responsibility unless expressly included in the Contract.

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of tank capacity, dimensions, material thickness, pipe sizes, routing, supports, valves, accessories, venting, overfill protection, earthing, and protective coatings. Required welding inspections and tank and pipework leak, tightness, or pressure tests shall be completed using approved procedures suitable for fuel oil systems and in accordance with applicable standards.

Final acceptance: Following rectification of deficiencies and submission of material certificates, fabrication and welding records, inspection and test reports, coating inspection records, commissioning reports, as-built drawings, warranty certificates, and operation and maintenance manuals. Staged acceptance may be granted for completed installations. Outstanding defects and warranty obligations shall remain enforceable throughout their applicable periods.

ITEM 8.1.1
METAL DUCTWORK AND ACCESSORIES

1.01 WARRANTY

Minimum 2 years from the date of final acceptance, covering defects in metal ductwork, fittings, joints, seams, flanges, stiffeners, supports, access doors, flexible connectors, sealing materials, and associated accessories. The warranty shall cover air leakage exceeding specified limits, deformation, defective fabrication, loose connections, and corrosion attributable to defective materials, protective coatings, or workmanship.

Exclusions shall be limited to damage caused by misuse, unauthorized modifications, external mechanical damage, or improper maintenance not attributable to the Contractor.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, fabricating, installing, sealing, testing, and commissioning the complete metal ductwork system in accordance with approved shop drawings, specifications, and applicable standards, including SMACNA where specified.

The scope shall include galvanized steel or other specified metal ducts, elbows, reducers, transitions, branches, plenums, flanges, stiffeners, access doors, flexible connectors, supports, hangers, sealing materials, and identification labels.

The Contractor shall ensure correct duct dimensions, sheet metal thickness, reinforcement, pressure classification, airtightness, support spacing, accessibility, and coordination with other building services. Duct joints shall be properly sealed using approved materials compatible with the specified pressure class.

During the warranty period, defects shall be rectified at no additional cost, including labor, replacement materials, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance instructions and a recommended maintenance schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final acceptance, including inspection of accessible ductwork, joints, sealants, supports, corrosion protection, access doors, and flexible connections.

Any leakage, corrosion, deformation, or defects attributable to defective materials, fabrication, or installation shall be rectified under warranty.

Routine duct cleaning and maintenance arising from normal operation shall be the Employer's responsibility unless expressly included in the Contract.

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of duct dimensions, sheet metal thickness, reinforcement, joints, supports, access provisions, sealing, and compliance with approved shop drawings. Duct leakage testing shall be performed where specified, in accordance with the approved pressure classification and applicable standards.

Final acceptance: Following rectification of deficiencies and submission of approved material certificates, duct leakage test reports where required, inspection records, as-built drawings, warranty certificates, and operation and maintenance manuals. Staged acceptance may be granted for completed areas. Outstanding defects and warranty obligations shall remain enforceable throughout their applicable periods.

ITEM 8.1.2
MOTORIZED DAMPERS AND ACCESSORIES

1.01 WARRANTY

Minimum 2 years from the date of final acceptance, covering motorized dampers, damper blades, frames, shafts, bearings, linkages, seals, electric actuators, position indicators, end switches, electrical connections, and associated accessories. The warranty shall cover manufacturing defects, malfunctioning actuators, failure to open or close, defective position feedback, and operational failures attributable to defective materials, manufacturing, or installation.

Exclusions shall be limited to damage caused by misuse, unauthorized modifications, external mechanical damage, or improper maintenance not attributable to the Contractor.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, connecting, testing, and commissioning all motorized dampers and accessories in accordance with approved drawings, specifications, and manufacturer recommendations. The scope shall include damper frames and blades, shafts, bearings, seals, actuators, mounting brackets, position indicators, end switches, control wiring, electrical connections, and all required accessories.

The Contractor shall ensure compatibility with the specified duct dimensions, airflow, operating pressure, actuator torque, electrical supply, and control system. Dampers shall be securely installed, correctly oriented, accessible for maintenance, and provided with adequate access doors. Actuators shall be connected to the specified HVAC control or building management system, with the required opening and closing signals, position feedback, and fail-safe position where specified.

During the warranty period, defects shall be rectified at no additional cost, including labor, replacement components, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance manuals and a recommended maintenance schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final acceptance, including inspection of damper blades, frames, shafts, bearings, linkages, seals, actuators, electrical connections, and control interfaces.

Maintenance shall include checking unobstructed blade movement, actuator operation, full opening and closing, position feedback, and specified fail-safe operation.

Defects attributable to defective materials, manufacturing, or installation shall be rectified under warranty.

Routine maintenance arising from normal operation shall be the Employer's responsibility unless expressly included in the Contract

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of damper dimensions, actuator ratings, mounting arrangements, accessibility, electrical connections, and control wiring. Functional testing shall verify full opening and closing, response to control signals, end-switch operation, position feedback where specified, and fail-safe operation upon power failure where required by the approved design. Integration with the HVAC control system, building management system, and fire alarm system shall be tested where applicable.

Final acceptance: Following rectification of deficiencies and submission of approved technical data, material certificates, actuator data sheets, functional and commissioning test reports, control interface test records where applicable, as-built drawings, warranty certificates, and operation and maintenance manuals. Staged acceptance may be granted for completed areas. Outstanding defects and warranty obligations shall remain enforceable throughout their applicable periods..

ITEM 8.1.3
CARBON STEEL ENGINE FLUE EXHAUST PIPEWORK FOR GENERATORS, INSULATION, CLADDING, MUFFLERS, FILTERS AND ACCESSORIES

1.01 WARRANTY

Minimum 2 years from the date of final acceptance, covering the complete generator engine exhaust system, including carbon steel exhaust pipes, fittings, flanges, flexible connections, expansion joints, thermal insulation, metal jacketing/cladding, end caps, mufflers/silencers, exhaust filters, supports, hangers, brackets, and associated accessories. The warranty shall cover defects in materials, fabrication, welding, leakage, excessive vibration, premature corrosion, insulation deterioration, cladding failure, and muffler or filter defects attributable to defective materials, manufacturing, or installation.

