

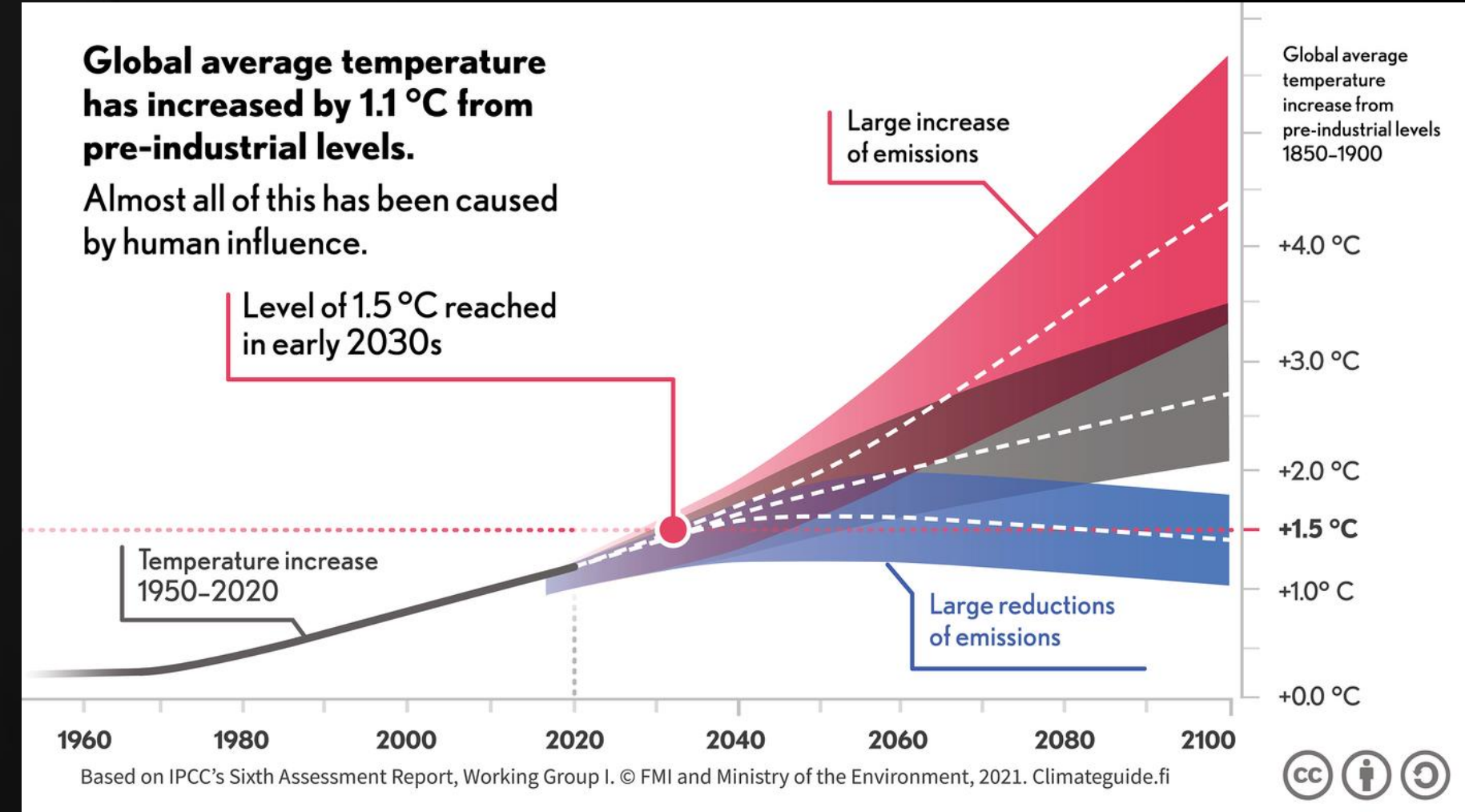
