EnSmart™
Smart way to connect buildings

Company Profile

Building Management Systems for the Next Decade.

From understanding your building's hidden energy waste,
to evaluating the right BMS approach,
to deploying SmartNova Platform across 200+ projects.

200+	2013	23+ YRS	INDIA
PROJECTS	FOUNDED	EXPERTISE	MADE IN

INSIDE THIS PROFILE

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PART 1 · EDUCATION

Understanding the Problem

Before evaluating any BMS solution, every facility manager should understand what's actually happening inside their

1.1 — The 20–35% Energy Waste Problem

Commercial buildings in India waste between 20% and 35% of their total energy consumption. This isn't a guess — it's the consistent finding across 200+ building audits and deployments in IT parks, hospitals, pharma facilities and commercial complexes across India.

The problem is that energy waste is invisible. Your electricity bill arrives as a single number. Nobody sees the chiller running at full load when the building is half-empty, or the AHU pushing cold air into a zone where the windows are open. The Bureau of Energy Efficiency (BEE) estimates that commercial buildings account for over 33% of India's total electricity consumption. Most of this waste is preventable.

WHERE THE WASTE HIDES

- **Equipment drift:** HVAC systems lose 2% efficiency per year. After 5 years, you pay 10% more for the same cooling.
- **Fixed-speed operation:** Chillers and AHUs running at 100% when partial load would suffice — affinity laws mean a 20% speed reduction cuts power by nearly 50%.
- **Schedule failures:** Lights and HVAC running in unoccupied floors, weekends and holidays.
- **Sensor drift:** Temperature sensors reading 2°C off cause overcooling that nobody notices.
- **Manual meter reading:** Anomalies discovered weekly instead of within minutes.

For a 200,000 sq ft commercial building paying Rs 75 lakh annually for energy, a 28% waste figure means Rs 21 lakh disappearing every year — invisible to facility teams who don't have real-time visibility.

1.2 — Why Legacy BMS Cannot Meet 2026 Requirements

Most Indian commercial buildings either have no BMS, or have a BMS installed before 2010. Both situations are equally problematic in 2026. A BMS designed for the previous decade was built for fixed-speed equipment, manual setpoints, proprietary protocols and zero energy reporting. None of these match what modern buildings — and modern regulations — actually need.

FIVE WAYS A LEGACY BMS COSTS YOU MONEY

1. **Energy waste 25–40% above optimal** — No demand-based optimisation, no occupancy-based ventilation, no weather-compensated chiller loading.
2. **Escalating maintenance costs** — Obsolete processors, unavailable spare parts, vendors who've moved on. Buildings spend Rs 8–15 lakh per year maintaining systems a modern BMS would replace entirely.
3. **No compliance data** — BEE star ratings, ECBC compliance, LEED recertification all need granular energy data legacy BMS cannot provide.
4. **Vendor lock-in** — Proprietary protocols mean you cannot add a third-party controller, integrate a new energy meter or connect an IoT sensor without going through the original vendor at their pricing.
5. **Tenant dissatisfaction** — Inconsistent temperatures, slow responses to complaints, billing disputes from inaccurate sub-metering all directly impact tenant retention.

The hidden cost of "it still works" is enormous. Over a 10-year period, the cumulative energy waste, maintenance overhead and missed compliance from a legacy BMS typically exceeds the cost of a complete modern retrofit by 3–5×.

1.3 — The Compliance Gap

Three regulatory developments make modern BMS non-optional in India in 2026:

ECBC 2017 — Energy Conservation Building Code

Mandates minimum energy performance standards for commercial buildings above 100 kW connected load. ECBC 2017 requires automated controls for HVAC, lighting and power. Most major Indian states — Tamil Nadu, Karnataka, Telangana, Maharashtra, Rajasthan — have notified the code as mandatory for new commercial construction.

BEE Star Rating

Commercial buildings pursuing BEE star ratings need real-time energy monitoring, consumption reporting and performance benchmarking — all BMS functions. Without sub-metering and automated reporting, you cannot achieve any star rating, regardless of how efficient your equipment is.

21 CFR Part 11 (Pharma)

For pharmaceutical manufacturing facilities, US FDA's 21 CFR Part 11 mandates electronic records and electronic signatures with tamper-proof audit trails. This applies to HVAC systems controlling cleanrooms, stability chambers and warehouses. A non-compliant BMS can invalidate batches and trigger regulatory action.

LEED v4 & GRIHA

Green building certifications require automated energy management, indoor air quality monitoring and verifiable compliance data that only a BMS can provide. Without proper BMS data, recertification requires expensive manual audits.