Exclusions shall be limited to damage caused by misuse, unauthorized modifications, operation outside the generator manufacturer's specified limits, or improper maintenance not attributable to the Contractor.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, fabricating, installing, testing, and commissioning the complete generator engine exhaust system in accordance with approved drawings, project specifications, generator manufacturer's requirements, and applicable standards. The scope shall include carbon steel exhaust pipes and fittings, flanges, flexible connectors, expansion joints, thermal insulation suitable for the exhaust gas temperature, protective metal jacketing/cladding, end caps, mufflers/silencers, exhaust filters where specified, supports, hangers, brackets, fasteners, access provisions, and all necessary accessories.

The Contractor shall ensure correct pipe sizing, material thickness, exhaust temperature and pressure ratings, joint integrity, thermal expansion allowances, vibration isolation, clearances from combustible materials, weather protection, and safe discharge of exhaust gases. Flexible connections shall be suitable for the exhaust temperature, pressure, movement, and vibration of the generator engine. Insulation and cladding shall be securely installed, with joints and terminations properly sealed and protected against moisture ingress. Mufflers and filters shall be selected to meet the required exhaust backpressure and noise attenuation without exceeding the generator manufacturer's permissible limits.

During the warranty period, defects shall be rectified at no additional cost, including labor, replacement materials and components, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance manuals and a recommended maintenance schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final acceptance, including inspection of exhaust pipes, welded joints, flanges, flexible connections, expansion joints, supports, insulation, cladding, end caps, mufflers, and filters. Maintenance shall include checking for exhaust leakage, corrosion, vibration, loose supports, insulation damage, cladding deterioration, and filter blockage or excessive pressure drop. Mufflers and filters shall be inspected, cleaned, serviced, or replaced in accordance with the manufacturer's instructions and generator operating hours.

Defects attributable to defective materials, fabrication, or installation shall be rectified under warranty.

Routine cleaning and replacement of consumable filter elements due to normal operation shall be the Employer's responsibility unless expressly included in the Contract

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of pipe sizes, materials, supports, flexible connections, expansion provisions, insulation thickness, cladding, end caps, muffler and filter installation, access provisions, and clearances from combustible materials. Testing shall include inspection for exhaust leakage, verification of support stability and vibration isolation, and confirmation that the exhaust arrangement complies with the generator manufacturer's requirements. The system shall be operated under the specified commissioning conditions to verify exhaust gas discharge, acceptable noise attenuation, and exhaust backpressure within the manufacturer's permissible limits. Filter pressure drop shall be checked where applicable.

Final acceptance: Following rectification of deficiencies and submission of material certificates, welding inspection records where required, insulation and cladding data, muffler and filter technical data, commissioning and test reports, exhaust backpressure measurements, as-built drawings, warranty certificates, and operation and maintenance manuals. Staged acceptance may be granted for completed installations. Outstanding defects and warranty obligations shall remain enforceable throughout their applicable periods.

ITEM 8.2
AIR OUTLETS AND ACCESSORIES

1.01 WARRANTY

Minimum 2 years from the date of final acceptance, covering defects in materials, manufacturing, finish, adjustment mechanisms, and workmanship. The warranty shall include supply and return air grilles, diffusers, registers, linear slot diffusers, louvers where specified, plenums, opposed-blade dampers, volume control dampers, mounting frames, and associated accessories. Defects such as corrosion, finish deterioration, deformation, loose components, and malfunctioning adjustment mechanisms attributable to defective materials or installation shall be rectified under warranty.

Exclusions shall be limited to damage caused by misuse, unauthorized modifications, external mechanical damage, or improper maintenance not attributable to the Contractor.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, adjusting, and testing all air outlets and associated accessories in accordance with approved shop drawings, specifications, and manufacturer recommendations. The scope shall include diffusers, grilles, registers, plenums, mounting frames, volume control dampers, flexible duct connections where specified, fasteners, and accessories.

The Contractor shall ensure correct sizes, neck dimensions, airflow direction, mounting height, alignment, finish, accessibility, and compatibility with the connected ductwork and ceiling systems. Air outlets shall be securely installed, properly sealed where required, and coordinated with architectural, electrical, and fire protection services.

During the warranty period, defects shall be rectified at no additional cost, including labor, replacement materials, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance instructions and a recommended maintenance schedule at handover.
Where included in the Contract, scheduled maintenance shall be provided for 2 years from final acceptance, including inspection of air outlets, mounting frames, finishes, dampers, fasteners, and connections. Adjustable dampers shall be checked for smooth operation, and outlets shall be cleaned without damaging their finish or airflow adjustment mechanisms.

Defects attributable to defective materials or installation shall be rectified under warranty.

Routine cleaning and maintenance arising from normal operation shall be the Employer's responsibility unless expressly included in the Contract

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of outlet types, dimensions, locations, mounting heights, alignment, finishes, accessibility, and proper connection to ductwork. Airflow measurements and balancing shall be performed to verify the specified air quantities at each outlet, in coordination with the HVAC testing, adjusting, and balancing procedures.

Final acceptance: Following rectification of deficiencies and submission of approved material data, airflow measurement and balancing reports, inspection records, as-built drawings, warranty certificates, and operation and maintenance manuals. Staged acceptance may be granted for completed areas. Outstanding defects and warranty obligations shall remain enforceable throughout their applicable periods.

ITEM 8.3
FANS, FAN ASSEMBLIES AND MOTORS

1.01 WARRANTY

Minimum 2 years from the date of final acceptance, covering defects in materials, manufacturing, fan casings, impellers, shafts, bearings, drive assemblies, motors, vibration isolators, flexible connections, electrical components, and workmanship. The warranty shall cover abnormal vibration, excessive noise, motor overheating, bearing failure, and performance deficiencies attributable to defective materials, manufacturing, or installation.

Exclusions shall be limited to damage caused by misuse, unauthorized modifications, operation outside the specified conditions, or improper maintenance not attributable to the Contractor.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, testing, adjusting, and commissioning all fan assemblies and motors in accordance with approved drawings, specifications, and manufacturer recommendations. The scope shall include fan casings, impellers, shafts, bearings, electric motors, belts and pulleys where applicable, guards, flexible connectors, vibration isolators, mounting frames, dampers where specified, electrical isolators, control devices, and accessories.