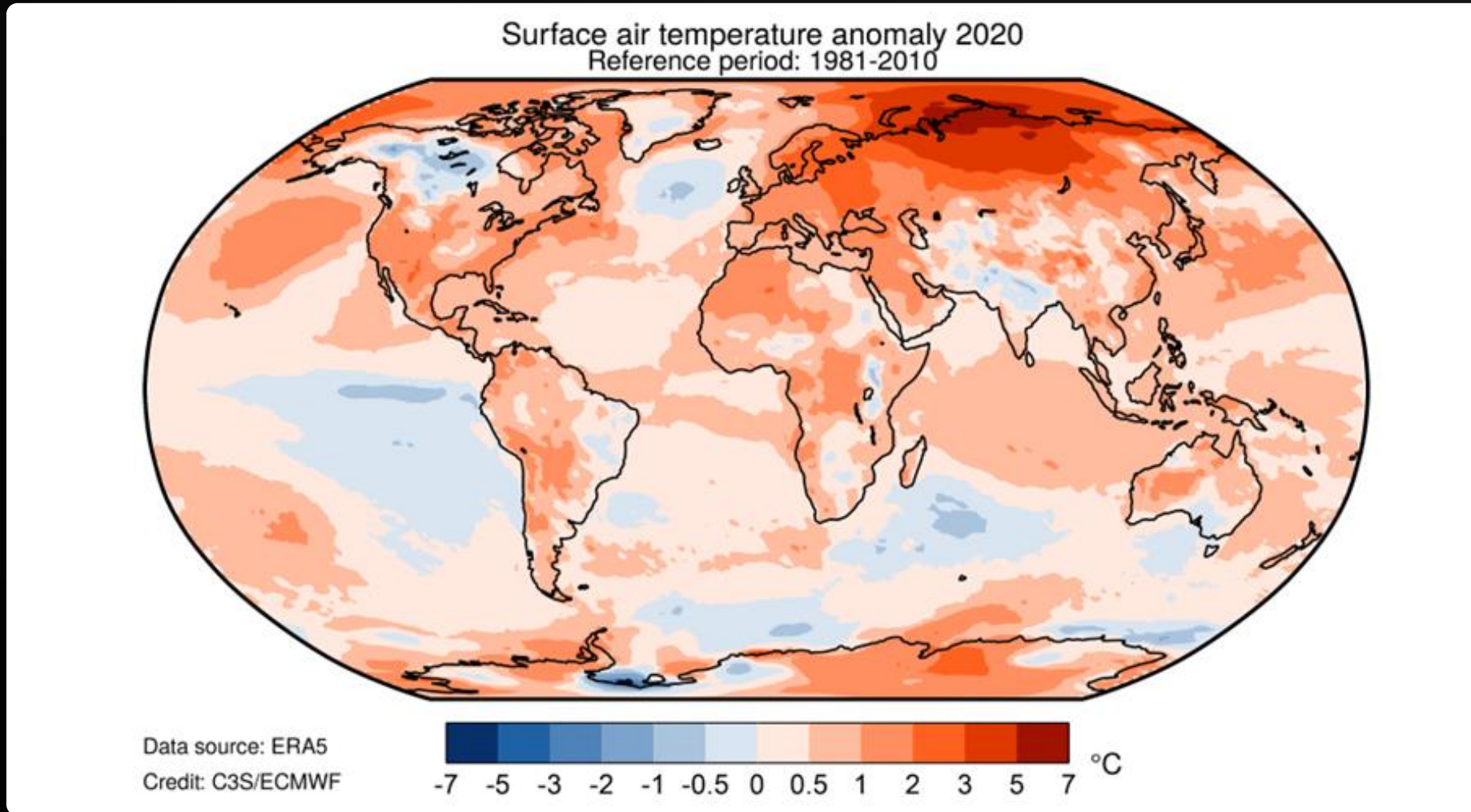