> *Compliance is no longer optional. Buildings without a properly configured, BACnet/IP-native, audit-ready BMS will increasingly face regulatory pressure, certification rejection and tenant churn.*

PART 2 · EVALUATION

Choosing the Right Approach

Once you've decided to act, the question becomes: what kind of BMS solution actually fits a 2026 building?

2.1 — Open Protocol vs Proprietary

The single most important decision in any BMS specification is: open protocol or proprietary? This decision determines everything that comes afterwards — vendor lock-in, future expansion costs, third-party device compatibility and total cost of ownership over 10+ years.

	Proprietary BMS	Open Protocol BMS
Communication	Vendor-specific	BACnet/IP (ASHRAE 135)
Future devices	Same vendor only	Any certified device
Service contracts	Locked to OEM	Multiple service providers
Spare parts	OEM monopoly pricing	Competitive market
10-year TCO	Highest	Lowest
Integration	Custom gateway needed	Native interoperability

BACnet/IP per ASHRAE 135 / ISO 16484-5 is the international standard. Any controller, software or device with a valid PICS Statement (Protocol Implementation Conformance Statement) can communicate with any other. This is the foundation of vendor independence.

2.2 — On-Premises AI vs Cloud

AI-powered building analytics is now standard in modern BMS. The question is where the AI runs. Cloud-based AI is easier to deploy initially, but introduces three problems that matter for Indian commercial and pharma buildings:

THE THREE PROBLEMS WITH CLOUD AI

1. **Data sovereignty** — Building operational data, sensor readings, occupancy patterns and energy consumption all leave your facility. For pharma and regulated industries, this is often a non-starter.
2. **Internet dependency** — When the connection fails, the AI stops. The BMS continues to operate, but predictive maintenance, fault detection and optimisation all halt. Critical for facilities where downtime has real cost.
3. **Recurring costs** — Cloud AI is typically billed per sensor per month or per data point per month. Over 5 years, the total cost often exceeds the upfront cost of an on-premises deployment.

On-premises AI runs the entire analytics stack inside your facility — on hardware you own, with data that never leaves the building. For pharma cleanrooms operating under 21 CFR Part 11, this is the only compliant approach. For commercial buildings, it eliminates ongoing subscription fees while delivering the same predictive maintenance, efficiency scoring and fault detection capabilities.

> *The right question isn't "do you have AI?" — it's "where does the AI run, and who owns the data?"*

2.3 — How to Evaluate a BMS Vendor in India

After 13 years and 200+ projects, here are the questions that separate a serious BMS partner from a reseller of imported boxes:

- **Is the protocol genuinely open?**

  Ask for the BACnet PICS Statement. Without one, the "BACnet support" claim is meaningless.

- **Is the hardware certified?**

  CE/RoHS for hardware, ISO 16484-1:2024 for the controller, FDA registration if pharma is in scope.

- **Does it support Indian standards natively?**

  ECBC 2017 sequences, BEE-compatible reports, GRIHA data exports — pre-loaded, not custom-developed.

- **How fast is the engineering workflow?**

  Traditional BMS projects take 45–90 days for engineering alone. Automated platforms cut 18–27 days from this. Ask for a specific timeline commitment.

- **Is AI included or charged separately?**

  Predictive maintenance, fault detection and energy optimisation should be standard in 2026, not premium features.

- **Where is the AI deployed?**

  On-premises means data stays inside the building. Cloud means recurring fees and data sovereignty issues.

- **What does the spare parts ecosystem look like?**

  Made-in-India hardware with local manufacturing means parts are available, repairs are fast and prices are predictable.

- **Who installs and commissions?**

  A vendor who manufactures, programs and commissions in-house is fundamentally different from a reseller who depends on third parties.

PART 3 · THE ENSMART SOLUTION

Products, Platform & Proof

Now that you know what to look for, here's what we've built — and the proof it works.

3.1 — Who We Are

EnSmart Technologies (EMSI) is a Building Management System manufacturer and software developer founded in 2013 in Anthiyur, Erode, Tamil Nadu. We are an outcomes company. Every product we build, every platform decision we make, every engineering workflow we automate exists to deliver one thing: buildings that perform better, cost less and cause zero disputes — through SmartNova Platform.

200+	2013	23+ Yrs	13 Years	7+ States
PROJECTS	FOUNDED	EXPERTISE	OPERATING	COVERAGE

OUR JOURNEY

2013 EnSmart Founded — first open-protocol DDC controller manufactured in Anthiyur. SmartNova Platform foundation established.