The Contractor shall ensure compliance with the specified airflow, static pressure, rotational speed, motor power, efficiency, noise limits, and electrical characteristics. Fans shall be properly aligned, securely supported, and installed with adequate access for inspection and maintenance. Electrical connections, earthing, overload protection, and control interfaces shall be completed as specified.

During the warranty period, defects shall be rectified at no additional cost, including labor, replacement components, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance manuals and a recommended maintenance schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final acceptance, including inspection of impellers, bearings, shafts, motor terminals, belts, pulleys, guards, vibration isolators, flexible connectors, electrical connections, and mounting arrangements. Maintenance shall include lubrication, belt tension adjustment, alignment, cleaning, and verification of motor operating conditions in accordance with manufacturer recommendations.

Defects attributable to defective materials, manufacturing, or installation shall be rectified under warranty.

Routine servicing and replacement of consumables due to normal operation shall be the Employer's responsibility unless expressly included in the Contract

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of fan type, capacity, motor rating, mounting arrangements, guards, vibration isolation, electrical connections, and accessibility. Testing and commissioning shall include verification of airflow, external static pressure where applicable, motor current, voltage, rotational direction, operating speed, vibration, abnormal noise, and correct operation of control and safety devices. Airflow shall be adjusted and balanced to meet the approved design requirements.

Final acceptance: Following rectification of deficiencies and submission of approved technical data, manufacturer certificates, electrical test records, fan performance and commissioning reports, airflow balancing reports, as-built drawings, warranty certificates, and operation and maintenance manuals. Staged acceptance may be granted for completed areas. Outstanding defects and warranty obligations shall remain enforceable throughout their applicable periods.

ITEM 8.4
SPLIT DX UNITS AND COMPRESSORS

1.01 WARRANTY

The complete split DX air-conditioning unit, including indoor unit, outdoor unit, fans, heat exchangers, refrigerant piping connections, electrical components, controls, and accessories, shall be covered by a minimum 2-year warranty from the date of final acceptance. The compressor shall be covered by a minimum 5-year warranty from the date of final acceptance. Both warranties shall cover defects in materials, manufacturing, and workmanship. Compressor replacement under warranty shall include the compressor, labor, refrigerant recovery and recharge, transportation, removal, reinstallation, and testing, at no additional cost to the Employer.

Exclusions shall be limited to damage caused by misuse, unauthorized modifications, operation outside manufacturer limits, or improper maintenance not attributable to the Contractor.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, testing, adjusting, and commissioning the complete split DX system in accordance with approved drawings, specifications, and manufacturer recommendations. The scope shall include indoor and outdoor units, compressors, refrigerant piping, thermal insulation, condensate drainage, mounting brackets or supports, vibration isolators, refrigerant accessories, electrical wiring, isolators, controls, and all necessary appurtenances.

The Contractor shall ensure correct refrigerant pipe sizing, pipe insulation, drainage slopes, refrigerant charge, electrical protection, and compliance with the specified cooling capacity, energy efficiency, and operating conditions.

The Contractor shall provide separate warranty certificates clearly identifying the 2-year warranty for the complete DX unit and the 5-year warranty for the compressor.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance manuals and a recommended maintenance schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final acceptance, including inspection and cleaning of filters and heat exchangers, verification of refrigerant operating conditions, inspection of refrigerant connections, condensate drainage, electrical terminals, controls, fans, and compressor operation.

Defects attributable to defective materials, manufacturing, or installation shall be rectified under the applicable warranty.

Routine cleaning and replacement of consumables due to normal operation shall be the Employer's responsibility unless expressly included in the Contract

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, inspection of indoor and outdoor units, refrigerant piping, insulation, condensate drainage, supports, electrical connections, and controls. Testing and commissioning shall include refrigerant leak testing, verification of operating pressures and temperatures in accordance with manufacturer requirements, condensate drainage testing, electrical measurements, cooling performance verification, and functional testing of thermostats and safety controls.

Final acceptance: Following rectification of deficiencies and submission of approved technical data, manufacturer certificates, refrigerant leak-test records, commissioning reports, warranty certificates, as-built drawings, and operation and maintenance manuals. The separate 2-year unit warranty and 5-year compressor warranty shall remain enforceable for their respective periods from final acceptance

ITEM 9.1
AUTOMATIC FM-200 FIRE SUPPRESSION SYSTEM

1.01 WARRANTY

Minimum 2 years from the date of final acceptance, covering the complete automatic FM-200 fire suppression system, including agent cylinders, FM-200 extinguishing agent, valves, discharge nozzles, piping, fittings, pressure switches, releasing panel, detection devices, manual release stations, abort switches where specified, audible and visual alarms, control modules, actuators, and associated accessories. The warranty shall cover defects in materials, manufacturing, installation, system integrity, and operation attributable to the Contractor or supplier. Any loss of extinguishing agent resulting from leakage or defects attributable to defective materials, manufacturing, or installation shall be rectified at no additional cost, including agent refilling, replacement components, labor, transportation, retesting, and recommissioning.

Exclusions shall be limited to damage caused by misuse, unauthorized modifications, external mechanical damage, or improper maintenance not attributable to the Contractor.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, testing, commissioning, and handing over the complete automatic FM-200 fire suppression system in accordance with approved drawings, specifications, applicable NFPA 2001 requirements, and manufacturer recommendations. The scope shall include cylinders and mounting brackets, extinguishing agent, discharge piping and nozzles, pressure relief provisions where required, detection and releasing panels, detectors, manual release stations, abort switches where specified, alarms, control interfaces, warning signs, and all required accessories.

The Contractor shall provide hydraulic calculations, nozzle layout, agent quantity calculations, enclosure integrity requirements, cause-and-effect matrix, shop drawings, material certificates, and manufacturer authorization where required.
During the warranty period, defects shall be rectified at no additional cost, including labor, replacement materials, transportation, agent recharge, removal, reinstallation, reinstatement of finishes, retesting, and recommissioning.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance manuals, emergency procedures, inspection checklists, and a recommended maintenance schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final acceptance, including inspection of cylinder pressure or weight as applicable, cylinder condition and mounting, valves, piping, nozzles, releasing mechanisms, detection devices, releasing panel, alarms, electrical connections, and control interfaces. Functional testing shall be performed in accordance with

applicable standards and manufacturer instructions, using procedures that prevent unintended agent discharge.

