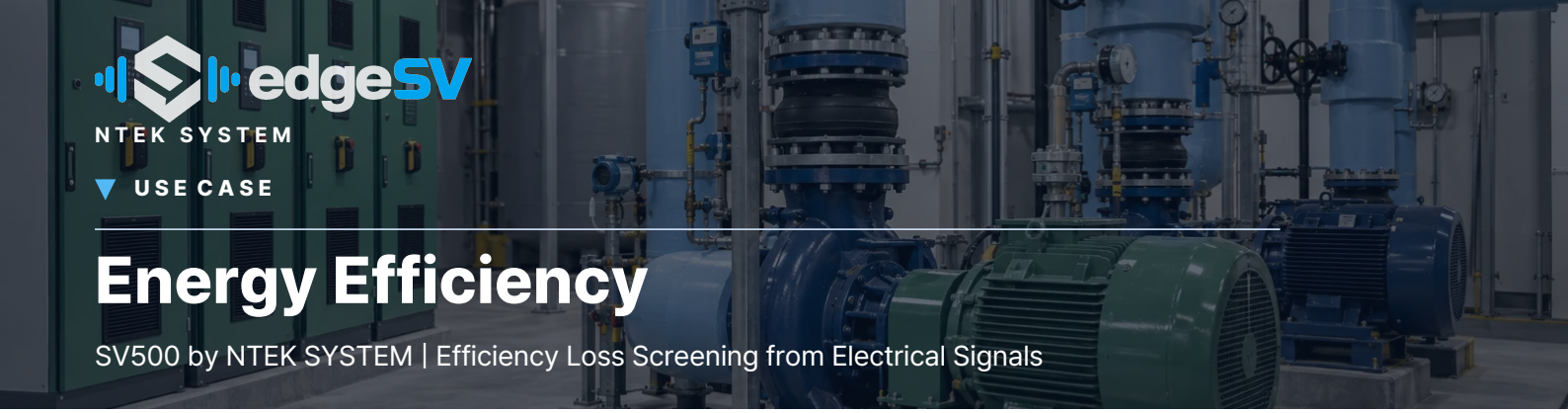


edgeSV
NTEK SYSTEM

USE CASE

# Energy Efficiency

SV500 by NTEK SYSTEM | Efficiency Loss Screening from Electrical Signals

## OVERVIEW

Efficiency loss can show up in power use before any fault alarm. SV500 compares power, power factor and load ratio under the same operating conditions to find candidates for inefficiency.

## PROBLEM

Operating schedules alone do not reflect actual equipment condition.

**Key challenges:**

- **Schedule-based operation** — Degradation and changing conditions accumulate in power use without triggering a fault alarm.
- **Hidden energy waste** — Without a baseline for equal-load periods, degradation-driven waste stays buried in energy costs.

## EXPECTED OUTCOMES

Choose improvement targets from real operating records and verify the results.

**Expected benefits:**

- **Find degradation waste** — Pick equipment whose power rose through wear and review repair and efficiency together.
- **Evidence-based action** — Confirm results with power trends before and after an action.
- **Maintenance priorities** — Compare health grades across equipment on one common basis.

## TARGET EQUIPMENT

Fan/pump motors | VFD loads | Main feeders

## SOLUTION

SV500 analyzes power use and condition trends of equipment together.

**How SV500 diagnoses:**

- **Load change and inefficiency** — Compares power, power factor and load ratio under like conditions. Higher power at the same load is a candidate, judged with throughput data.
- **Energy use trends** — Aggregates energy, peak demand, power factor and harmonics per feeder over time to rank improvements. Billing meters remain separate.
- **Signs of degradation** — If current frequency components shift too, suspect wear; if only power changes, check operating conditions first.
- **Adaptive thresholds** — Machine learning learns each asset's normal condition and judges its status with load-dependent adaptive thresholds, rather than fixed limits.
- **Web dashboard and integration** — Check diagnostic status in real time on the device's built-in web dashboard without a site visit, and connect to higher-level systems such as BMS or SCADA over Modbus TCP/RTU. Additional interfaces such as MQTT depend on the project configuration.

## Operational Impact of edgeSV

Continuous monitoring and early detection support availability, maintenance and energy efficiency.

| 20~40% | 10~25% | 5~15% | 10~20% |
|---|---|---|---|
| **Reduction in unplanned downtime** | **Maintenance cost savings** | **Energy savings** | **Longer equipment life** |

Illustrative ranges, not verified SV500 results. Actual outcomes depend on site conditions and corrective actions; PoC validation is required.

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