

AI for Sustainability

Connected and Intelligent Energy Products

How Jio is leveraging IoT and AI to drive scalable Energy Transformations and Sustainable outcomes with Products



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Jio's Product Vision for a Sustainable Energy Future



 JioThings

Why Sustainability is the Need of the Hour

As *Climate Change Accelerates*, *Energy* emerges as the most *critical factor* shaping our planet's *Future*



**24 cms
SEA LEVEL**

Rise in global mean sea level from 1880 to 2025

**52.9°C
TEMPERATURE**

Highest recorded temperature in 2024

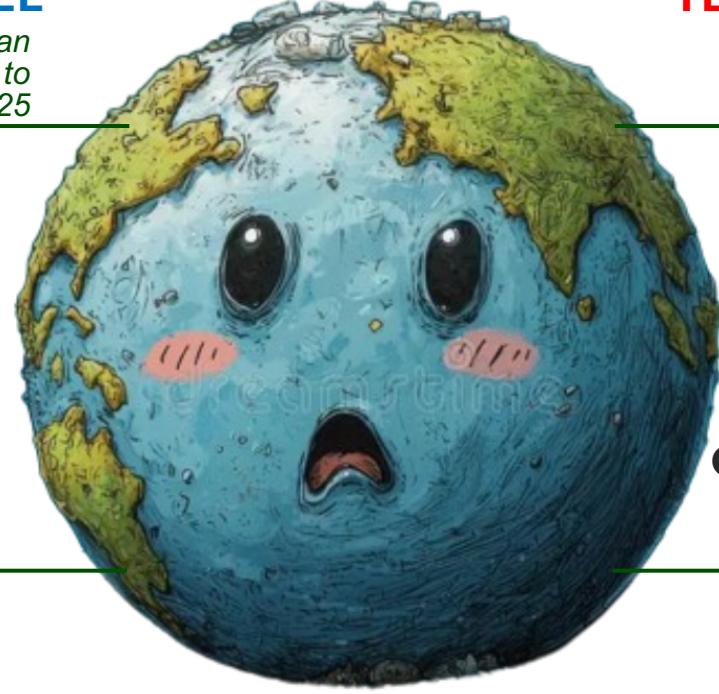


**80 Gt
GLACIERS**

Glacier mass loss recorded in 2023

**37.8 Gt
CO₂ Emission**

Recorded in 2024



CLIMATE CHANGE

Why Sustainability Needs Connected Intelligence

*Traditional Energy Systems are reactive, siloed and inefficient. Only Intelligent IoT can deliver real-time, predictive and scalable **Sustainability** for Energy Systems*



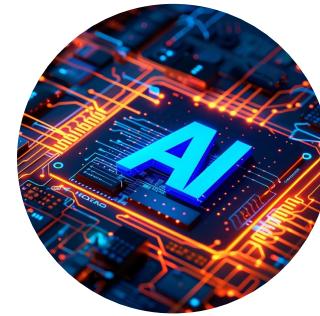
INDIA'S TARGET:
BEING NET ZERO BY 2070

366 GW

India's Peak Power
Demand projected for
2030¹


Reliance
Industries Limited

**NET ZERO
2035**



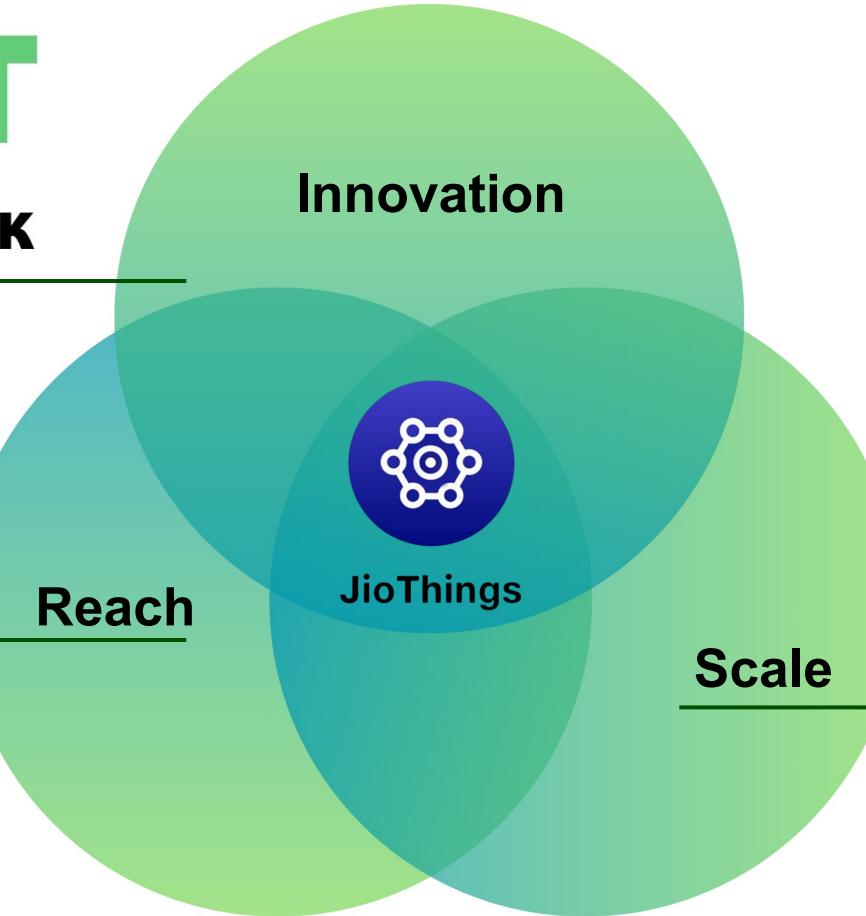
***The Nervous System
of Sustainable
Enterprises***

JioThings is leading Energy Sustainability

*JioThings acts as a key enabler of the **Sustainable Energy Transition** for everyone*



500+ Mn
HAPPY CONSUMERS¹



KEY PARTNERS



Customer Segments



Residential



Industrial



Commercial



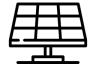
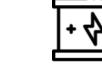
Utility

JioThings - New Energy Stack (NEST)

The four components are the four core Product layers that will help realize the digital platform of Energy Solutions (for R/C/I & Utilities) and EaaS (Energy as a Service). Jio Energy Products blends in as modules with the following Jio New Energy Stack (JioNEST) having 4 key component layers viz. Monitoring (IoT, Digital Twin and Sensors etc.), Metering (kWh & SCM Billing), Services (VPP, DERMS, On Demand Energy etc.), Finance (P2P Trading, ESG)

 Finance	Energy Trading & Asset Securitization, ESG Reporting & Initiatives	<p>Entails financial & business aspects. For example: energy trading module is part of this component. Credit Rating is also part of this layer. ESG based Finance for REC etc.</p>	<p>Our blockchain based EnerTrade modules enable trading at enterprise / P2P / CPO level. It'll facilitate financial settlements for energy service providers like aggregators. Besides, Risk/credit score used for asset security along with ESG.</p>
 Services	<p>DR, DERMS, VPP, On Demand Energy Energy Disaggregation, Virtual Net Metering</p>	<p>Additional services like DR campaigns, DERMS to optimize RE assets via VPP Cover micro grids for off-grid sites. Enable energy efficiency using AI/ML based method for appliance level usage</p>	<p>Our components enable Energy Orchestration from DERs, Microgrids, Green Energy Open Access (for Solar) related services in C&I Segments. On-Demand Energy Platform also. Addon service for energy disaggregation.</p>
 Metering	Utilities Solution SLAs, Billing, Net Billing, Net Metering, Behind The Meter (BTM) Reconciliation	<p>Metering across entire value chain i.e. Generation-Transmission-Distribution (for R, C, I consumer categories) also at various layers of distribution network (Electricity, PNG and Water)</p>	<p>We have done Metering-IoT and related services with our AMISP / DISCOM/ CGD engagements. Besides, Sub-metering related work at Commercial spaces.</p>
 Monitoring	IoT and OPC-UA / SCADA based KPIs, Alerts, Analytics, Reports, 3D Digital Twin and RBAC	<p>Entails sensor-based monitoring part of Energy stack and is captured through detailed IoT and SCADA (esp. IT). Visualization of performance & insights.</p>	<p>We have done extensive work with Jio & RNEL Solar Sites, RJIL Towers for monitoring energy assets. This is coupled as Central Monitoring System (CMS) e.g. Bidar, RCP, Dahej, JMD etc.</p>

Scalable IoT: SCADA, PLC, DLMS, Modbus, Zigbee, BLE, MQTT, LTE 4G, NB-IoT, 5G-IoT, Wi-Fi, OCPP, ISO 15118.

IoT Assets	 Solar	 Wind Power	 DG Set	 BESS	 Smart Meter	 Smart Plug	 EVs	 EVSE	 HVAC	 Geyser	 Sensors	 Pumps	 Lighting	 Fuel Cell System
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MONITORING – The Foundation to Energy Sustainability

How Jio integrates the range of versatile IoT devices and edge computing to build real-time scalable monitoring infrastructure that supports the entire Energy Stack in our goal towards Sustainability

01 Unified IoT Integration

- Supports Multi-protocol Assets (MQTT, DLMS, Modbus, Zigbee, BLE etc.)
- Seamlessly connects with Solar Inverters, EVs, Batteries, Meters, DG Set, HVAC, loads etc.