2015 Nova Energy Management & Tenant Billing launched. Automated sub-metering becomes core to platform.

2017 EnNode Gateway released — multi-protocol bridge supporting BACnet/IP, Modbus RTU/TCP, MQTT.

2019 100+ projects milestone — TCS, Infosys, Tidel Park, Prestige, Bafna. CE/RoHS certified. INBAC member.

2022 AI Analytics deployed — first on-premises BMS AI system live at a pharma facility.

2025 200+ projects. PICS Statement prepared. SmartNova expanding to UAE, Singapore, Kenya.

3.2 — SmartNova Platform

SmartNova is EnSmart's proprietary unified platform powering every product we build. It is the open, scalable, AI-native architecture that makes EnSmart different from every other BMS vendor in India. Every controller, every dashboard, every energy report and every billing invoice runs on one platform — so your building systems never become an island again.

THE FOUR LAYERS OF SMARTNOVA

- **AI Analytics Layer** — Predictive maintenance, fault detection, efficiency scoring, anomaly detection, load forecasting — all running on-premises.
- **Application Layer** — BMS, IBMS, Energy Management, Tenant Billing — unified web interface, single login, role-based access.
- **Protocol Layer** — BACnet/IP per ASHRAE 135, Modbus RTU/TCP, MQTT, Pulse, DLMS — native multi-protocol support.
- **Hardware Layer** — DDC Controllers (ARM A53), 14 EN Series IO Modules, EnNode Gateway — all manufactured in India.

One platform. One architecture. Total interoperability. No vendor lock-in. Made in India.

3.3 — EnSoft BMS / IBMS

EnSoft BMS is the supervisory software layer of SmartNova Platform. It runs in any browser — no client installation required — and unifies HVAC, fire, access, energy and tenant billing on a single web dashboard. Multi-site portfolios are managed from one login with role-based access for every user type.

- **Truly Web-Based** — Any browser · LAN or VPN · No client install required · Mobile responsive
- **Open BACnet/IP** — ASHRAE 135 native · PICS Statement Available · Any certified device globally
- **21 CFR Part 11** — Tamper-proof audit trail · Electronic signatures · FDA pharma-validated
- **Multi-Site Portfolio** — All buildings on one login · Role-based access · Hierarchical permissions
- **3D Equipment Graphics** — Live animated AHU, chiller and equipment visualisation with real-time data overlays
- **Smart Alarm Management** — Multi-level escalation · Email + SMS · Acknowledgement workflow · Zero missed alarms
- **Environmental Monitoring** — Temperature · Humidity · IAQ · CO2 · PM1.0/2.5/10 · TVOCs · Real-time AQI
- **Trend & Reports** — 24-hour, 7-day, 30-day, custom range · Auto-generated PDF · Auto-emailed
- **Scheduled Operations** — Time schedules for HVAC, lighting and equipment · Holiday calendars · Override controls

3.4 — DDC Controller, IO Modules & EnNode Gateway

EnSmart DDC Controller — Made in India

Processor	ARM Cortex-A53 · 1.5 GHz · High-performance embedded
Protocol	BACnet/IP Native · ASHRAE 135 / ISO 16484-5
Standard	PICS Statement Available · Open Protocol Verified
Certifications	CE Certified · RoHS Compliant · FDA · 21 CFR Part 11
Temperature	-40°C to +60°C — Tropicalized for Indian climate
Connectivity	BACnet/IP · Modbus RTU/TCP · MQTT · HTTPS API
IO Support	14 EN Series IO modules · DI · DO · AI · AO
Compliance	ISO 16484-1:2024 · INBAC Member · BEE Audit-Ready

EnNode Gateway — EN-MRTU-BIP-LX

Multi-protocol IIoT gateway connecting legacy field devices to SmartNova Platform without replacement. BACnet/IP ↔ Modbus RTU/TCP translation with MQTT, Pulse and DLMS support. 8 simultaneous TCP clients. 5–36V DC input for flexible installation. The bridge that lets you upgrade without rewiring.

EN Series IO Modules

14 IO module configurations covering every analogue and digital input/output combination — from 2-channel modules to complex mixed AI/AO/DI/DO designs. EN4DI4DO, EN8DI8DO, EN16DI, EN16DO, ENAIAO, EN4DIAI3DO2AO, EN4DI5AI3DO2AO-IP and more. All datasheets available at ensmart.ai/io-modules.

3.5 — Nova Energy Management & Tenant Billing

Nova Energy Management System

Real-time monitoring of every energy source — electricity, diesel DG, BTU chilled water, water, gas and solar — on one unified dashboard. Sub-metering at floor, zone or tenant level. Automated daily, monthly and yearly reports emailed with zero manual work. Built for BEE audit-ready compliance, LEED v4, GRIHA, ECBC 2017 and ISO 50001 ready exports.

