

a. Scope of Work

The National Database and Registration Authority (NADRA) intends to procure, supply, install, test, and commission **one (01) 150 kVA rated diesel generator set** complete with an imported factory-assembled acoustic weatherproof canopy at the Disaster Recovery (DR) Site located at **NADRA Regional Head Office Sargodha**.

The objective of this procurement is to obtain a complete turnkey backup power solution suitable for data center applications, ensuring reliability, operational continuity, and future maintainability of critical infrastructure.

The successful bidder shall provide complete turnkey services including supply, delivery, installation, electrical integration, fuel system installation, earthing, testing, commissioning, documentation, training, warranty support, and preventive maintenance of the proposed diesel generator system.

The detailed scope of work shall include, but not be limited to, the following:

i. Supply and Installation of Diesel Generator Set

- Supply, delivery, installation, testing, and commissioning of **one (01) complete factory-assembled imported diesel generator set rated at 150 kVA**.
- Supply of an **OEM factory-assembled acoustic weatherproof canopy** with the generator set.
- Build in tank will be designed to cater 8 hours of full Load
- Placement and installation of the generator set at the designated location within the DR Site.

ii. Site Survey and System Assessment

The bidder shall conduct a comprehensive site survey covering:

- Existing foundations;
- Available installation space;
- Equipment access routes;
- Existing electrical panels;
- ATS arrangement;
- Cable routes;
- Earthing system;
- Exhaust system requirements; and
- Any other infrastructure necessary for successful installation and integration.

The bidder shall submit recommendations and implementation methodology based on survey findings.

iii. Fuel System

- Provision, installation, and commissioning of **one (01) independent external fuel tank**.
- Fuel storage capacity shall be sized to support a minimum of **24 hours continuous operation at full 150 kVA load**.
- Provision of a gravity fuel filling arrangement.
- Fuel tank shall include all required piping, valves, fittings, supports, and accessories.
- Fuel level monitoring facilities shall be provided where applicable.

iv. Cooling System

- The generator set shall be equipped with a radiator cooling system suitable for continuous operation in ambient temperatures up to **50°C**.

v. Electrical Integration and ATS System

- Integration of the new generator set with the existing electrical infrastructure.
- Assessment and modification of the existing panel system where required.
- Reuse, upgrade, replacement, or redesign of the existing electrical panel system to ensure reliable operation.
- The successful bidder shall design, supply, install, test, and commission a **Four-Source Automatic Transfer Switch (ATS) System**, comprising:
 - Utility Supply (WAPDA-1);
 - Utility Supply (WAPDA-2);
 - Existing Generator (Gen-1); and
 - New 150 kVA Generator (Gen-2).
- The ATS system shall:
 - Automatically manage source selection and load transfer between all Four power sources;
 - Include intelligent controllers from recognized manufacturers such as **Deep-Sea Electronics** or approved equivalent brands;
 - Provide automatic and manual operating modes;
 - Include all required protection, monitoring, alarms, and control functions;

- Be supplied complete with associated switchgear, control wiring, and accessories.

vi. Earthing System

- Conduct earthing resistance testing for the complete installation.
- Perform all necessary rectification and improvement works to achieve an earth resistance value of **less than 3 Ohms**.
- Provide additional earthing electrodes, conductors, pits, and accessories where required.

vii. Testing and Commissioning

- Submission of OEM factory test reports prior to shipment.
- Conduct complete site testing, commissioning, performance verification, and load testing.
- Verify ATS operation, protection functions, alarms, and automatic transfer sequences.
- Demonstrate satisfactory performance in the presence of NADRA representatives.
- Handover the complete system in fully operational condition.

viii. Documentation and Training

The bidder shall provide:

- Manufacturer datasheets and technical specifications;
- Factory test reports;
- Operation and maintenance manuals;
- Warranty certificates;
- Electrical drawings and schematics;
- ATS logic diagrams;
- As-built documentation; and
- Complete handover documentation.

The bidder shall also provide comprehensive operational and maintenance training to NADRA technical personnel.

a. and Preventive Maintenance

- Provide a comprehensive warranty for **2000 running hours or twelve (12) months after commissioning, whichever occurs later**.

- Carry out **four (04) preventive maintenance visits** during the warranty period.
- Supply all consumables, lubricants, filters, spare parts, and maintenance materials required for the included preventive maintenance services.
- Provide technical support and fault rectification services throughout the warranty period.
- The supplied DG sets and associated works shall be covered under warranty for 2000 running hours or 12 months from the date of successful commissioning at site, whichever occurs later.
- The warranty shall cover defects in material, workmanship, manufacturing, assembly, supplied accessories, controller, alternator, canopy and installation related works carried out by the bidder. During the warranty period, the bidder shall provide corrective maintenance, replacement of defective parts, troubleshooting, technical visits and repair services at no additional cost to NADRA.
- Preventive Maintenance During Warranty

Preventive Maintenance Services per DG Set	04 Complete Services (one per quarter)
Number of DG Sets	02
Total Included Preventive Maintenance Services	08 Complete Services
Consumables	Included in Bidder Scope for All Included PM Services

- Preventive maintenance shall be carried out as per OEM recommendation and NADRA approved schedule.
- The bidder shall include all warranty period consumables and preventive maintenance items required for 04 preventive maintenance services per DG set.

The bidder shall submit an itemized list of included preventive maintenance consumables and service items with the bid.