Any leakage, loss of agent, or malfunction attributable to defective materials or installation shall be rectified under warranty.
Routine inspection and maintenance after the included maintenance period shall be the Employer's responsibility unless expressly included in the Contract

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of cylinder capacity and agent quantity, piping sizes and routing, nozzle orientation, supports, detection and releasing devices, warning signs, and interfaces with HVAC shutdown, dampers, access control, and other systems where specified. Acceptance testing shall include inspection of hydraulic calculations, verification of releasing logic and cause-and-effect sequences, functional testing of alarms and control interfaces, supervision circuits, manual release and abort functions where specified, and enclosure integrity verification where required. Discharge testing shall be performed only where specifically required and approved.

Final acceptance: Following rectification of deficiencies and submission of approved shop drawings, hydraulic calculations, agent quantity calculations, material certificates, pressure or weight inspection records, functional and commissioning test reports, enclosure integrity test reports where required, as-built drawings, warranty certificates, and operation and maintenance manuals. Staged acceptance may be granted for completed protected enclosures. Outstanding defects and warranty obligations shall remain enforceable throughout their applicable periods

ITEM 9.2
PORTABLE FIRE EXTINGUISHERS

1.01 WARRANTY

Minimum 6 years from the date of final acceptance, covering defects in the extinguisher cylinder, manufacturing, corrosion attributable to defective materials or protective coatings, valves, discharge mechanisms, pressure gauges, hoses, nozzles, safety pins, seals, and mounting brackets. The warranty shall cover leakage, loss of pressure, malfunctioning discharge mechanisms, and defects attributable to materials or workmanship. Any defective extinguisher shall be repaired or replaced at no additional cost, including labor, transportation, removal, reinstallation, and retesting.

Exclusions shall be limited to damage caused by misuse, unauthorized modifications, accidental damage, improper maintenance, or discharge resulting from actual use, unless otherwise specified in the Contract.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, inspecting, and handing over all portable fire extinguishers in accordance with approved drawings, specifications, applicable NFPA 10 requirements, and local fire safety regulations. The scope shall include the specified extinguisher types and capacities, including dry chemical powder, CO_2, foam, or other approved extinguishing agents as indicated in the Contract, together with cylinders, valves, hoses, nozzles, pressure gauges where applicable, safety pins, tamper seals, wall brackets or cabinets, identification labels, and operating instructions.

The Contractor shall ensure that each extinguisher is suitable for its designated fire hazards, has the required fire rating, and is installed at the approved location with appropriate accessibility and mounting height.

Manufacturer certificates, inspection records, and separate warranty certificates confirming the 6-year warranty shall be submitted.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance instructions and a recommended inspection schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final acceptance, including inspection of cylinder condition, pressure gauges where applicable, valves, hoses, nozzles, safety pins, tamper seals, mounting brackets, labels, and accessibility. Inspection, servicing, hydrostatic testing, and agent replacement shall be performed at the intervals required by applicable regulations, NFPA 10, and manufacturer instructions.

Defects attributable to defective materials or workmanship shall be rectified under warranty.

Routine servicing, recharging after use, and maintenance arising from normal operation shall be the Employer's responsibility unless expressly included in the Contract.

1.04 ACCEPATANCE

Provisional acceptance: Following verification of extinguisher type, capacity, fire rating, certification, location, accessibility, mounting height, operating instructions, safety seals, pressure indication where applicable, and compliance with approved drawings and specifications.

Final acceptance: Following rectification of deficiencies and submission of manufacturer certificates, product data sheets, inspection records, installation schedules, warranty certificates, and maintenance instructions. Staged acceptance may be granted for completed areas. Outstanding defects and warranty obligations shall remain enforceable throughout their applicable periods

ITEM 13.1 to 13.3
SANITARY FIXTURES, FAUCETS, MIXERS AND ACCESSORIES

1.01 WARRANTY

Sanitary ware, including water closets, washbasins, urinals, shower trays, kitchen sinks, janitor sinks, and other specified ceramic or sanitary fixtures, shall be covered by a minimum 10-year warranty from the date of final acceptance against manufacturing defects, cracking, crazing, and defects affecting structural integrity or normal use. Faucets and mixers, including basin mixers, shower mixers, kitchen sink mixers, and associated mixing valves, shall be covered by a minimum 5-year warranty from the date of final acceptance against manufacturing defects, leakage, defective cartridges, and malfunctioning operating mechanisms. Accessories, including traps, wastes, bottle traps, flexible connectors, hoses, brackets, flush mechanisms, flush plates, seats, covers, and mounting hardware, shall be covered by a minimum 2-year warranty from the date of final acceptance.

Exclusions shall be limited to damage caused by misuse, unauthorized modifications, accidental damage, or improper maintenance not attributable to the Contractor.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, connecting, testing, and commissioning all sanitary fixtures, faucets, mixers, and accessories in accordance with approved drawings, specifications, and manufacturer instructions. The scope shall include sanitary ware, faucets, mixers, cartridges, wastes, traps, flexible connections, isolation valves, mounting brackets, concealed supports, flush tanks, flushing mechanisms, shower heads, hoses, and all required accessories.

The Contractor shall ensure proper alignment, secure fixing, watertight connections, suitable operating pressure, correct drainage connections, and compatibility with the domestic cold and hot water systems. Sanitary fixtures shall be installed without damage to their surfaces, and all joints shall be properly sealed. During the applicable warranty periods, defects shall be rectified at no additional cost, including labor, replacement materials, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

Separate warranty certificates shall be provided for sanitary ware, faucets and mixers, and accessories, confirming the 10-year, 5-year, and 2-year warranties, respectively.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance instructions and a recommended maintenance schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final acceptance, including inspection of fixtures, faucets, mixers,

cartridges, traps, wastes, flexible connectors, flush mechanisms, seals, and mounting hardware. Faucets and mixers shall be checked for leakage, smooth operation, and correct hot and cold-water mixing. Sanitary ware shall be inspected for cracks, damage, secure fixing, and leakage at connections. Cleaning shall be performed using products compatible with the manufacturer's recommendations.

