



— PREDICTIVE MAINTENANCE · SMART-BUILDING IOT

We catch failure before it becomes *an emergency.*

Novek deploys wireless sensors on the mechanical equipment that runs UAE buildings, cooling plants and industrial sites — and detects degradation **2–8 weeks before it fails**. Every finding priced in AED for the asset owner.

Novek Technologies LLC · Dubai, United Arab Emirates

Failure intelligence for critical assets · novek.ae · hello@novek.ae



— 01 — WHO WE ARE

An independent early-warning layer for *mechanical health*.

Novek is a Dubai-based smart-buildings and IoT monitoring company. We instrument the chillers, pumps, AHUs, cooling towers, compressors and electrical distribution that keep a building or plant running — and continuously read their condition. The platform sits **alongside** the BMS, SCADA and FM provider and replaces none of them. It gives the asset owner what none of them provides: a continuous, independent early warning of mechanical failure, translated into the language a board acts on.



WHAT WE MONITOR

The rotating, pressurised and electrical assets that fail slowly — then suddenly.

<p>2–8 wks</p> <p>Early warning before equipment fails</p>	<p>3 weeks</p> <p>From sensor to live monitoring</p>	<p>In AED</p> <p>Every finding priced as exposure</p>	<p>No BMS</p> <p>Independent wireless overlay</p>
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<p>COMPANY</p>	<p>Novek Technologies LLC — Dubai, United Arab Emirates</p>
<p>WHAT WE DO</p>	<p>Predictive maintenance, smart-building IoT and mechanical asset intelligence for the UAE</p>
<p>HOW WE DEPLOY</p>	<p>Wireless TDRA-approved LoRaWAN sensors — no wiring, no BMS integration, no operational disruption</p>
<p>WHERE DATA LIVES</p>	<p>AWS me-central-1 (UAE) — full data residency, TLS 1.2+, AES-256; the asset owner owns it from day one</p>

— 02 — THE PROBLEM

Between audits, asset value leaks *silently*.

Asset owners pay millions in FM contracts and receive quarterly reports that say "everything is normal." Meanwhile equipment degrades every day, efficiency drops with no alarm, and by the time anyone notices it is an emergency — not a repair. The owner has no independent way to see it coming.

<p>3 years</p> <p>Typical gap between condition audits — degradation happens daily</p>	<p>0%</p> <p>Independent verification — the FM grades its own work</p>	<p>3–5×</p> <p>What an emergency callout costs vs. a planned repair</p>
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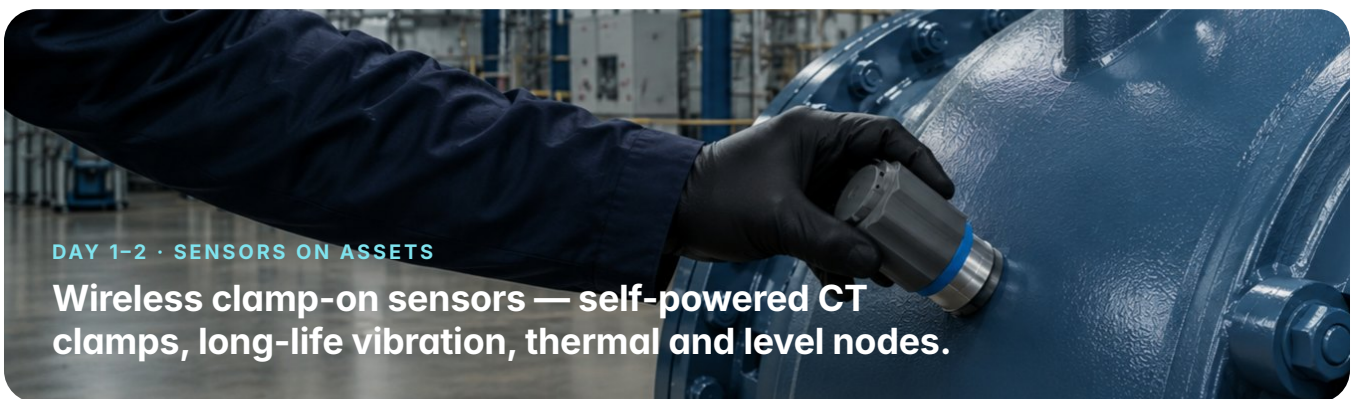
<p>01</p> <p>The BMS stays quiet</p> <p>Threshold alarms fire <i>after</i> the fault. The gradual degradation — cheap to catch early — never trips them. By the time the BMS speaks, the money is already spent.</p>	<p>02</p> <p>A self-graded report card</p> <p>Most owners rely entirely on the same FM provider to report on its own work. There is no second opinion that doesn't depend on the party being measured.</p>
<p>03</p> <p>Energy drifts unseen</p> <p>Cooling is 60–70% of building load. COP decline, condenser fouling and low delta-T inflate the DEWA bill every month — silently, with no alarm to tell you it's happening.</p>	<p>04</p> <p>Secondary damage compounds</p> <p>An AED 8K bearing left unseen takes the motor, then the chiller. The small failure you missed becomes the seven-figure one you can't.</p>