ENERGY INTELLIGENCE SYSTEMS



**Harnessing the power of IoT and AI
for Enhanced Energy Efficiency**

CLIMATE CRISIS



“ We are the first generation to feel the effect of climate change and the last generation who can do something about it.” - Barack Obama

“ If we are not able to limit global temperature rise, its very unlikely that our next generation will have a livable planet.

THE WORLD IS SERIOUS ABOUT NET ZERO

Which countries have set a net-zero emissions target?

Countries are shown as having a net-zero emissions target if they have: achieved net-zero already; have it written in law; in their policy document or have made a public pledge. The year for which countries have pledged to achieve net-zero varies.

Our World
in Data



■ Net-zero achieved or pledged ▨ Not pledged

All Major countries have declared their Net Zero Targets



IndianOil

Infosys



Reliance
Industries Limited



tcs



Mahindra

JSW Energy



ITC Limited



ADITYA BIRLA GROUP

adani



vedanta
transforming for good

Dalmia
cement

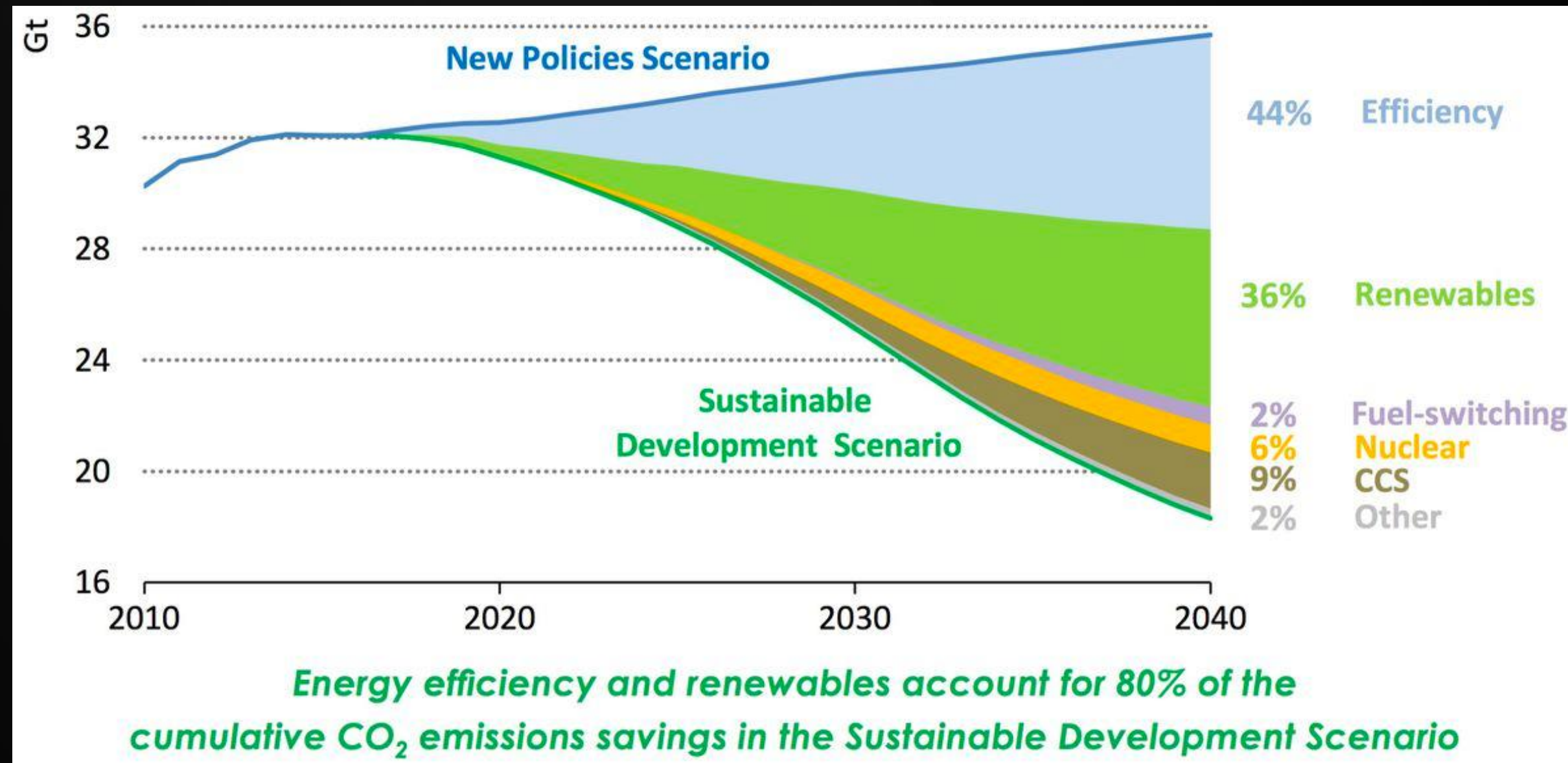
Several Global and Indian companies have announced Net Zero. And its increasing everyday