02 24X7 AI based Health, Anomaly and Energy Monitoring

- Real-time telemetry from distributed assets
- AI/ML based anomaly detection
- Custom Health score per asset type

05 Field Proven Products

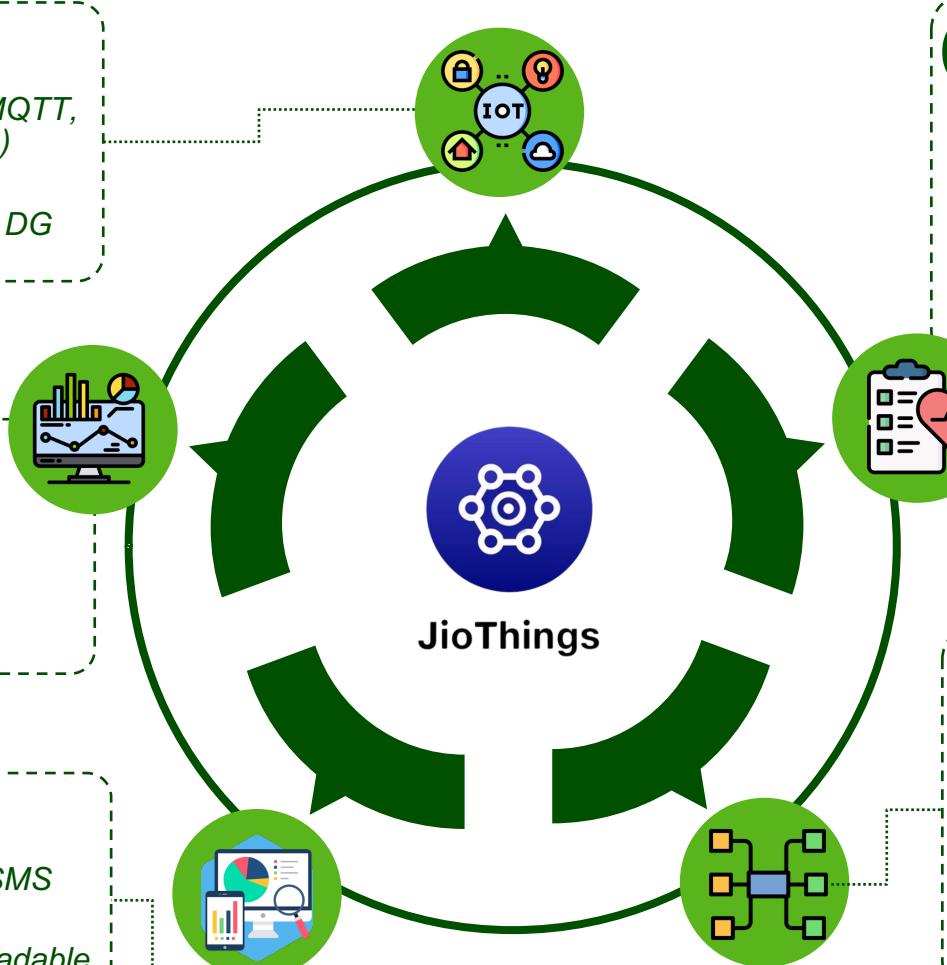
- Jio's Product Suite caters to a plethora of asset monitoring and integration

04 Smart Alerts & Reports

- Customizable Alerts on mobile, SMS and web Dashboard
- Range of alert types with downloadable reports

03 Asset Mapping & Data Synchronization

- Hierarchy based asset mapping
- Structured meta data for every asset point
- Standardized data ingestion from edge to cloud



MONITORING – The Foundation to Energy Sustainability

Jio's Product Suite to a Sustainable Energy Monitoring Journey

Energy Intelligence, Energy Efficiency

*Powering Efficiency. Driving
Insight. Optimizing Energy Use*

01 Asset Monitoring

Monitor, Optimize, Solarize

*Sustainable living starts with
smarter solar insights*

02 Solar Monitoring

Store, Secure, Sustain

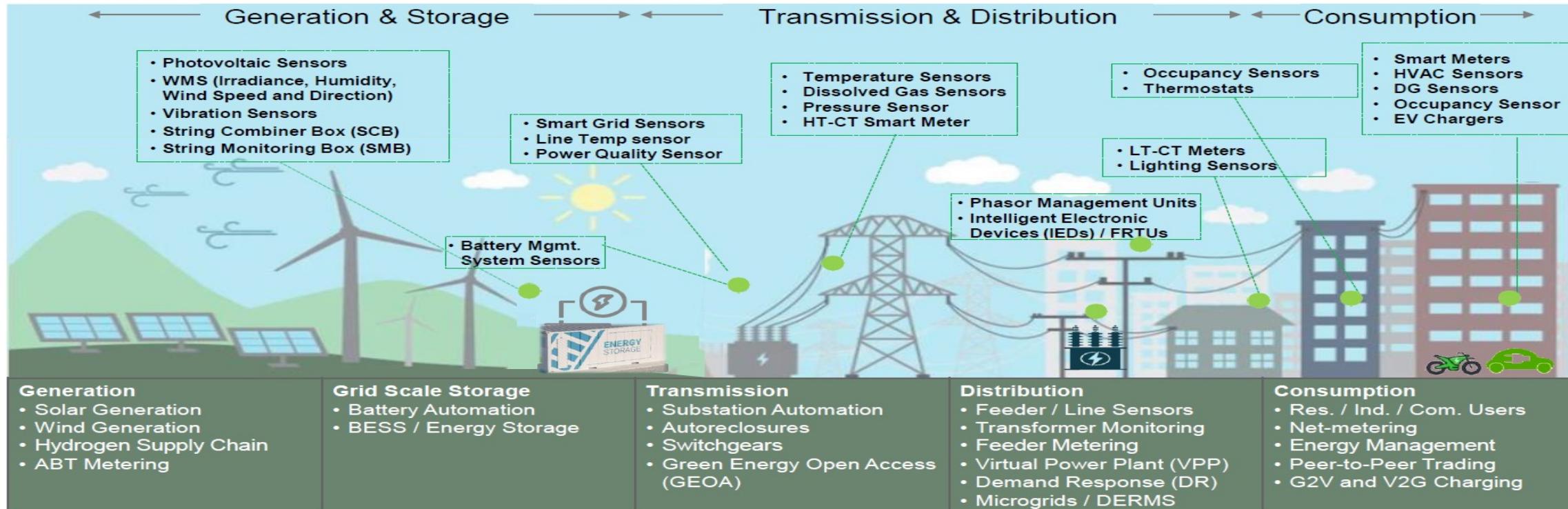
*Real-Time Battery Intelligence
for Peak Performance*

03 Storage Monitoring

Driving EV Success, One Charge at a Time

*Streamline, Monitor, Monetize –
All at once*

04 EV Charging



MONITORING – The Foundation to Energy Sustainability

Our IoT Product listings on E-Commerce Distribution Partners



SMARTMESH 16A Smart Plug Powered by Jio IoT with Energy Monitoring- Suitable for Large Appliances like Refrigerator, Geysers, Microwave Ovens, Air Conditioners (Works with Alexa and Google Assistant)

Visit the [Smartmesh Store](#)

2.8 ★★★★☆ 14 ratings

-77% ₹699
M.R.P.: ₹2,999
Inclusive of all taxes

Offers

- Cashback Upto ₹20.00 cashback as Amazon Pay Balance when... 1 offer >
- Bank Offer Upto ₹2,000.00 discount on select Credit Cards, HDFC... 22 offers >
- Partner Offers Get GST invoice and save up to 28% on business purchases. 1 offer >



JioTag Go Tracker for Android, Millions of Android Phones Worldwide Help Track Your Keys, Wallets, Luggage, Bikes, India's only Google Find My Device Certified Tracker, No SIM Subscription Needed

Brand: JIO
3.6 ★★★★☆ 533 ratings | Search this page
500+ bought in past month

Limited time deal
-50% ₹1,499
M.R.P.: ₹2,999
Inclusive of all taxes
EMI starts at ₹136 per month. [EMI options](#)

Offers

- Cashback Upto ₹44.00 cashback as Amazon Pay Balance when... 1 offer >
- Bank Offer Upto ₹2,000.00 discount on select Credit Cards, HDFC... 22 offers >
- Partner Offers Get GST invoice and save up to 28% on business purchases. 1 offer >



Jiomotive OBD GPS Tracker & Wi-fi Router| 4G eSIM Plug n Play| Instant On/Off, Geo Fencing Alerts| 1 Year Free Subscription| Jio Locked

Brand: JIO
3.6 ★★★★☆ 1,127 ratings
#1 Best Seller in GPS Trackers
1K+ bought in past month

Limited time deal
-67% ₹3,999
M.R.P.: ₹11,999
Inclusive of all taxes
EMI starts at ₹194. No Cost EMI available [EMI options](#)