The buyer of Novek is not the FM technician. It is the entity that owns the asset, funds the FM contract, and currently has no independent early warning of mechanical failure.

— 03 — HOW IT WORKS

From sensor to early warning in *three weeks*.

Wireless sensors clamp onto the equipment, transmit over an isolated network, and feed a proprietary analytics stack that reads degradation continuously. No wiring. No BMS integration. No disruption to operations or tenants.



- 1 Sensors on assets**
 CT clamps self-power from induced current; vibration, pipe-thermal and level sensors run on long-life cells. No wiring, no BMS integration, no disruption.

- 2 Isolated transmission**
 LoRaWAN sensors transmit via dedicated 4G gateways — fully air-gapped from the building network. IT teams don't need to touch anything. Encrypted in transit and at rest.

- 3 Continuous analysis**
 A proprietary multi-signal stack processes readings every 1–10 minutes — vibration, thermal, electrical, level, drift, anomaly and peer benchmarking. No human bottleneck before the warning.

- 4 Scores, dashboards, AED reports**
 Live health scores visible to the owner — not filtered through the FM provider. Trends, risk rankings and board-ready reports, generated automatically and priced in AED.

Sensor to live monitoring: three weeks. **Analytics refresh:** every 1–10 minutes by channel. **Data ownership:** the asset owner, from day one. **Vendor lock-in:** none — open standards, full export.

— 04 — THE INTELLIGENCE LAYER

Many signals, read *as one*.

A proprietary multi-signal analytics stack runs continuously across every monitored asset. No single reading tells the whole story — degradation shows up across vibration, heat, current and level at once. These are the categories it detects.

CATEGORY	WHAT IT MEASURES	WHAT IT CATCHES
Vibration (ISO 10816 / 20816)	Severity zones on rotating equipment	Bearing wear, misalignment, imbalance, looseness
Thermal / delta-T	Pipe-clamp approach & return differentials	Coil fouling, refrigerant under-charge, HX degradation
Statistical drift	EWMA & CUSUM trend deviation	Gradual efficiency loss invisible to threshold alarms
Electrical	3-phase current & balance (self-powered CT)	Phase imbalance, harmonics, overload, short-cycling
Submersible level	Tank level & drawdown trend	Basin imbalance, chilled-water drift, process anomalies
Cable thermal	NTC at the conductor on each panel	Cable hotspot detection
Correlated anomaly	Multi-signal correlated deviation	Multi-mode degradation no single signal catches
Peer benchmarking	Cross-asset & cross-site comparison	Outlier assets, worst sites, FM performance variance

Boards don't act on vibration readings — they act on financial exposure. Every finding above is translated into AED: **risk-weighted cost, intervention economics, and the cost of doing nothing.**

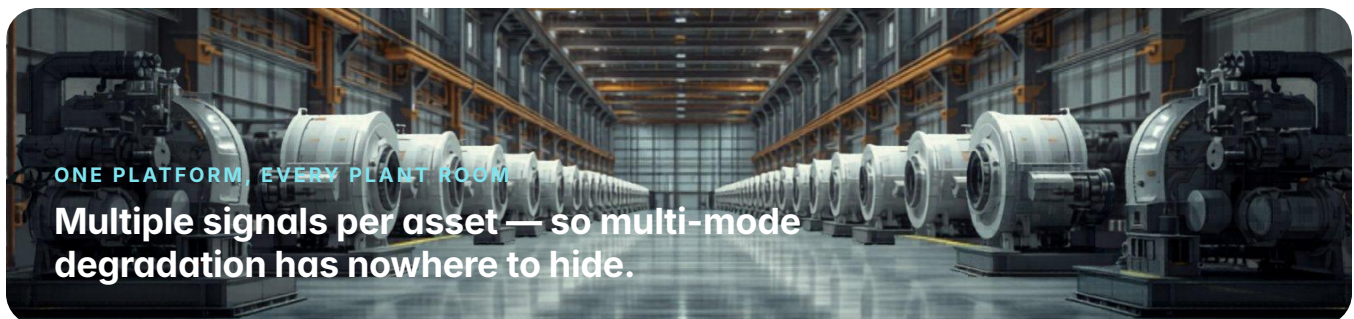
— 05 — EQUIPMENT WE MONITOR

Every rotating asset that *matters*.