Defects attributable to defective materials or installation shall be rectified under the applicable warranty.

Routine cleaning and replacement of consumables due to normal use shall be the Employer's responsibility unless expressly included in the Contract

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of fixture types, dimensions, locations, finishes, secure fixing, accessibility, and correct connections to water supply and drainage systems. Functional testing shall include checking faucets and mixers for leakage, flow, temperature adjustment, and smooth operation; testing flush mechanisms; and verifying drainage, trap sealing, and watertight connections.

Final acceptance: Following rectification of deficiencies and submission of approved material certificates, product data sheets, functional test records, as-built drawings where applicable, separate warranty certificates, and operation and maintenance instructions. Staged acceptance may be granted for completed areas. Outstanding defects and warranty obligations shall remain enforceable throughout their applicable periods

ITEM 6.2
ALL TYPE OF LUMINAIRES

1.01 WARRANTY

Minimum 5 years warranty from the date of its duly recorded provisional acceptance as completed

Components shall also be covered for a minimum of 5 years.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, testing, and commissioning for all luminaires including the circuit wires, conduits & boxes.

The contractor shall ensure correct and safe operation for all types of luminaires

During the warranty period, defects shall be rectified at no additional cost, including labor, replacement materials and components, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

1.03 MAINTENANCE

The Contractor shall provide a recommended maintenance schedule at handover.

Defects attributable to defective materials, fabrication, or installation shall be rectified under warranty, without extra cost.

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of the good operation for all type of luminaires.

Final acceptance: Following rectification of deficiencies and submission of approved material certificates.

ITEM 10-1
MV- SWITCHGEAR GAS

1.01 WARRANTY

Minimum 2 years warranty from the date of its duly recorded provisional acceptance of the completed, testing and accepted equipment under the contract.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, testing, and commissioning for the MV switchgear, and must also ensure that there is no oil leak

The contractor shall ensure correct.

During the warranty period, defects shall be rectified at no additional cost, including labor, replacement materials and components, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance manuals and a recommended maintenance schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final, acceptance, including inspection, checking for the MV switchgear & assuring the safe operation

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of the safe operation for the MV switchgear.

Final acceptance: Following rectification of deficiencies and submission of approved material certificates.

ITEM 10-1
MV- SWITCHGEAR

1.01 WARRANTY

Minimum 2 years warranty from the date of its duly recorded provisional acceptance of the completed, testing and accepted equipment under the contract.

Components shall also be covered for a minimum of 2 years.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, testing, and commissioning for the MV switchgear including the cables tagging & installation at an appropriate cable trays, ladders or trenches with the earth connection and all MV cables connections (in & out), and must also ensure that there is no oil leak

The contractor shall ensure correct and safe operation for the MV switchgear and make sure all related works are in compliance with the specs requirements.

The contractor must coordinate with the specialist engineer for BMS in order to interfaced the switchgear with the BMS.

During the warranty period, defects shall be rectified at no additional cost, including labor, replacement materials and components, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance manuals and recommended maintenance schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final, acceptance, including inspection, checking for all connections & assuring the safe operation for the MV switchgear (input and output cells)

Defects attributable to defective materials, fabrication, or installation shall be rectified under warranty.

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of the safe operation for the MV switchgear, check the system at no load and at load to ensure the good operation for the MV switchgear.

Final acceptance: Following rectification of deficiencies and submission of approved material certificates.

ITEM 11-1
1600 KVA OIL TYPE TRANSFORMER

1.01 WARRANTY

Minimum 2 years warranty from the date of its duly recorded provisional acceptance as completed.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, testing, and commissioning for the oil type transformer 1600 KVA, including all necessary connections to medium voltage & low voltage and verifying the transformer is connected to the earthing system.

The contractor shall ensure correct & safe operation for this transformer and must also ensure that this transformer is interfaced with the BMS. Once the transformer has been moved into its designated room, the contractor must ensure that there is no damage to the medium voltage or low voltage insulations and must also verify the oil tank is free from any damage.

During the warranty period, defects shall be rectified at no additional cost, including labor, replacement materials and components, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance manuals and a recommended maintenance schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final, acceptance, including inspection, for medium & low voltage at the oil type transformer.

The contractor must check the oil level and take the necessary action accordingly.

Defects attributable to defective materials, fabrication, or installation shall be rectified under warranty.

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of the safe operation for the new oil type transformer 1600 KVA.

Final acceptance: Following rectification of deficiencies and submission of approved material certificates.

ITEM 12-1
ENGINE GENERATOR

1.01 WARRANTY

Minimum 5 years warranty from the date of its duly recorded provisional acceptance as completed, operating hour limit

All essential components of a generator set shall also be covered for a minimum of 5 years.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, testing, and commissioning for the new generators including all necessary connections related to fuel system & all cables from generators to related totalizing panel in the new electrical room, and verifying the generators are connected

The contractor shall ensure the noise level as per specs requirements.

The contractor shall ensure correct & safe operation for the new generators and must also ensure that these generators are interfaced with the BMS.

The contractor must verify the operational process thru the totalizing panel and by implementation an operation schedule for the generators; ensuring they run periodically so that all three sets maintain the same service life.

During the warranty period, defects shall be rectified at no additional cost, including labor, replacement materials and components, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance manuals and a recommended maintenance schedule at handover. Monthly visit must be conducted by the specialist engineer to check the generators operation & the batteries.

Where included scheduled maintenance shall be provided for 2 years from final, acceptance, including inspection, testing; oil & filter changes shall be provided at no additional cost to the owner

the specialist engineer must provide the schedule of change the engine oil and oil filters, clean or replace the air filters

Defects attributable to defective materials, fabrication, or installation shall be rectified under warranty.

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of the safe operation for the new three generators and confirming that the noise level meets the project requirements.

Final acceptance: Following rectification of deficiencies and submission of approved material certificates.