Offers

- Cashback Upto ₹119.00 cashback as Amazon Pay Balance when... 1 offer >
- No Cost EMI Upto ₹180.07 EMI interest savings on Amazon Pay ICICI... 1 offer >
- Bank Offer Upto ₹2,000.00 discount on select Credit Cards, HDFC... 22 offers >
- Partner Offers Get GST invoice and save up to 28% on business purchases. 1 offer >



Jio Humsafar Wired GPS Tracker for Car, Bike, Scooty, Fleets, Truck, Bus, EV | Free Pre-Recharged SIM for 1 Year with Zero Activation Fees | Free JioHumsafar Mobile App (Android & iOS) | Desktop Access

Brand: JIO
3.9 ★★★★☆ 22 ratings

Limited time deal
-42% ₹3,499
M.R.P.: ₹5,999
Inclusive of all taxes
EMI starts at ₹170. No Cost EMI available [EMI options](#)

Offers

- Cashback Upto ₹104.00 cashback as Amazon Pay Balance when... 1 offer >
- No Cost EMI Upto ₹157.54 EMI interest savings on Amazon Pay ICICI... 1 offer >
- Bank Offer Upto ₹2,000.00 discount on select Credit Cards, HDFC... 22 offers >
- Partner Offers Get GST invoice and save up to 28% on business purchases. 1 offer >



JioEV Aries 7.4kW CE & ARAI Certified AC EV Charger| Type2 Plug with 5 m Cable| OCPP Compliant | RFID Inbox | Optional 4G, Wi-Fi & LAN | IP55 & IK10 Resistance | for Home, Workplace & Public Charging

Brand: JIO
3.1 ★★★★☆ 8 ratings

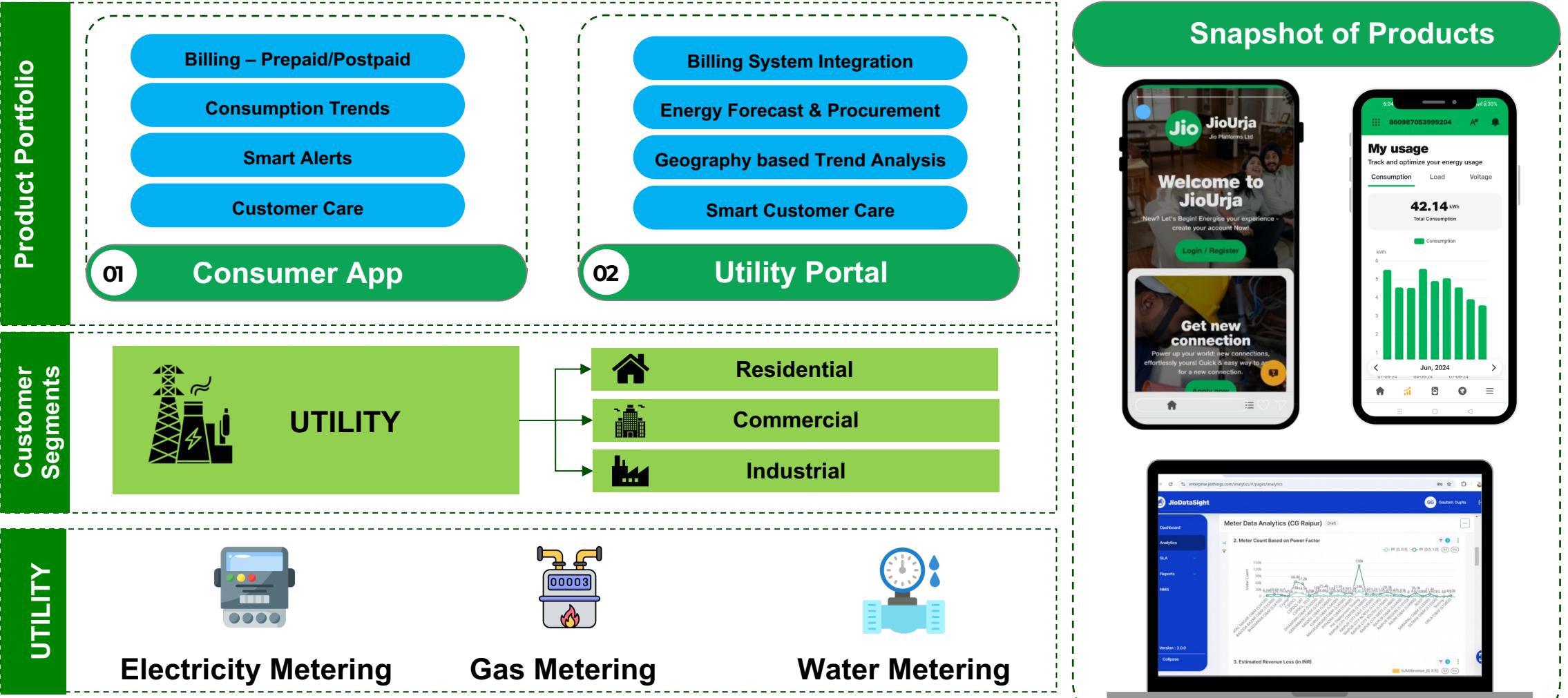
-23% ₹46,499
M.R.P.: ₹59,999
Inclusive of all taxes
EMI starts at ₹2,254. No Cost EMI available [EMI options](#)

Offers

- Cashback Upto ₹1,394.00 cashback as Amazon Pay Balance when... 1 offer >
- No Cost EMI Upto ₹2,093.81 EMI interest savings on Amazon Pay ICICI... 1 offer >
- Bank Offer Upto ₹2,000.00 discount on select Credit Cards, HDFC... 22 offers >
- Partner Offers Get GST invoice and save up to 28% on business purchases. 1 offer >

METERING – Enabling Transparency in Energy Sustainability

Empowering consumers through transparent energy insights and enabling data-driven Billing for energy consumption



METERING – Enabling Transparency in Energy **Sustainability**

Smart Metering in Action as of June 2025

222.35 Mn

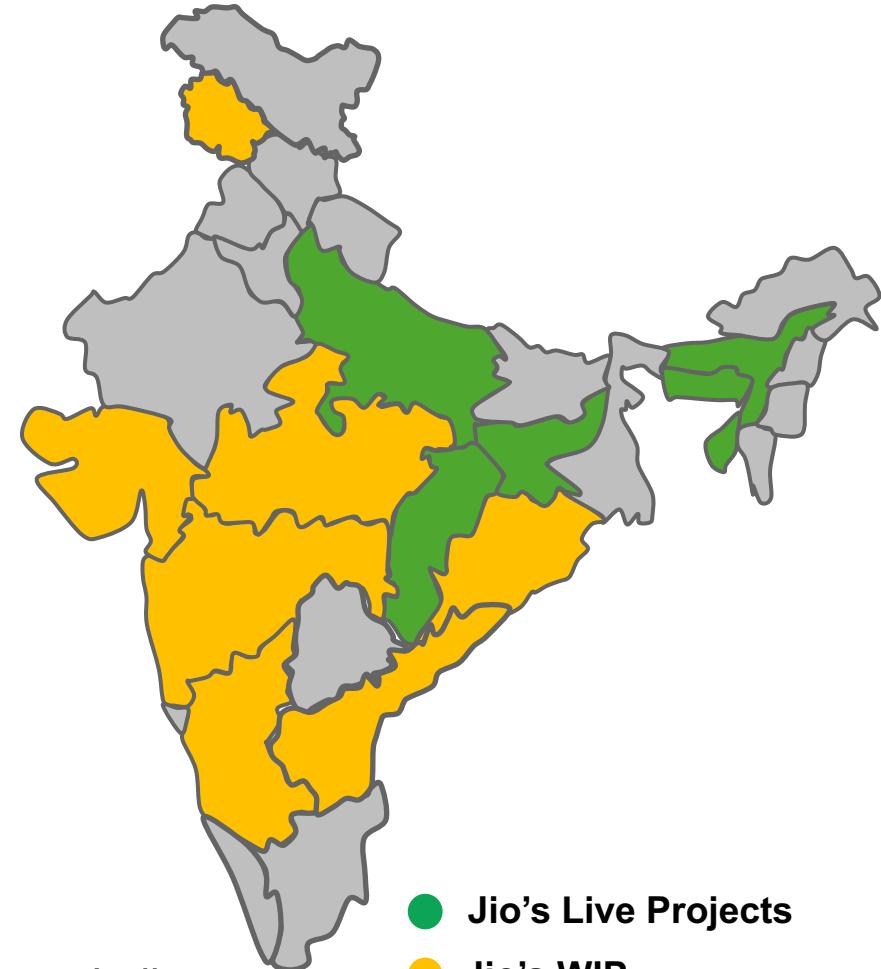
Total Sanctioned¹

29.02 Mn

Total Installed¹

12+

**DISCOMS (Full-Stack
Technology Provider)**



Jio functions as a full stack technology provider to over 12+ DISCOMS across India

SERVICES – Driving Energy Sustainability through AI

How Jio transforms energy into real-time intelligence and actionable decisions through AI driven Optimization

- 01 Energy Orchestration – DR /DERMS/
VPP/Microgrid



- 02 Energy Disaggregation & Personalized
Recommendations



- 03 Green Energy Open Access (GEOA)



