YellowSense Technologies

Smart Energy Orchestration for PV–Grid–ESS Using Predictive AI

Startup Proposal for Enterprise Collaboration

1. Company Snapshot

Company Name: Yellowsense Technologies
Website: https://www.yellowsense.in/
Contact: +91 98693 97868 | hr@yellowsense.in
HQ Location: IIITB Innovation Center, Bengaluru, India
Our Team

- CEO & Founder: Prakhar Goyal
- AI/ML Engineers: Abhimanyu Malik, Animesh Sharma, Talha Nagina, Binita Mahto, Dweep Solanki
- Frontend Engineer: Kushagra
- Core Strength: Production-grade AI document processing at government scale

Yellowsense Technologies is a Bengaluru-based deep-tech AI company building enterprise-grade intelligence systems for large-scale physical and infrastructure-driven operations. The company focuses on deploying reliable, secure, and scalable AI solutions for environments where operational decisions directly impact cost efficiency, asset health, sustainability, and service continuity.
Team Expertise
The team combines expertise across:

- Predictive analytics and time-series forecasting
- Optimization and decision intelligence
- Industrial monitoring, fault detection, and control systems
- Secure AI infrastructure and enterprise data pipelines

This multi-domain capability enables Yellowsense to address **energy orchestration problems holistically**, balancing cost optimization, asset longevity, and system reliability.

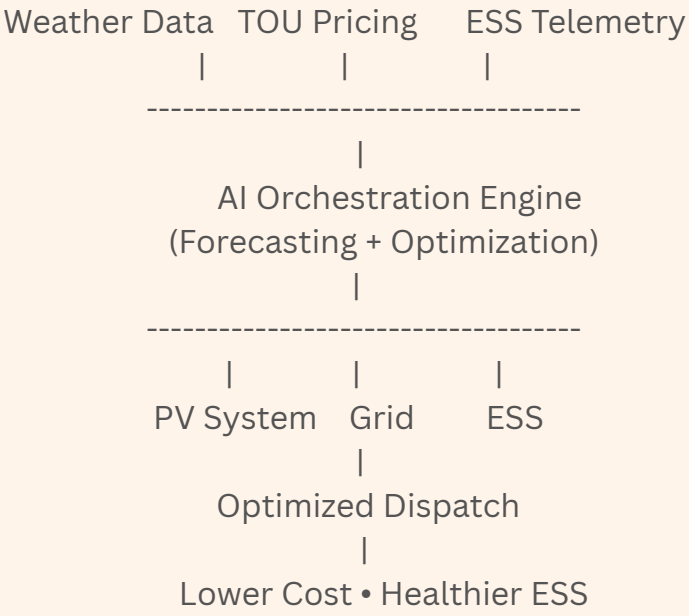
One-line Solution
An AI-driven orchestration platform that predicts weather, demand, and electricity prices to coordinate PV, grid, and ESS operations—reducing costs and extending battery life.

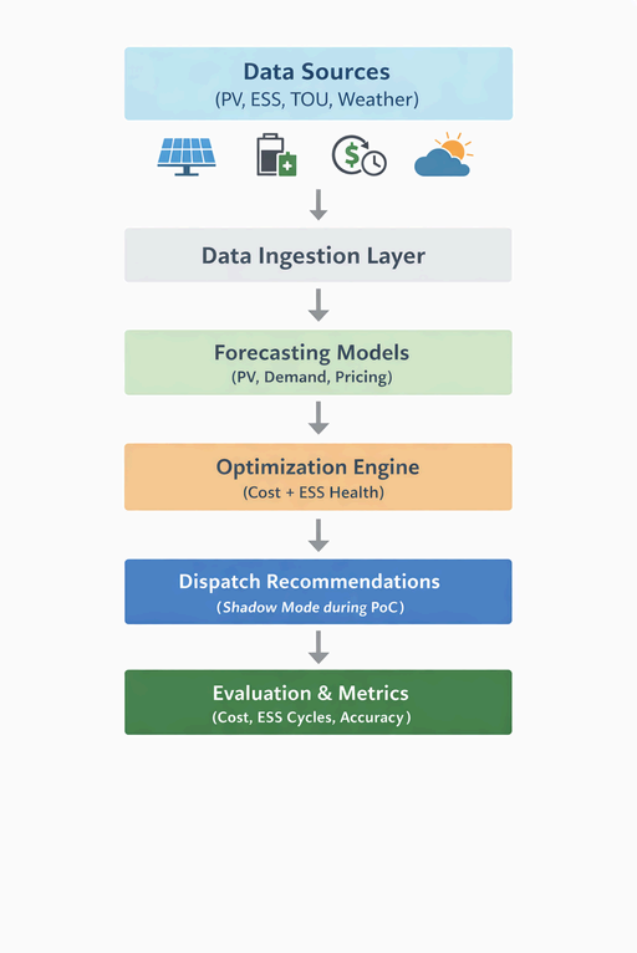
Stage & Traction
Early-stage but technically strong, with client PoCs in adjacent industrial domains including predictive monitoring, forecasting, and optimization using real operational data.