ITEM 17
BUILDING MANAGEMENT SYSTEM (BMS)

1.01 WARRANTY

Minimum 5 years warranty from the date of its duly recorded provisional acceptance as completed.

Components shall also be covered for a minimum of 5 years.

1.02 RESPONSIBILITIES

The Contractor shall be responsible for supplying, installing, testing, and commissioning for the BMS system including the verification for the interfacing with all electromechanical systems required for this phase (solar system via EMS; Chiller system via related BMS; fire alarm control panel; suppression panel etc….)

The contractor shall ensure correct operation for the BMS including the software must be valid for 2 years without extra cost.

The contractor must be responsible to provide spare parts for 2 years without extra cost.

During the warranty period, defects shall be rectified at no additional cost, including labor, replacement materials and components, transportation, removal, reinstallation, reinstatement of finishes, and retesting.

1.03 MAINTENANCE

The Contractor shall provide operation and maintenance manuals and a recommended maintenance schedule at handover.

Where included in the Contract, scheduled maintenance shall be provided for 2 years from final acceptance, including inspection, testing and verification for the good operation for the BMS, including the internet connection for the technical personnel responsible for monitoring the systems in the palace.

Defects attributable to defective materials, fabrication, or installation shall be rectified under warranty.

Modifying the programing for the system, if necessary, in accordance with the requirements of technical staff engineers in the palace.

1.04 ACCEPATANCE

Provisional acceptance: Following completion of installation, visual inspection, verification of the good operation for BMS; check all the programs required to monitor or control the existing systems.

Final acceptance: Following rectification of deficiencies and submission of approved material certificates.

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REHABILITATION OF MAIN ELECTRICAL ROOM/ NEW GENERATORS ROOM IN PRESIDENTIAL PALACE

TENDER DOCUMENTS

ANNEX B

WORK STRATEGY

L2026-14/2026
October - 2026

Prepared by

SPECTRUM ENGINEERING CONSULTANTS S.A.R.L.
ISO 9001:2000

LEBANESE REPUBLIC
GENERAL DIRECTORATE OF THE PRESIDENCY
PRESIDENTIAL PALACE COMPOUND- BAABDA

ANNEX B

WORK STRATEGY – ELECTRICAL ROOM

1. Scope of Work

1. Isolate and de-energize the existing electrical system.
2. Remove existing electrical panels, cable trays, conduits, and accessories as required.
3. Carry out civil modifications (if required), including wall repairs, flooring, and painting.
4. Install new cable trays, conduits, electrical panels, and distribution boards.
5. Pull and terminate power and control cables.
6. Install lighting, emergency lighting, sockets, grounding, and fire-stopping materials.
7. Perform testing, commissioning, and energization.

2. Work Sequence

1. Site inspection and verification.
2. Obtain work permits and shutdown approval.
3. Lockout/Tagout (LOTO) and isolate electrical supply.
4. Protect adjacent equipment and working areas.
5. Demolition and removal of existing equipment.
6. Civil repair and room preparation.
7. Installation of supports, cable trays, and conduits.
8. Installation of electrical panels and equipment.
9. Cable pulling and termination.
10. Grounding and bonding installation.
11. Installation of lighting and accessories.
12. Inspection and quality checks.
13. Electrical testing (continuity, insulation resistance, earth resistance, functional tests).
14. Commissioning and energization.
15. Final cleaning and handover.

3. Safety Requirements

1. Approved Permit to Work (PTW).
2. Lockout/Tagout (LOTO) procedure.
3. Verify absence of voltage before work.
4. Wear appropriate PPE:
    - Safety helmet
    - Safety shoes
    - Arc-rated clothing (where applicable)
    - Electrical insulated gloves
    - Safety glasses
5. Barricade the work area.
6. Maintain good housekeeping.
7. Keep fire extinguishers available.
8. Ensure emergency access is maintained.

4. Required Equipment

1. Insulated hand tools
2. Torque wrench
3. Cable pulling equipment
4. Multimeter
5. Insulation resistance tester (Megger)
6. Earth resistance tester
7. Ladders or scaffolding (if required)
8. Lifting equipment for heavy panels

5. Quality Control

1. Verify equipment installation according to approved drawings.
2. Check cable identification and labeling.
3. Confirm torque settings for all electrical connections.
4. Perform insulation resistance and continuity tests.
5. Record all test results.
6. Obtain client/consultant inspection approval before energization.

6. Risks and Controls

Hazard	Control Measure
Electric shock	LOTO, voltage verification, insulated tools
Arc flash	Appropriate PPE and safe working distance
Manual handling	Use lifting equipment and team lifting
Falling objects	Barricade area and wear hard hats
Slip and trip hazards	Maintain housekeeping and manage cables properly
Dust during demolition	Use dust suppression and respiratory protection if required

7. Deliverables

1. Inspection reports
2. Test certificates
3. As-built drawings
4. Commissioning reports
5. Handover documentation

Work Strategy – MV Room Renovation with Existing Solar and Generator Supply

1. Scope of Work

1. Renovate the existing MV room while maintaining continuity of power supply from the temporary solar source and generator.
2. Replace or refurbish MV switchgear, cable routes, supports, lighting, ventilation, and room finishes.
3. Complete testing and commissioning before transferring the load to the renovated installation.

2. Pre-Work Planning

1. Review all single-line diagrams (SLDs) and identify all incoming and outgoing power sources.
2. Conduct a detailed risk assessment and prepare a method statement.
3. Coordinate shutdowns and switching operations with the facility owner and utility.
4. Verify that the temporary solar system and generator can support the required load.
5. Clearly define responsibilities for switching and permit control.

3. Isolation and Switching Procedure

1. Develop an approved switching schedule.
2. Isolate only the equipment within the designated work area.
3. Apply Lockout/Tagout (LOTO) to all isolated equipment.
4. Verify absence of voltage using approved test instruments before any work begins.
5. Install temporary barriers to separate energized equipment from the work zone.
6. Maintain safe approach distances for energized MV equipment in accordance with applicable standards.

4. Temporary Power Arrangement

1. Supply the facility through the temporary solar system and generator.
2. Continuously monitor voltage, frequency, load, and synchronization (where applicable).
3. Ensure generator protection settings are correctly configured.
4. Prevent any back feed into the utility or isolated equipment.