- 04 On Demand Energy – Energy Marketplace



Product Portfolio

Orchestrating the Future of Energy

*Empowering Communities,
Energizing the Future*

Use Cases

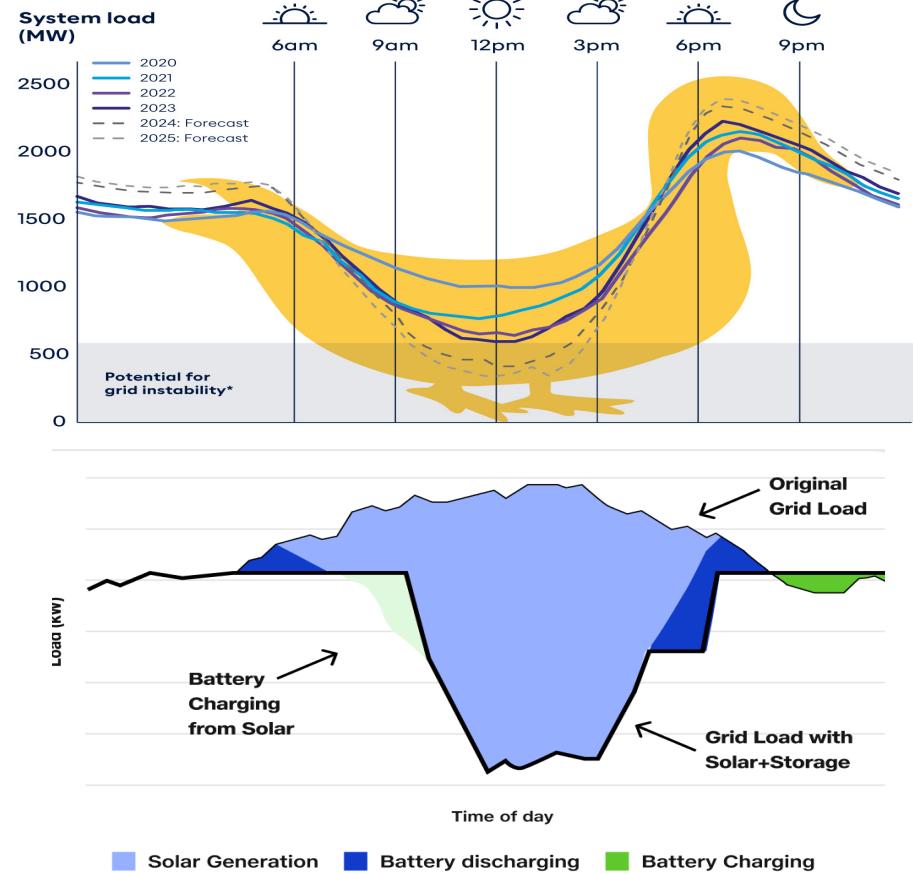
- Residential
- Commercial
- Industrial
- Utility



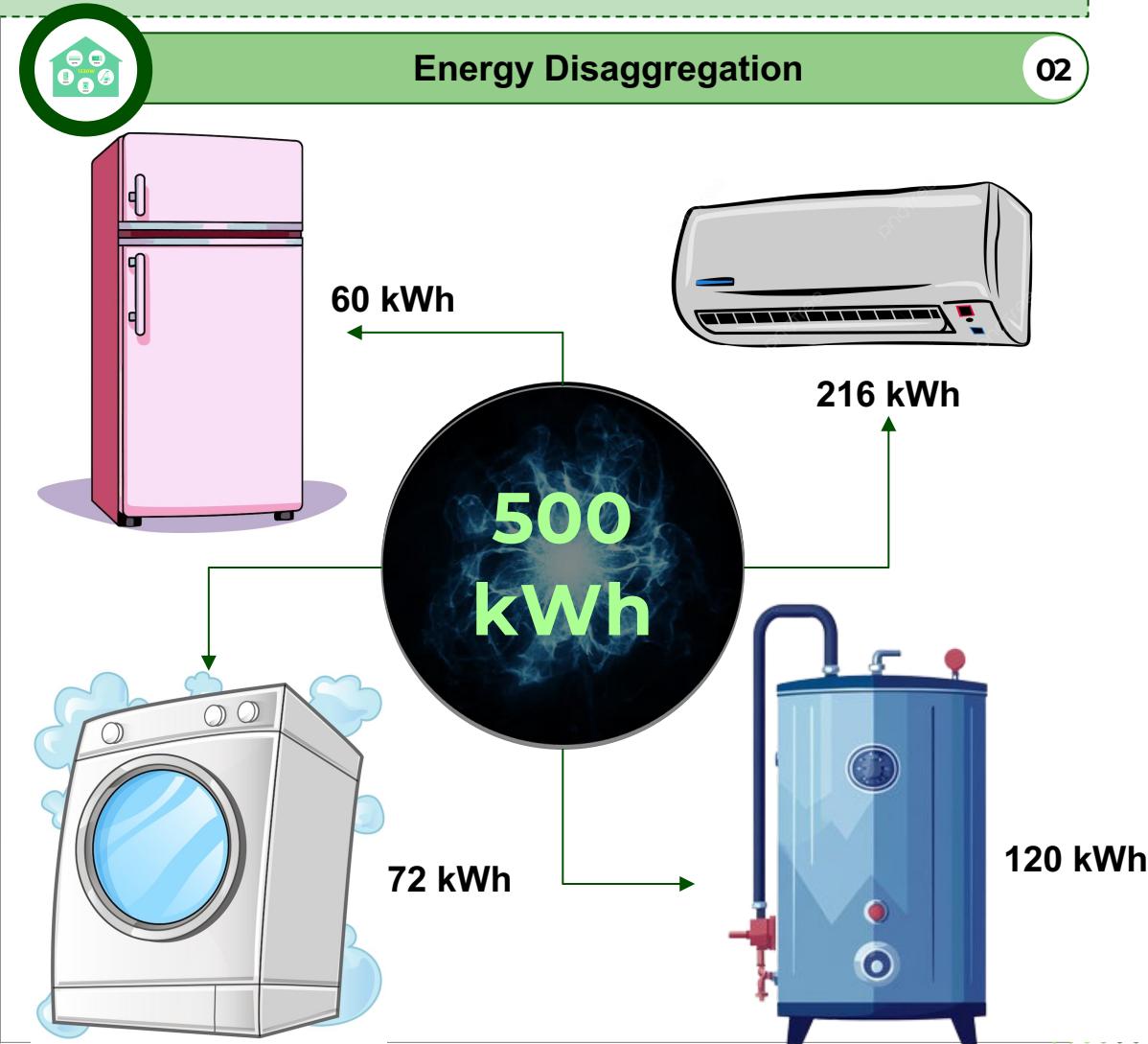
SERVICES – Orchestration and Disaggregation

By Orchestrating Energy and Disaggregating Consumption, Jio turns complexity into control

01 Energy Orchestration – DERMS/DR/Microgrid



02 Energy Disaggregation

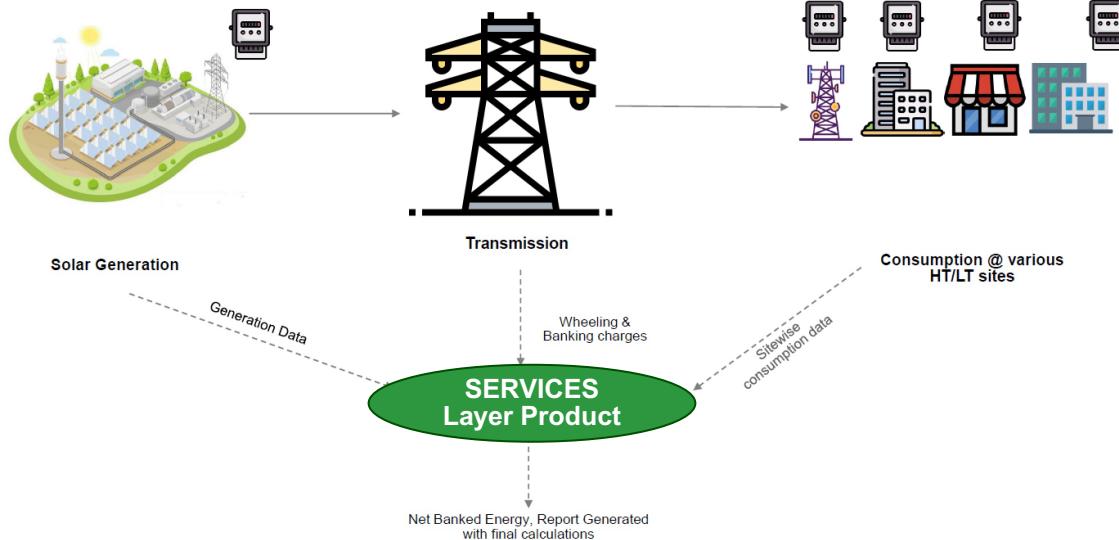


SERVICES – VNM and On Demand Energy

From shared generation through VNM to intelligent energy consumption with On-Demand Energy, Jio is reshaping the energy landscape

03

Green Energy Open Access (GEOA)



04

On Demand Energy



On Demand Energy



Consumer Requiring On Demand Energy

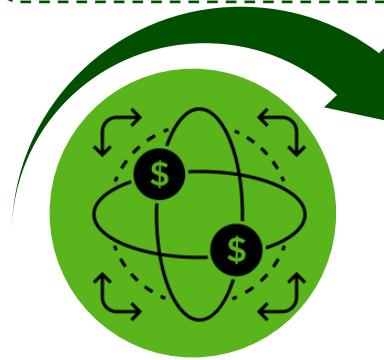


FINANCE – Making Energy Sustainability **Viable & Rewarding**

*Energy Intelligence that Pays Off - How Jio is making **Sustainability** financially **Viable** and **Rewarding***

Scalable Financial Model

Quantifying value of energy intelligence through cost saving optimized investments and sustainability linked returns



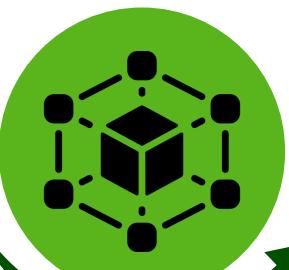
Reduced Risk & Improved ROI

Risk reduction through AI based forecasting and predictive analytics driving improved ROI



Green Financing

Jio supports innovative business models like PPA Settlements, Blockchain based P2P energy trading etc.