- Multi-Energy: EB · DG · BTU · Water · Gas · Solar — all on one dashboard
- 20–35% energy savings through sub-metering, peak shifting and load management
- BEE audit-ready, LEED v4, GRIHA, ECBC 2017, ISO 50001 ready compliance with one click
- Auto reports — daily, monthly, yearly — auto-emailed with zero manual work

Nova Tenant Billing System

Automated sub-metering and invoice generation eliminating billing disputes permanently. Per-floor, per-zone, per-tenant attribution of every kWh. Multi-tariff support for domestic, commercial and industrial structures. Auto-PDF delivery to tenants on schedule. GHG Scope 1 & 2 reporting per tenant for ESG compliance. 5-year archive of all historical billing data.

- Sub-metering: Per-floor, per-zone, per-tenant — every kWh fully attributed
- Zero disputes: Automated calculations eliminate manual spreadsheet errors
- Multi-tariff: Domestic, commercial and industrial tariff structures built in
- GHG Scope 1 & 2: Carbon footprint per tenant for LEED v4 and ESG reporting
- Auto PDF delivery: Reports emailed to tenants on schedule

Deployed at: TCS · Infosys · Tidel Park · Brigade · Shell India · GHCL · Technopark

3.6 — AI Analytics: Live ROI from Bafna Pharma

EnSmart's AI Analytics module runs on-premises inside your facility. No cloud. No data leaving the building. Pharma-safe. The first deployment is live at Bafna Pharma Phase 2, monitoring 37 AHU systems across GMP-grade cleanrooms. Here's what it actually delivered.

Rs 35.2L	**56.6%**	**268.84T**
Annual Energy Value Identified	VFD Energy Reduction	CO2 Avoided Per Year
5,433	**24-72h**	**37**
Anomalies Auto-Detected	Fault Prediction Window	AHU Systems Monitored

WHAT THE AI MONITORS

· **Predictive Maintenance** — Detects equipment degradation 24–72 hours before failure. Delta-T trend analysis catches bearing wear, belt slippage and filter fouling before occupants notice anything.

· **HVAC Efficiency Scoring** — 0–100 score per AHU. Setpoint adherence, temperature stability, comfort band tracking and sensor health monitoring. Prioritise maintenance with data, not guesswork.

· **Sensor Anomaly Detection** — Temperature, humidity and pressure sensors that drift from calibration are flagged automatically — critical in pharma cleanrooms where 0.5°C drift can mask environmental excursions.

· **Load Forecasting** — Predicts next-day cooling load from weather, production schedule and historical patterns. Chiller plant staged optimally instead of reactively.

· **VFD Performance Analysis** — Compares actual power consumption against affinity law curves. Deviation indicates wear before failure occurs.

Equivalent to 12,802 trees planted per year. ROI achieved in 14 months on a single facility.

3.7 — Certifications & Standards

HARDWARE	COMPLIANCE	GREEN BUILDING
CE Certified	FDA Registered	LEED v4 Ready
RoHS Compliant	21 CFR Part 11	GRIHA Reporting
ISO 16484-1:2024	INBAC Member	ISO 50001 Ready
ASHRAE 135 / ISO 16484-5	BEE Audit-Ready	GHG Scope 1 & 2
PICS Statement Available	ECBC 2017 Aligned	BEE Star Data

SECTORS WE SERVE

IT Parks & SEZs — TCS · Infosys · Tidel Park (CBE, Chennai, Pattabiram) · Acropolis · Technopark

Commercial & Real Estate — Brigade · DLF · CBRE · Prestige · Bafna · R-City · Umiya

Pharma & Healthcare — Aurobindo Pharma · Natco Pharma · OneSource · Aspiro · Laurus Labs · J&J;

Industrial — Tata Chemicals · Tata Electronics · GHCL Textiles · Voltas · Shell India · ATPC

Infrastructure Partners — Honeywell · Siemens · Trane · Carrier · Chubb (API) · L&T; Metro · GAR

Data Centres — Critical infrastructure deployments with 24x7 monitoring and PUE optimisation

3.8 — Let's Build Something Smarter Together

If you're planning a new building, retrofitting an existing one, or simply trying to figure out how much energy your building is wasting — we can help. Three ways to start:

- **Request a Live Demo**

  See SmartNova BMS + AI on your building type with real data from a comparable deployment.

- **Free Site Assessment**

  Submit your IO list — we return a controller selection, wiring drawings and budget estimate within 24 hours.

- **Download Datasheets**

  Full specifications for every product available at ensmart.ai/datasheet

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