5. Renovation Sequence

1. Establish temporary power supply.
2. Confirm stable operation of solar and generator systems.
3. Isolate the renovation area.
4. Install safety barriers and warning signage.
5. Remove obsolete MV equipment.
6. Carry out civil renovation works.
7. Install new MV switchgear, cable supports, grounding, and associated equipment.
8. Complete cable termination and earthing.
9. Perform insulation resistance, contact resistance, protection relay, and functional testing.

10. Commission the new installation.
11. Transfer loads from the temporary supply to the renovated MV system under an approved switching plan.
12. Remove temporary power equipment and restore normal operation.

6. Safety Requirements

1. Permit to Work (PTW) system.
2. Lockout/Tagout (LOTO).
3. Live electrical work prohibited unless specifically authorized.
4. Arc-flash assessment completed.
5. Arc-rated PPE, insulated gloves, face shield, safety helmet, and dielectric footwear.
6. Qualified MV electrical personnel only.
7. Emergency rescue and communication plan available.
8. Fire extinguishers suitable for electrical fires readily accessible.

7. Key Risks and Control Measures

Risk	Control Measure
Contact with energized MV equipment	Physical segregation, barriers, and safe clearance distances
Arc flash	Arc-rated PPE, approved switching procedures, and energized work restrictions
Back feed from solar or generator	Positive isolation, interlocks, and verification before work
Generator overload	Continuous load monitoring and protection settings
Unexpected energization	Lockout/Tagout, permit system, and voltage testing
Dropped equipment during replacement	Approved lifting plan and certified lifting equipment

8. Testing and Commissioning

1. Insulation resistance testing.
2. Contact resistance testing.
3. Primary and secondary injection tests for protection relays.
4. Functional interlock testing.
5. Earth resistance measurement.
6. Protection relay verification.
7. Operational testing under temporary supply.
8. Final energization following the approved switching procedure.

9. Handover

1. Submit all test reports and commissioning records.
2. Update single-line diagrams and as-built drawings.
3. Provide operation and maintenance manuals.
4. Conduct operator training.
5. Obtain final acceptance before returning the MV room to normal service.

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REHABILITATION OF MAIN ELECTRICAL ROOM / NEW GENERATORS ROOM IN PRESIDENTIAL PALACE

TENDER DOCUMENTS

ANNEX C

PRICE ADJUSTMENT SCHEDULE

Prepared by

L2026-14/2026
October 2026

SPECTRUM ENGINEERING CONSULTANTS S.A.R.L.
ISO 9001:2000

INCREASE OR DECREASE OF COST (PRICE ADJUSTMENT)

Schedule A14 – Rehabilitation of the Main Electrical Room and New Generator Room at the Presidential Palace

The amounts payable to the Contractor shall be adjustable, upward or downward, only for the eligible BOQ items listed below and in accordance with the stated formulas. This Schedule shall form part of the Tender Documents and shall be published before the tender is advertised, pursuant to Article 29(1)(a) of Public Procurement Law No. 244/2021. Red text identifies the project-specific amendments and additions to the CDR-style schedule.

	Description	Equation
A	Reinforcing steel	$P_n = P_0 \times \{0.15 \times (L_n/L_0) + 0.70 \times (R_n/R_0) \times (XEUR_n/XEUR_0) + 0.15\}$ Applicable to BOQ items 3.1.7.1 and 3.1.7.2 where the accepted BOQ states a positive quantity and price. R is the INSEE producer-price index for ribbed reinforcing steel bars, CPF 24.10, 2021 base, series 010766236. Applicable also to Steel included in concrete Item (C).
B	Excavation and sub-base	$P_n = P_0 \times \{0.15 \times (L_n/L_0) + 0.25 \times (F_n/F_0) + 0.10 \times (EQ_n/EQ_0) \times (XUSD_n/XUSD_0) + 0.50\}$ Applicable to BOQ items 2.1.4 and 2.3.1 and to any separately listed backfilling or aggregate item included in the BOQ before publication. EQ is the BLS construction machinery PPI, series PCU333120333120P.
C	Ready-mixed concrete, excluding reinforcement	$P_n = P_0 \times \{0.45 \times (C_n/C_0) \times (XEUR_n/XEUR_0) + 0.15 \times (L_n/L_0) + 0.10 \times (F_n/F_0) + 0.30\}$ Applicable to BOQ items 3.1.1–3.1.6 and 3.1.7.3–3.1.7.4. C is the INSEE ready-mixed concrete producer-price index, CPF 23.63, 2021 base, series 010764180. Separately priced reinforcement is excluded.
D	Steel air ducts, tank and pipes	$P_n = P_0 \times \{0.15 \times (L_n/L_0) + 0.70 \times (S_n/S_0) \times (XEUR_n/XEUR_0) + 0.15\}$ Applicable to BOQ items 8.1.1.1, 6.1.1, 6.3.1–6.3.3 and 8.1.3.1–8.1.3.2, only to the non-overlapping steel component. S is the INSEE producer-price index for non-alloy steel products, CPF 24.10, 2021 base, series 010763881.
E	Power cables and installed electrical works	$P_n = P_0 \times \{0.15 \times (L_n/L_0) + 0.70 \times (CAB_n/CAB_0) \times (XEUR_n/XEUR_0) + 0.15\}$ Applicable to eligible cable, connection and installed electrical-work items in the BOQ. Excludes panels, transfer switches, MV switchgear, transformer, generators and HVAC equipment when separately priced. CAB is the INSEE energy wires and cables producer-price index, CPF 27.32, 2021 base, series 010763930.
GEN	New generator sets	$P_n = P_0 \times \{0.15 \times (L_n/L_0) + 0.70 \times (G_n/G_0) \times (XUSD_n/XUSD_0) + 0.15\}$ Applicable to the non-overlapping portion of BOQ item 12.1.1 for the three new generator sets. Excludes the fuel tank, fuel pipes, exhaust and air ducts measured or paid under other items. G is the BLS motor and generator manufacturing PPI, primary products, series PCU335312335312P.
TR	Transformer	$P_n = P_0 \times \{0.15 \times (L_n/L_0) + 0.70 \times (TR_n/TR_0) \times (XUSD_n/XUSD_0) + 0.15\}$ Applicable to the transformer body only under BOQ item 11.1. Excludes separately priced MV/LV switchgear, switches and cables. TR is the BLS power and specialty transformer manufacturing PPI, primary products, series PCU335311335311P.