Enabling Net Zero

Jio supports companies by guiding them on their net zero and ESG reporting journey



What We Offer !

BRSR Compliance

SEBI, Monthly reporting for FY, Multi-geography based facilities energy data

P2P Trading

Enables both large residential & enterprise prosumers as well as enterprise users i.e. (EVSE CPOs, Swapping Providers).

Forecasting Model

Forecasting model to better understand the demand and future potential Bid forecast. Model helps in enabling better auto-bidding & dynamic pricing

Asset Securitization

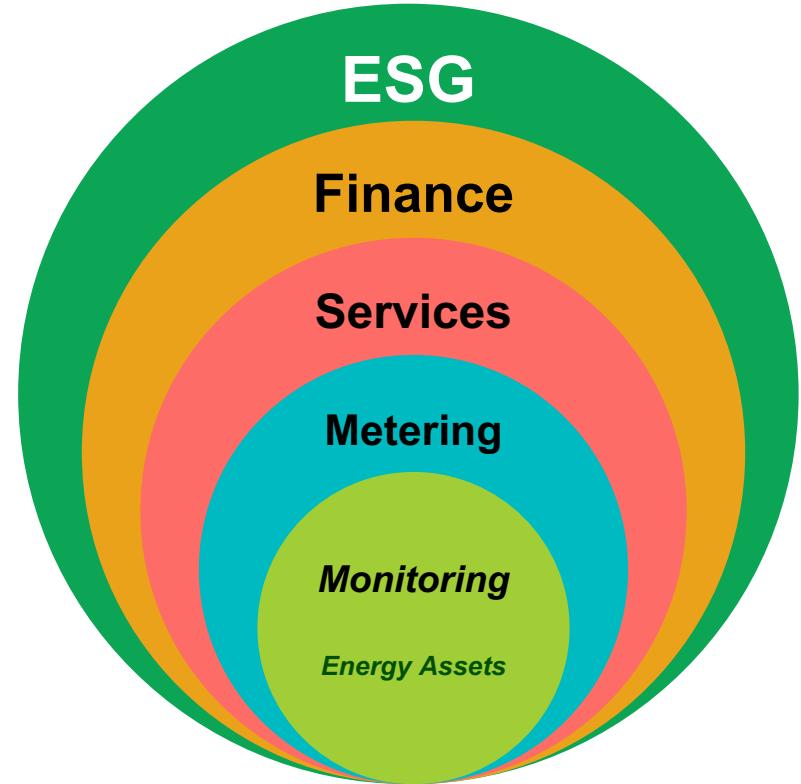
CIBIL Rating equivalence for Energy Assets, Rating Models etc. ecosystem

JioEnerTrade empowers Blockchain based energy trading between the consumers and prosumers for both residential and enterprise users

Driving Energy Sustainability through ESG Product

From Infrastructure to Insight - Jio is enabling **Enterprise Decarbonization** with intelligence and impact through audit ready **Environmental Social and Governance (ESG) Reporting**

- 01 ESG Actionability
Real-time visibility into energy, emissions and asset health creating the foundation for ESG action
- 02 Supply Chain Sustainability
Metering across distributed infrastructure enables granular tracking of across value chain
- 03 ESG Reporting
AI driven scorecards and automated ESG metrics aligned with global standards
- 04 Green Finance & Carbon Trading
Financial intelligence from energy enables green loans, carbon offsetting and credit market participation
- 05 Unified ESG Dashboard
Unified control to enterprise ESG stakeholders and CXOs to monitor sustainability KPIs



Case Studies – AI/ML Models at Work

Overview of our AI/ML Models that drive Connected Intelligence Products

Load Disaggregation:
Transforming Energy Bills into Actionable Insights

Consumer Clustering
Based on Energy Usage – ToU Planning

Gaming the Grid: Using Domestic Tariffs for Commercial Gains

(Potential) Theft Detection: GMM Based Identification of Meter Tempering

Forecasting: Enabling Grid Stability and Economic Efficiency in Renewable Integration

Cleaning Smarter:
Data-Driven Maintenance for Solar Efficiency

Asset eKundli: A DLT Powered Asset Health Scoring System.

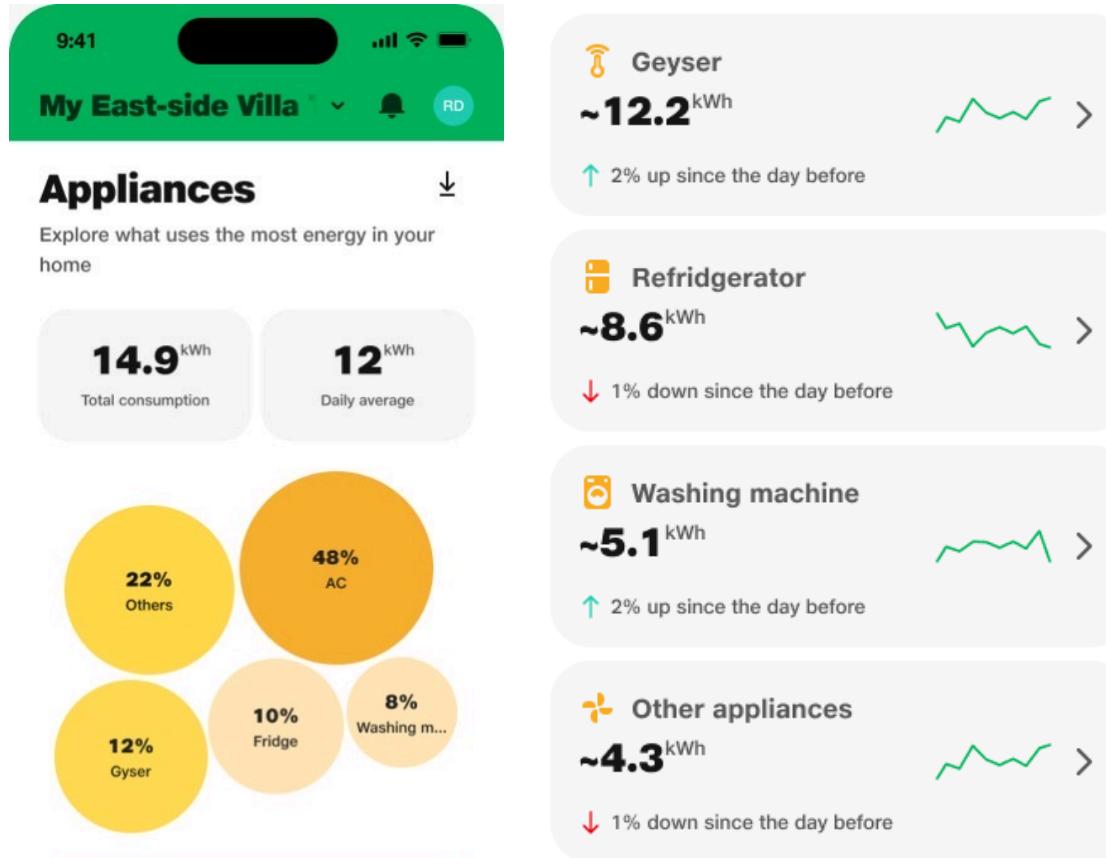
LLM Based System for CXO / O&M / Customer Care

Battery backup time estimation at Jio Tower Sites

DG Set (Potential) Theft Detection at Jio Tower Sites

Load Disaggregation: Transforming Energy Bills into Actionable Insights

Non Intrusive Load Monitoring (NILM) infers appliance-level energy consumption from aggregate smart meter data using machine learning and signal processing.