From the central plant to the air side and the electrical room, Novek covers the equipment classes whose failure stops a building, a line or a network.

EQUIPMENT CLASS	SENSORS	WHAT IS DETECTED
Chillers & compressors	Temp, vibration, current	Compressor health, refrigerant loss, condenser fouling, COP decline, short-cycling
Air handling units	Temp, vibration, current	Coil fouling, bearing wear, belt degradation, HR wheel failure, filter blockage
Pumps & pressurised systems	Vibration, current	Cavitation, bearing wear, seal failure, flow imbalance
Cooling towers	Temp, vibration	Fill degradation, fan-motor imbalance, approach drift, basin fouling
Motors & conveyors	Vibration, current	Bearing degradation, misalignment, overload, belt wear, gearbox stress
Electrical distribution	3-phase current, temp	Phase imbalance, overload, harmonic distortion, hotspot detection

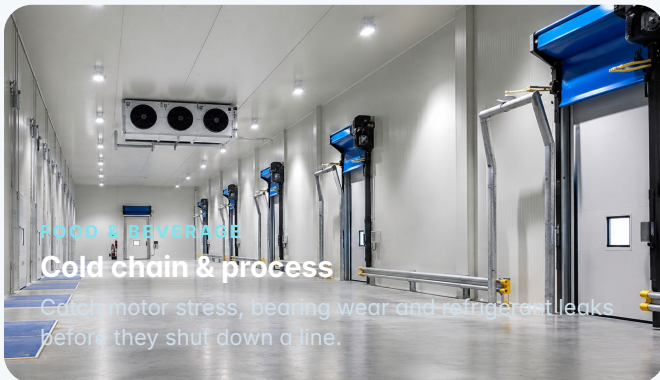
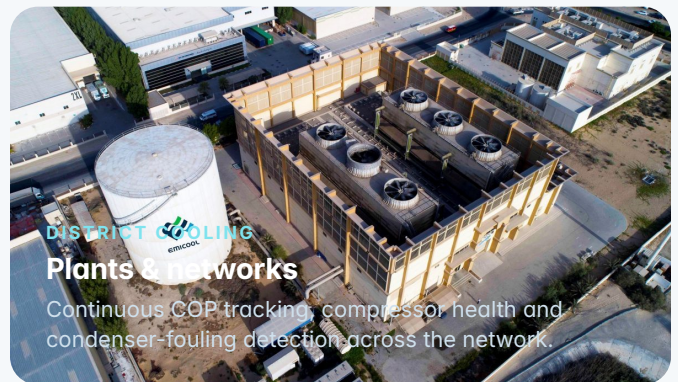
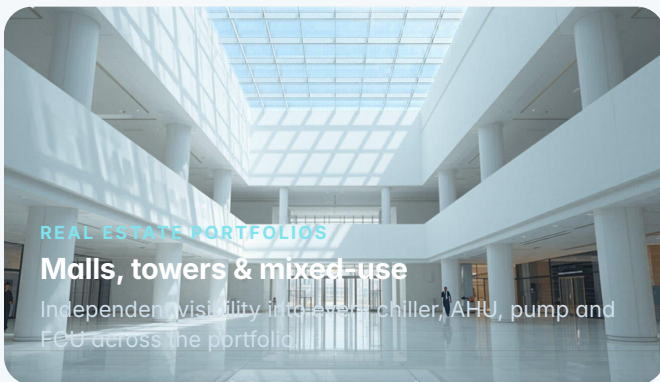
The sensor stack: self-powered current-transformer clamps, Asus-class vibration nodes, pipe-clamp temperature and submersible level probes — a measured spread of channels chosen so each asset is read by more than one signal at once.



— 06 — WHERE WE DEPLOY

Built for UAE *critical infrastructure.*

The same platform adapts to the asset base of each sector — from a mixed-use portfolio to a district cooling network, a production line or a remote pumping station.



