

## Utilities & Infrastructure Testing

Independent verification of distribution networks, substations and grid-connected assets across Syria



*Substation, distribution and power-quality measurement — traceable evidence that the grid is safe, stable and code-compliant.*

Syria's transmission and distribution networks are being rehabilitated under heavy load, with damaged feeders re-energised, substations rebuilt and new generation tied in alongside ageing assets. Voltage dips, harmonic pollution and unstable frequency directly translate into burnt motors, tripped hospitals and unhappy customers. Mizan provides the independent measurement, commissioning tests and compliance reports that utilities, EPC contractors, regulators and large consumers need to prove that every kilometre of network and every substation actually performs to international standards.

### ▪ Why It Matters

Public utilities concentrate the highest-stakes electrical risks in any sector:

- Voltage and frequency excursions damage industrial, medical and domestic equipment downstream.
- Harmonic and reactive loading shortens transformer and cable life and inflates technical losses.
- Substation earthing failures during a fault expose operators and the public to lethal step and touch voltages.

### ▪ What We Verify

Mizan inspects and measures the network end to end:

- Power quality and EMC compliance at the customer interface and on feeders.
- Substation primary plant — transformers, switchgear, cables and protection.
- Earthing, lightning protection and step / touch voltage performance.

**Grid stability is not declared in the control room — it is measured at the busbar, the feeder and the customer terminal**



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## Scope of Services

A structured testing programme covering distribution networks, substations and grid-connected installations, delivered on site with calibrated instruments and qualified HV engineers.

### • Power Quality & EMC Compliance

- Class-A power-quality surveys per IEC 61000-4-30 — voltage, dips, swells, flicker, unbalance, frequency.
- EN 50160 compliance assessment at the point of supply for utilities and customers.
- Harmonic and interharmonic measurement per IEC 61000-4-7 and IEEE 519 limit verification.
- EMC immunity / emission checks under the IEC 61000 series for critical installations.

### • Substations, Transformers & Cables

- Power-transformer routine and diagnostic tests per IEC 60076 / IEEE C57.12 — ratio, winding resistance, insulation, DGA.
- MV/HV switchgear inspection and protection-relay secondary injection.
- Cable testing per IEEE 400 / IEC 60502 — VLF withstand, tan- $\delta$  and partial discharge.
- Short-circuit and protection coordination review per IEC 60909.

### • Earthing, Lightning & Grid-Tied Generation

- Substation earth-grid impedance and step / touch voltage measurement per IEEE 80 / 81.
- Lightning-protection inspection of substations and overhead lines per IEC 62305.
- Grid-interconnection compliance for solar plants and generators per IEEE 1547.
- LV distribution verification per IEC 60364 series.

## Technical Reports to IEC, EN, NFPA & ISO Standards

Every campaign is documented in a structured report that ties each measurement to the standard it verifies, flags non-conformities and gives the asset owner a clear corrective-action path before energisation or re-test.

### The technical reports issued by Mizan include the following:

- IEN 50160 voltage-quality assessment at the point of supply.
- IEC 61000-4-30 Class-A power-quality measurement campaign report.
- IEEE 519 harmonic-distortion limit-verification report.
- IEC 60076 / IEEE C57.12 transformer commissioning and diagnostic report.
- IEEE 400 / IEC 60502 cable VLF, tan- $\delta$  and PD test report.
- IEEE 80 / IEEE 81 substation earthing, step and touch voltage report.
- IEC 62305 lightning-protection inspection report for substations and lines.



*Stable voltage, safe earthing, clean harmonics — the measurable foundation of Syria's rebuilt grid.*

**Restoring Syrian healthcare on a foundation of measurement, evidence and international standards.**



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