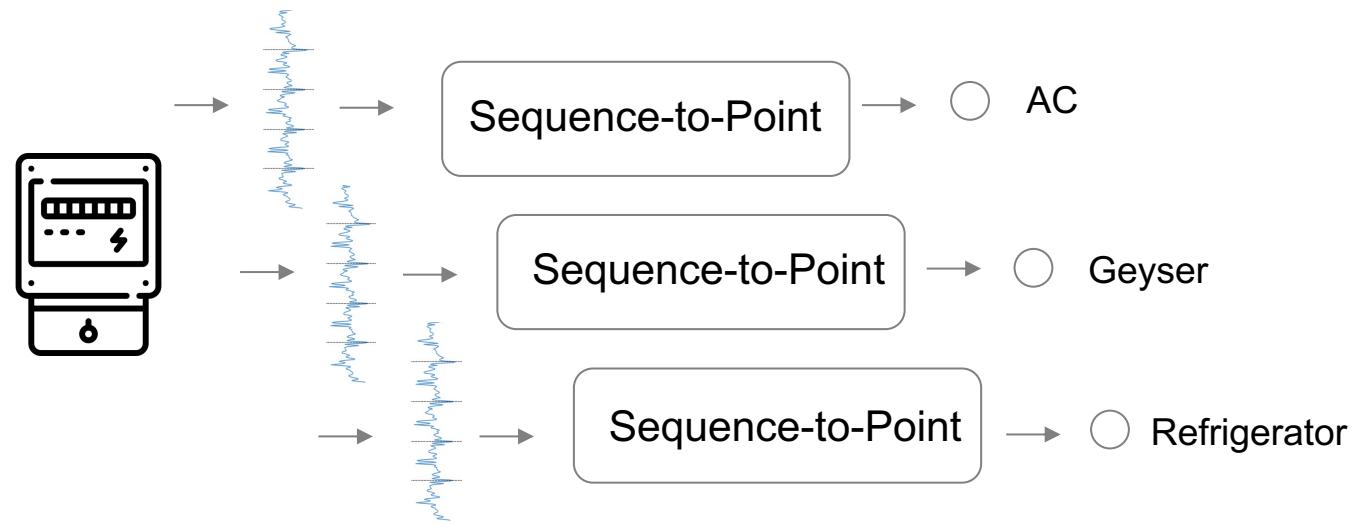
Impact

- Behavioural Economics**
 - 15-23% energy savings observed in pilot households via real-time alerts.
- Grid Benefits**
 - 12-18% reduction in peak demand.
- Sustainability**
 - 4.2M tons CO₂ per year saved

Load Disaggregation: Transforming Energy Bills into Actionable Insights

Non Intrusive Load Monitoring (NILM) infers appliance-level energy consumption from aggregate smart meter data using machine learning and signal processing.

Technical Framework



Model	Input	Output	Input Sequence Length	Result (MAE)
Sequence-To-Point With Differential Input	Power reading (Mains)	Power reading (Appliance)	7	80.65
Sequence-To-Point With Attention	Power reading (Mains)	Power reading (Appliance)	7	97.16

Consumer Clustering Based On Energy Usage

KMeans Clustering & Silhouette Analysis for Targeted Demand-Side Management

Why clustering is essential ?

- **Grid Infrastructure Planning:**
 - **Capacity allocation:** Heavy users require dedicated transformer upgrades.
 - **Peak demand forecasting:** Moderate users drive evening peaks – enables targeted load shifting
- **Demand Response Programs:**
 - Targeted Incentives: Heavy users receive AC cycling rewards, normal users get rebates.
- **For DISCOMs:** 18% reduction in peak demand through cluster specific demand response.

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 - Targeted Incentives: Heavy users receive AC cycling rewards, normal users get rebates.
- **For DISCOMs:** 18% reduction in peak demand through cluster specific demand response.

Technical Framework

- **Input:**
 - Weekly energy consumption of consumer
- **Input Dimension:**
 - Features created from 1D signal.
- **Output:**
 - Cluster (Normal, Moderate or Heavy User)
- **Algorithm:**
 - K-Means
- **Performance:**
 - Measured on basis of Silhouette Score (1 is best, -1 is worst)

Gaming the Grid: Using Domestic Tariffs for Commercial Gains

Core Issue: Domestic tariff abuse through commercial usage disguised as residential consumption

Load Pattern Signatures

- **Residential Profile:** Bi-modal distribution with morning peak (7-9 AM, ~350W) and evening peak (7-9 PM, ~250W).
- **Commercial Profile:** Sustained daytime load (9 AM-6 PM) with minimal night-time consumption.
- **Key Discriminator:** Night-to-day load ratio and temporal consumption variance.

Proposed Impact: Reduce technical/commercial losses from current 34% to target 12-15%

(Potential) Theft Detection: GMM-Based Identification of Meter Tampering

From Cluster Analysis to Tamper Signatures: Detecting Bypass, Magnetic Interference & Cover Tamper Events

Anomaly Spectrum

- **Meter Bypass:** Unauthorized wiring changes causing load-current mismatch
- **Magnetic Tampering:** External magnets distorting current sensors, inducing voltage drops.
- **Cover Tamper:** Night-to-day load ratio and temporal consumption variance.

Technical Framework

- Clusters are not equally sized, so we use **Gaussian Mixture Model (GMM)**.
- **Input:**
 - Weekly energy consumption of consumer
- **Input Dimension:**
 - Features created from 1D signal.
- **Output:**
 - Binary classification

Impact: Drives close collaboration with DISCOMs to identify new and emerging anomalies. .

Solar Forecasting: Enabling Grid Stability & Economic Efficiency in Renewable Integration

Solar forecasting addresses the fundamental challenge of temporal mismatch between variable PV generation and load demand.

Economic Optimization Driver

- Sites: **Bidar (Karnataka)** and **RCP, Ghansoli**
- Accurate forecasts reduce Levelized Cost of Energy (LCOE)

Forecast Solar Yield

Forecast Demand Response

- Enabling **ToU arbitrage** with battery storage (12-18% ROI improvement).
- Cutting **balancing costs** by 23% through reduced forecast errors.
- Avoiding **curtailment penalties**.

Cleaning Smarter: Data-Driven Maintenance for Solar Efficiency

Solar forecasting addresses the fundamental challenge of temporal mismatch between variable PV generation and load demand

Degradation Factors

- Solar panel degradation is driven by **soiling (dust)**, cell microcracks, and inverter faults, which collectively cause up to 30% energy loss.
- IoT-enabled edge devices module temperature, current/voltage variance, proxy for soiling

Analytics Engine

- **Input:**
 - AC Power, Irradiance, Panel Temperature.
- **Output:**
 - Unutilised Area

$$\text{Unutilized Area} = \frac{\text{Expected Power (in W)} - \text{Actual Power (in W)}}{\text{Irradiance } \left(\frac{\text{W}}{\text{sqm}} \right) * \text{Panel Efficiency}}$$

$$\text{Unutilized Area \%} = 100 * \frac{\text{Unutilized Area (in Sqm)}}{\text{Total Area of Panels (in sqm)}}$$

Proposed Impact: 23% lower O&M cost. Targeting 0.5% annual degradation rate (vs. industry standard 0.8%)