	Description	Equation
SW	Switchboards, transfer switches and MV switchgear	$P_n = P_0 \times \{0.15 \times (L_n/L_0) + 0.70 \times (SW_n/SW_0) \times (XUSD_n/XUSD_0) + 0.15\}$ Applicable to BOQ items 1.1 (distribution boards), 1.2.1 (manual transfer switch), 1.3.1 (automatic transfer switch – ATS) and 10.1 (MV switchgear), excluding any component priced under another item. SW is the BLS switchgear and switchboard apparatus PPI, primary products, series PCU335313335313P.
H	Exhaust fans and DX air-conditioning units	$P_n = P_0 \times \{0.15 \times (L_n/L_0) + 0.70 \times (H_n/H_0) \times (XUSD_n/XUSD_0) + 0.15\}$ Applicable to BOQ items 8.3.1–8.3.2 (fans) and 8.4.1 (DX units), equipment only; excludes ducts and electrical works paid under other items. H is the BLS air-conditioning, refrigeration and forced-air heating equipment PPI, primary products, series PCU333415333415P.

Where:

P_0 is the original unit price in the accepted BOQ, converted and stated in Lebanese pounds (LBP); P_n is the adjusted unit price; and K is the applicable adjustment factor.

L_0 is the official Lebanese monthly minimum wage, excluding allowances, in force on the bid submission deadline; L_n is the rate in force in the execution month, as established by the Ministry of Labour or the relevant decree published in the Official Gazette.

F_0 and F_n are the Ministry of Energy and Water official vehicle diesel prices, in LBP per 20 litres, for the base date and the relevant execution month, respectively.

C_0/C_n, R_0/R_n, S_0/S_n and CAB_0/CAB_n are the base/current values of the INSEE series specified in the table. EQ_0/EQ_n, G_0/G_n, TR_0/TR_n, SW_0/SW_n and $HVAC_0/HVAC_n$ are the base/current values of the specified BLS series.

XUSD and XEUR are the Banque du Liban (BDL) LBP sale exchange rates for USD and EUR, respectively. The BDL series are 190 (USD/LBP) and 167 (EUR/LBP). X_0 is the rate published on the bid submission deadline; X_n is the value-weighted average for the relevant execution period.

For INSEE and BLS, the base value is the monthly value for the calendar month containing the bid submission deadline. Current values are the values for the execution month. For a statement covering more than one month, each current index is the value-weighted monthly average: $I_n = \Sigma(I_m \times V_m) / \Sigma V_m$, where V_m is the original-price value of eligible work executed in month m. The same method applies to L, F and X.

If an official value is not published when a statement is reviewed, the latest official value is used provisionally and reconciled in the first subsequent statement after publication, without interest. A corrected or republished official value shall be used in that reconciliation. No substitute source may be used unless the substitution rule was stated in the Tender Documents.

Application and payment

Only measured, accepted quantities executed during the relevant period are eligible. No adjustment applies to an advance payment, stored, shipped or uninstalled goods, unexecuted or rejected quantities, a zero-quantity item, or any component already paid or adjusted under another BOQ item. Before publication, the Contracting Authority shall define the allocation of overlapping scope between generator item 12.1.1 and separately measured tanks, fuel lines, exhausts and air ducts, and between transformer item 11.1 and separately priced MV/LV switchgear, switches and cables. It shall document the cost analysis supporting the formula weights. No allocation may be created or changed after award.

The adjusted unit price is calculated to five decimal places. The raw adjustment for the eligible quantities in each statement, before VAT, is $\Delta_m = \Sigma[q_i \times P_{0i} \times (K_i - 1)]$. No separate profit or administrative charge is added. C is the original Contract amount excluding VAT, adjusted only for duly approved variations that do not change the nature of the Contract. No adjustment is made until the absolute cumulative net raw adjustment exceeds 3% of C; only the excess is payable or deductible, symmetrically for increases and decreases:

$R_n = \text{sign}(S_n) \times \max(|S_n| - 0.03C, 0)$; amount due in statement $n = R_n - R_{n-1}$. S_n is the cumulative signed raw adjustment through statement n. A negative amount due is deducted or offset in the next statement under the Contract payment procedures. A correctly approved adjustment for a prior statement is not recovered solely because a later index falls; correction is allowed for calculation error, duplicate compensation or inaccurate information.

Illustration only: if $L_n/L_0 = 1.05$, $G_n/G_0 = 1.10$ and $XUSD_n/XUSD_0 = 1.01$, then $K_GEN = 0.15 \times 1.05 + 0.70 \times 1.10 \times 1.01 + 0.15 = 1.0852$. Eligible generator work valued at LBP 100,000,000 at base prices gives a raw adjustment of LBP

8,520,000 before applying the cumulative 3% threshold of C. The figures are illustrative and do not replace the actual published indices or calculation.

The Contractor shall submit the calculation with each monthly statement, identifying the eligible quantity, execution period, original unit price, factor, index values, exchange rate and adjustment or deduction, with official publications, calculations and supporting execution or supply records reasonably required for verification. An invoice alone does not replace the formula. The supervising engineer or duly appointed consultant shall verify quantities, periods, calculations and supporting documents and make a reasoned recommendation. The competent authority within the Contracting Authority shall issue a written, reasoned approval or rejection after required reviews, approvals, budget checks and applicable publication requirements. The consultant may verify and recommend but may not create an official index, change a weight or authorize payment by its own approval. Payment shall follow the certified monthly statement and the payment deadlines set elsewhere in the Contract.

For work delayed due to the Contractor, the factor less costly to the Contracting Authority shall apply, comparing the scheduled execution period with the actual period. For delay not attributable to the Contractor, the duly approved extended period shall apply. Price adjustment does not itself extend time, waive delay damages or authorize suspension of performance; increased cost alone is not force majeure.