— 07 — OUR STRENGTHS

Independent. Financial. *Yours.*

Six things Novek is deliberate about — the capabilities that separate an early-warning layer from another reporting dashboard.



Early warning, not hindsight

The platform exists to catch failure **2–8 weeks before it happens**. Everything else is built around that one purpose.



Independent by design

It sits **outside the FM provider's reporting chain** — a second opinion that doesn't depend on the party being measured. Every score auditable.



Financial language, in AED

Boards act on exposure, not sensor data. Every finding becomes a **risk-weighted AED number** — and the cost of doing nothing.



Wireless, no BMS, 3 weeks

TDRA-approved LoRaWAN, air-gapped from building IT. **No rewiring, no integration, no shutdown** — live in three weeks.



Your data, no lock-in

UAE data residency, open standards, full export. The client **owns all data from day one** — portable to any system, any time.



UAE-built compliance posture

Built to ISO 10816/20816, ISO 55000 and ASHRAE G36 — with **Al Sa'fat, Estidama and DEWA DSM** evidence as a secondary benefit.

— 08 — STANDARDS & COMPLIANCE

Built to the standards you *report to*.

The platform is engineered to the international standards that govern rotating equipment and asset management — and the same continuous data supports UAE sustainability reporting as a secondary benefit.

PRIMARY STANDARD	RELEVANCE
ISO 10816 / 20816	Vibration severity classification — basis of the rotating-equipment health calls
ASHRAE Guideline 36	High-performance HVAC control & fault detection — informs the HVAC analytics rules
ISO 55000	Asset-management framework — basis of the health-indexing methodology
TDRA IoT approved	LoRaWAN EU868 cleared for UAE commercial deployments
UAE data residency	AWS me-central-1, TLS 1.2+, AES-256, WireGuard VPN

Supported as a **secondary benefit**, from the same sensors — sustainability and demand-side-management reporting, not the primary purpose of the platform.

UAE FRAMEWORK	RELEVANCE
DEWA DSM 2050 / Dubai Clean Energy	Continuous sub-asset kWh and drift data supports demand-side-management reporting
Al Sa'fat (Dubai)	Continuous-commissioning evidence aligned with Al Sa'fat energy & HVAC criteria
Estidama Pearl (Abu Dhabi)	The same continuous-commissioning evidence model, Abu Dhabi-specific
RERA	Compatible with portfolio reporting and audit requirements

— 09 — RESULTS

The numbers it *moves*.

Typical impact across deployments. For a site with 20–30 mechanical assets, preventing a single emergency a year covers the deployment cost — and most sites see 2–4 preventable incidents annually.

<p>2–8 wks</p> <p>Early warning before failure</p>	<p>3–5×</p> <p>Cost multiplier avoided per emergency</p>	<p>15–25%</p> <p>Typical cut in unplanned spend</p>	<p>2–3 yrs</p> <p>Asset-life extension with early action</p>
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SCENARIO	WITH NOVEK	IMPACT
Chiller compressor degradation	Detected 6 weeks early via vibration trend — repair scheduled at low load	Emergency cost avoided
CHW pump bearing failure	ISO 10816 severity crossed at week 3 — bearing replaced in planned shutdown	Secondary damage prevented
AHU coil fouling	Delta-T drift caught in week 2 — coil cleaned before energy impact compounds	Energy waste stopped early
Cooling-tower drawdown	Submersible level drift flagged within days — make-up valve serviced	Water & chemical cost contained

These are representative outcomes, not quoted savings. A **Failure Visibility Assessment** replaces every band with a number measured on your own plant.

— NEXT STEP

Start with a 90-day pilot.

A fixed-scope programme on your highest-risk assets. We instrument a representative plant room, run it live, and come back with the AED exposure we actually found — before you commit to anything beyond it.

- All hardware, sensors and edge infrastructure included
- Full analytics stack live from day one — vibration, thermal, electrical, level, drift, anomaly, peer benchmarking
- Live dashboard for the asset owner — not the FM provider
- Board-level report at completion: financial exposure, risk ranking, recommended interventions
- Full data ownership by the client from day one

<p>SCOPE</p> <p>One representative plant room / wing</p>	<p>MODE</p> <p>Live monitoring, wireless, no shutdown</p>
<p>OUTPUT</p> <p>Health scores + AED exposure report</p>	<p>DECISION POINT</p> <p>Roll out only on what we prove</p>

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