Asset eKundli: A DLT-Powered Asset Health Scoring System

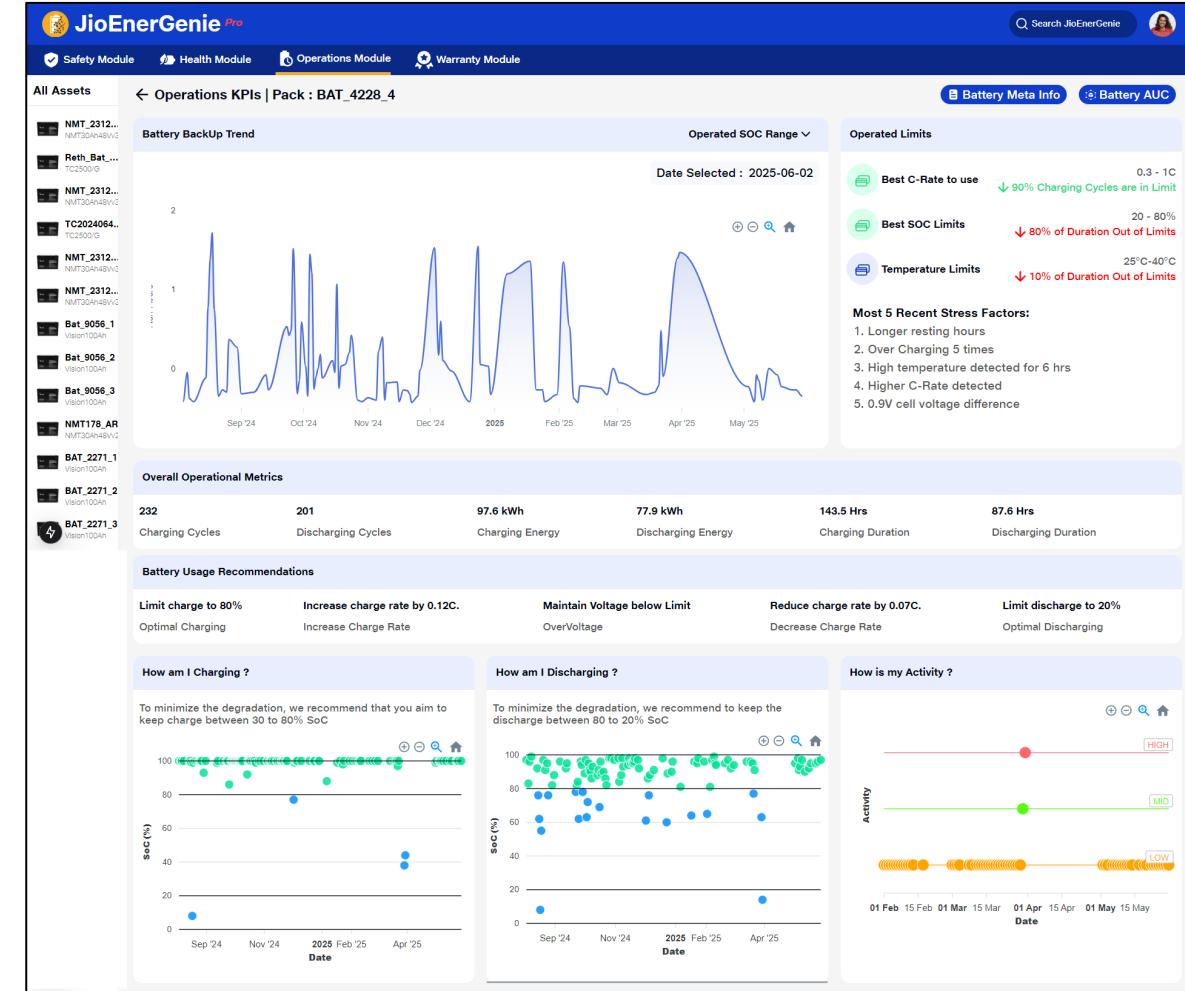
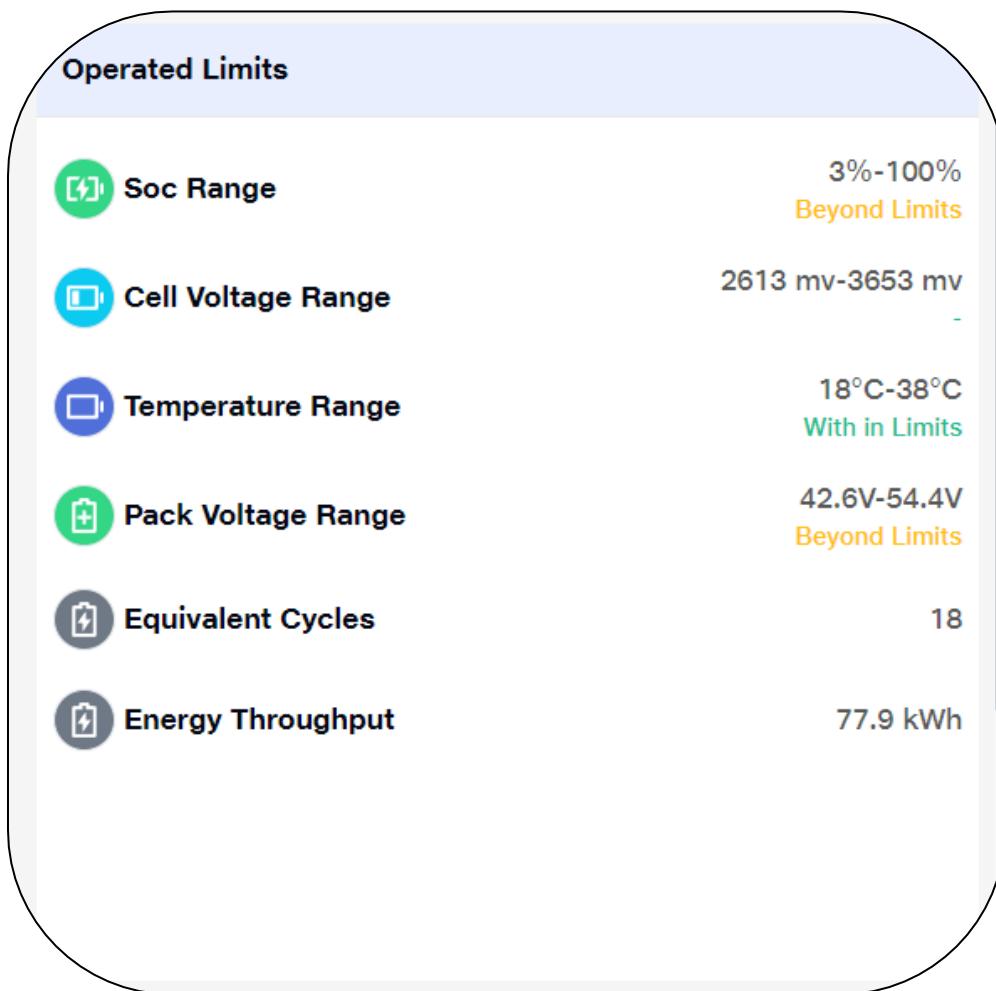
Real-Time Operational Parameter Aggregation & Immutable Health Scoring via Hyperledger Fabric

Core Components

- **Data Collection Layer:** IoT sensors (voltage, temperature, charge cycles) stream operational parameters to edge gateways.
- **DLT Layer:** Hyperledger Fabric-based private blockchain records hashed sensor data and metadata (manufacturing date, maintenance history) in immutable ledgers.
- **Analytics Engine:** Federated learning models process on-chain data to compute degradation trends, using battery state-of-health (SOH) algorithms.
- **Health Score Generation:** Outputs a CIBIL-like score (0–1000) combining real-time analytics (70% weight) and historical meta-data (30% weight).
- **Insurance and Smart AMC**

Asset eKundli: A DLT-Powered Asset Health Scoring System

Real-Time Operational Parameter Aggregation & Immutable Health Scoring via Hyperledger Fabric



Asset eKundli: A DLT-Powered Asset Health Scoring System

Real-Time Operational Parameter Aggregation & Immutable Health Scoring via Hyperledger Fabric

The screenshot displays the JioEnerGenie Pro platform interface for managing battery assets. At the top, there are four tabs: Safety Module, Health Module (selected), Operations Module, and Warranty Module. A search bar and user profile are also at the top.

The main content area shows the "ESS Lifecycle | Pack : PAKDwUxCcrkFUu5Y_4". It includes a "Battery Meta Info" section with various parameters:

Parameter	Value	Description
Remaining health	100	Full Charge Capacity
Age	28 Months	Remaining Age
Rated number of cells	-	Rated capacity
Full Charge Energy	5.0	Rated initial SOH
Degradation	-4.0	Rated charge/discharge characteristics
Remaining Cycle	3981.9	
LFP		Rated Chemistry
Expected cycle	4000	

Below this is the "ESS Lifecycle History" section, which lists two certificates:

- Certificate-1**: PAKDwUxCcrkFUu5Y_4, In Use, June 3rd, 2025, Advait Ltd, Hash: 1616NKZS
- Certificate-2**: PAKDwUxCcrkFUu5Y_4, In Use, June 3rd, 2025, Advait Ltd, Hash: DS94LNH3

A vertical timeline on the left indicates the asset's status over time, marking "Remaining health", "Age", "Rated number of cells", "Full Charge Capacity", "Remaining Age", "State", "Manufacture", "Expected cycle", and "End of Life".

Asset eKundli: A DLT-Powered Asset Health Scoring System

Real-Time Operational Parameter Aggregation & Immutable Health Scoring via Hyperledger Fabric

The image displays three screenshots of the JioEnerGenie Pro platform, illustrating the real-time operational parameter aggregation and immutable health scoring system.

Screenshot 1: ESS Lifecycle | Pack : PAKDwUxCcrkFUu5Y_4

This screenshot shows the ESS Lifecycle details for a specific battery pack. Key data points include:

- Certification 2 (First Life Usage):** Remaining health: 100, Full Charge Capacity: 104.0.
- Age:** 28 Months.
- Remaining Age:** 92 Months.
- Rated number of cells:** -
- Rated capacity:** -

Screenshot 2: Asset Usage Certificate

This screenshot displays the Asset Usage Certificate for a battery pack. The certificate includes:

- Certificate ID:** 16I6NKZS
- Date of certification:** 03.06.2025
- Battery Info:**

Pack ID: BAT_4228_4	Nominal Energy: 4.8 Kwh	Commissioned On: 14-02-2023
Nominal Capacity: 100 Ah	Rated Voltage: 48.0 V	Rated Life Cycle: 4000
Manufacture: Vision	Model: Vision100Ah	Chemistry: LFP
- BMS-Based State of Health:** 100
- Performance Metrics:**

Remaining health	100	Full Charge Capacity	104.02
Full Charge Energy	4.99296 Kwh	Degradation	-4.02
Age	28 Months	Remaining Age	92 Months
Remaining Cycle	3981.88	Cumulative Charge Cycles	232
Total Energy Consumption	97.51 Kwh	Cumulative Discharge Cycles	201
Total Energy Discharged	77.934 Kwh	Total Charging Hours	143.46
Equivalent Full Charge Cycle	18.12	Total Discharging Hours	87.62