YellowSense Technologies

Target Industries

Energy & Utilities: Organizations managing PV, grid, and ESS assets to optimize costs under variable demand and TOU pricing.
Industrial Infrastructure: Manufacturing plants and industrial parks with on-site energy assets seeking predictable energy costs and improved asset utilization.
Smart Grids & Smart Campuses: Operators deploying intelligent, distributed energy systems requiring coordinated control across multiple assets.
Asset-Intensive Enterprises: Enterprises where energy efficiency and battery asset health directly affect operational margins.





YellowSense Technologies

2. Capabilities & Proof

Core Platform

Yellowsense has built a production-grade AI intelligence platform deployed across fraud prevention, industrial security, and enterprise monitoring use cases. The platform ingests operational data, applies predictive analytics, and delivers explainable decision outputs, making it directly extensible to PV–Grid–ESS energy orchestration.

Key Capabilities

- Predictive Forecasting: Time-series forecasting for weather-driven PV output, demand, and TOU pricing.
- Optimization & Decision Logic: Constraint-aware optimization used in industrial systems, adaptable to ESS dispatch and degradation-aware scheduling.
- Enterprise Integration: Secure APIs for integration with existing EMS, PV controllers, and ESS systems.
- Explainability: Decision traceability and performance monitoring for enterprise trust.

Proof & Evidence

- Live Enterprise Deployments: AI systems in production for real-time fraud detection, industrial fault detection, and secure data environments.
- Anonymous Industrial PoC: Forecasting and optimization pilot delivering ~12% projected cost reduction using real operational data.

Scalability & Security

Designed for enterprise scale with multi-site support, fail-safe operation, and strong security practices informed by Yellowsense’s confidential AI infrastructure.

YellowSense Technologies

3. Fit for the Enterprise Use Case

Restated Problem

PV generation, grid supply, and ESS are often managed independently. Without predictive coordination, enterprises experience higher costs, unnecessary ESS degradation, and missed opportunities to optimize energy usage under variable weather and TOU pricing.

Solution Fit

Enterprise Challenge	Yellowsense Capability
1. Uncoordinated energy assets	Centralized AI-based orchestration
2. ESS battery degradation	Degradation-aware optimization logic
3. TOU price volatility	Price-aware forecasting and scheduling
4. Weather uncertainty	Probabilistic PV forecasting

Integration Strategy

Yellowsense provides decision intelligence, integrating with:

- Existing PV controllers
- ESS management systems
- Grid or EMS interfaces

This approach minimizes disruption and accelerates deployment.

Assumptions

- Availability of historical operational data
- Telemetry access from PV and ESS systems

Customizations

- Site-specific tariffs and constraints
- Asset-specific ESS behavior models

YellowSense Technologies

4. Approach & Outcomes

Setup (Weeks 1–2)

- Ingest historical and live PV, ESS, and pricing data
- Validate data quality and establish baselines for cost, ESS cycling, and grid usage
- Define operational constraints, tariffs, and ESS health parameters with enterprise SMEs

Output: Baseline performance report and finalized PoC scope

Run (Weeks 3–5)

- Deploy forecasting models for PV generation, demand, and TOU pricing
- Execute degradation-aware dispatch optimization in shadow mode (no operational override)
- Simulate multiple dispatch strategies under real operating conditions

Output: Daily AI-recommended dispatch plans with performance tracking

Evaluate (Weeks 6–8)

- Compare AI-driven strategies against baseline operations
- Quantify cost savings, ESS stress reduction, and forecast accuracy
- Review results with enterprise stakeholders and refine models if needed

Output: PoC evaluation report with quantified business impact

Success Metrics

- 10–20% reduction in energy operating costs versus baseline
- Reduction in high-stress ESS charge/discharge cycles (depth and frequency)
- Improved forecast accuracy for PV generation and demand compared to existing methods

Expected Business Impact

- Reduced energy procurement and peak demand costs
- Extended ESS battery lifespan through optimized cycling
- Improved predictability for operations and planning teams
- A validated foundation for scaled smart energy management

Innovative Extensions

- Scenario-based planning: “What-if” simulations for tariff changes, weather extremes, or asset upgrades
- Adaptive learning: Continuous improvement of dispatch strategies based on operator feedback and overrides

YellowSense Technologies

5. Requirements, Budget & Next Steps

Enterprise Inputs Required

- ESS operational data (historical and live)
- TOU pricing structures
- Weather data or API access
- SME input for operational constraints

Budget (PoC)

Proposed Range: USD 15K–25K for a 6–8 week PoC
(Final scope depends on data complexity and integration depth.)

The PoC is expected to demonstrate **clear cost savings and ESS health improvements** within the evaluation period.

Team Commitment

Yellowsense will **own the end-to-end execution of the PoC,** including solution design, model development, integration, testing, and evaluation. The PoC will be delivered by Yellowsense's core technical team, with continuous engagement across the full 6–8 week timeline.

The engagement will include:

- Dedicated AI/ML ownership for forecasting and optimization models
- Solution architecture and integration management
- Ongoing monitoring, tuning, and performance evaluation
- Regular progress updates and review checkpoints with enterprise stakeholders

Yellowsense will remain fully accountable for delivery quality, timelines, and outcomes throughout the PoC.

Next Step (CTA)

- Initiate a low-risk 6–8 week PoC in 2026 to validate cost reduction, ESS health impact, and integration feasibility.
- Review PoC outcomes jointly to confirm measurable business value and operational readiness.
- Upon success, proceed with a phased production rollout aligned with enterprise priorities and long-term energy optimization goals.