Screenshot 3: Blockchain-Powered Battery eKundli

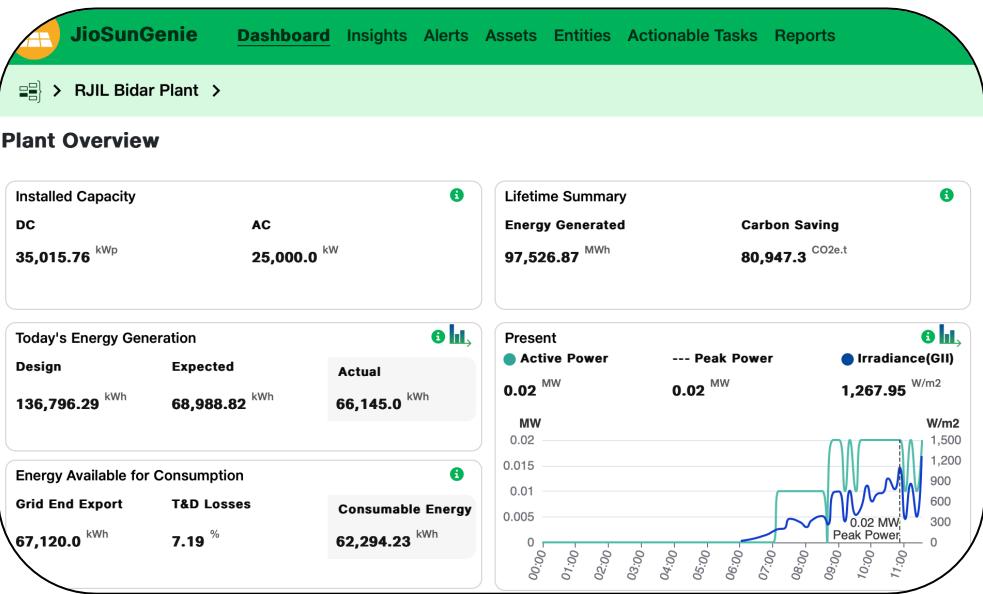
This screenshot shows the Blockchain-Powered Battery eKundli interface. It lists two entries:

- Entry 1:** Devdavit Ltd, Certificate ID: 16I6NKZS, + button.
- Entry 2:** Devdavit Ltd, Certificate ID: DS94LNH3, - button.

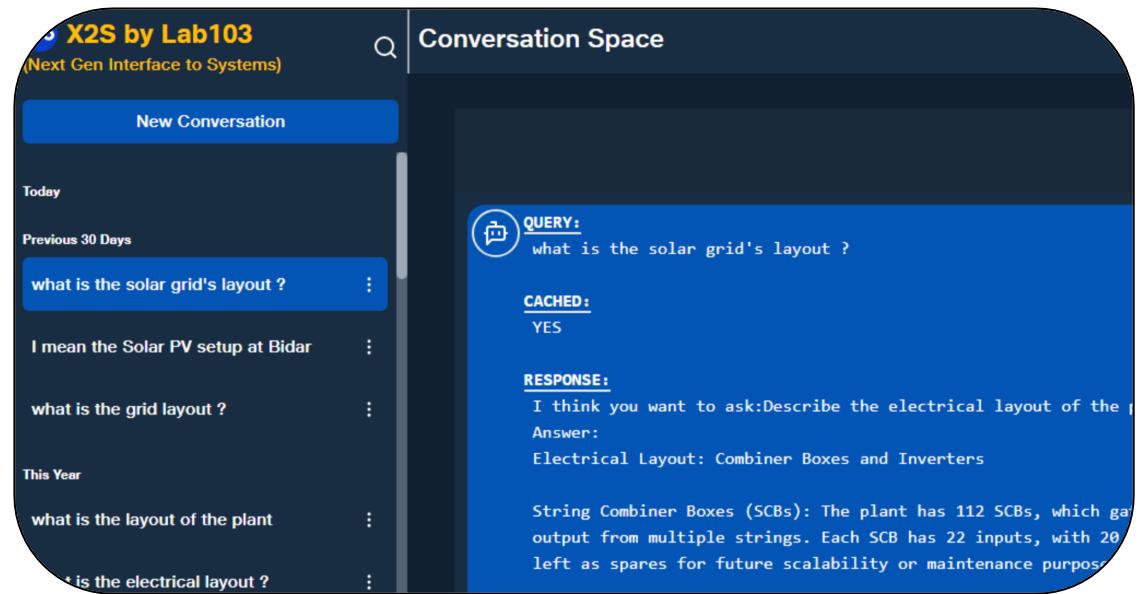
LLM Based System For CXO/ O&M / Customer Care

Powering existing dashboards using LLM

Solar Dashboard

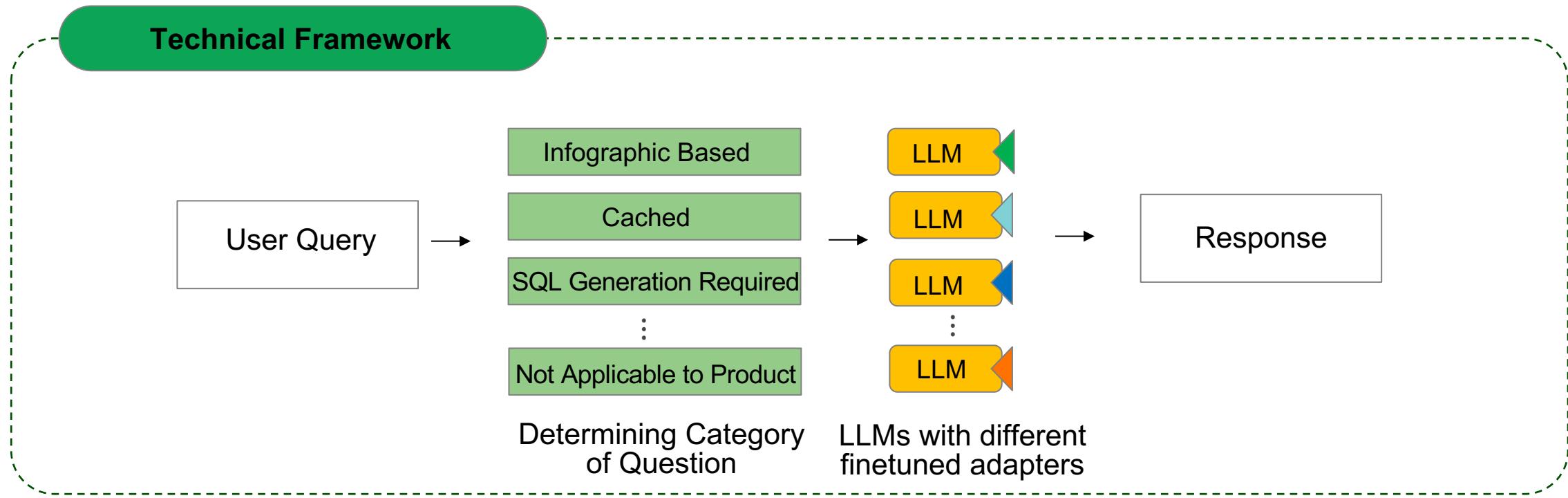


LLM Powered Dashboard



LLM Based System For CXO/ O&M / Customer Care

Powering existing dashboards using LLM



Battery backup time estimation at Jio Tower Sites

Leveraging Data-Driven SOH Estimation for Critical Infrastructure

The Challenge

- **400,000 tower sites** requiring 99%+ uptime
- **Battery** = first line of defense (instant power vs. DG/Solar delays)
- Manual monitoring impossible at this scale

Solution

- **Real-Time** monitoring of assets
- Algorithms like Particle Swarm Optimization with Support Vector Machines (**PSO-SVM**) to achieve State of Health (**SOH**) estimation accuracy.
- **State of Health (SOH)** represents the battery's current capacity relative to its original capacity and directly determines actual backup runtime

Impact: From reactive firefighting → Predictive intelligence for critical telecom infrastructure

DG Set (Potential) Theft Detection at Jio Tower Sites

From reactive auditing to predictive theft prevention through intelligent monitoring

The Problem: Diesel Theft at Scale

- Fuel theft impacts operational costs across **400K tower sites**
- Site managers sometimes misuse DG allocation quotas
- Unnecessary DG operation instead of battery backup to consume allocated diesel
- Traditional monitoring relies on manual audits and periodic inspections

Technical Indicators

- Sudden **slope changes** in diesel consumption patterns.
- Fuel efficiency deviations from standard 40 INR/kWh benchmark.
- Energy generation anomalies vs. expected 1000 kWh average consumption.
- Runtime patterns inconsistent with actual power outage logs.
- **Correlation analysis** between power outages and DG runtime

Jio is committed to a Sustainable Tomorrow !

Jio is committed to revolutionize the energy landscape and drive sustainability through its connected and Intelligent Energy Products



JioThings

MEET THE TEAM



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The background of the image is a high-angle aerial photograph of a dense forest, showing a variety of green shades and textures. In the bottom right corner, there is a small, circular graphic element.

Thank You

The Jio logo is located in the bottom right corner of the image. It consists of a green circle containing the word "Jio" in a white, sans-serif font.

Jio