Net Zero: Its not simple, Everything Must Change

- Scope 1, Scope 2, Scope 3 Emissions should be Zero for an organization to achieve Net Zero
- Requires transforming all operations and supply chains.
- Every industry, from hotels to manufacturing, must overhaul processes and logistics.
- These changes will profoundly impact every product and service.

NEAR FUTURE - CARBON FOOTPRINT OF A PRODUCT/SERVICE WILL BECOME MORE IMPORTANT THAN COST

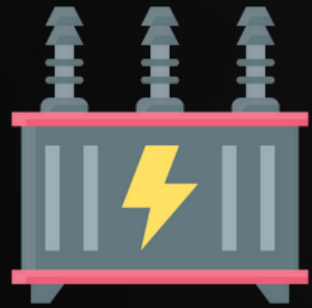
ROLE OF ENERGY EFFICIENCY



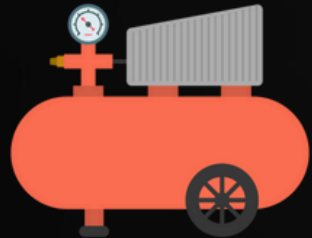
Energy Efficiency is the **REAL LOW HANGING FRUIT** in our fight against climate change

In Every Global Net Zero Future scenario, Energy Efficiency will play largest role

ENERGY WASTAGE IS MASSIVE



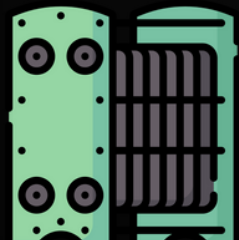
Underloaded transformers lose 5-10% energy. Older designs add 5-10% more.
Inefficiency > 60% of the time.



Unloaded compressors waste 15-35% power. Leaks account for 20-30% of output. Over-operating adds 10-15%.
Inefficient operation > 50% of the time.



Idle motors consume 5-10% power. Over-sized motors add 10-20% inefficiency. Excess motors add 5-10%.
Inefficiency > 25% of the time.



Oversized systems waste 15-30% energy. Inefficient heat exchangers add 5-15%.
Inefficiency > 40% of the time.



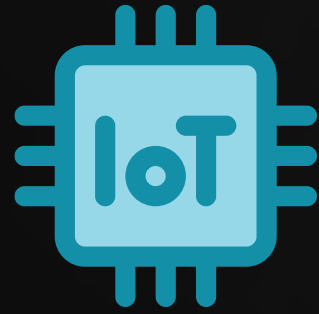
Throttling wastes 10-20% energy. Over-pumping adds 5-10%.
Inefficiency > 50% of the time.



Charge optimization and melt handling reduce SEC by 10-14%.
Continuous monitoring and benchmarking needed.

and lot more.....

ITS SO EVIDENT !!! WHY CANT WE JUST DO IT ?

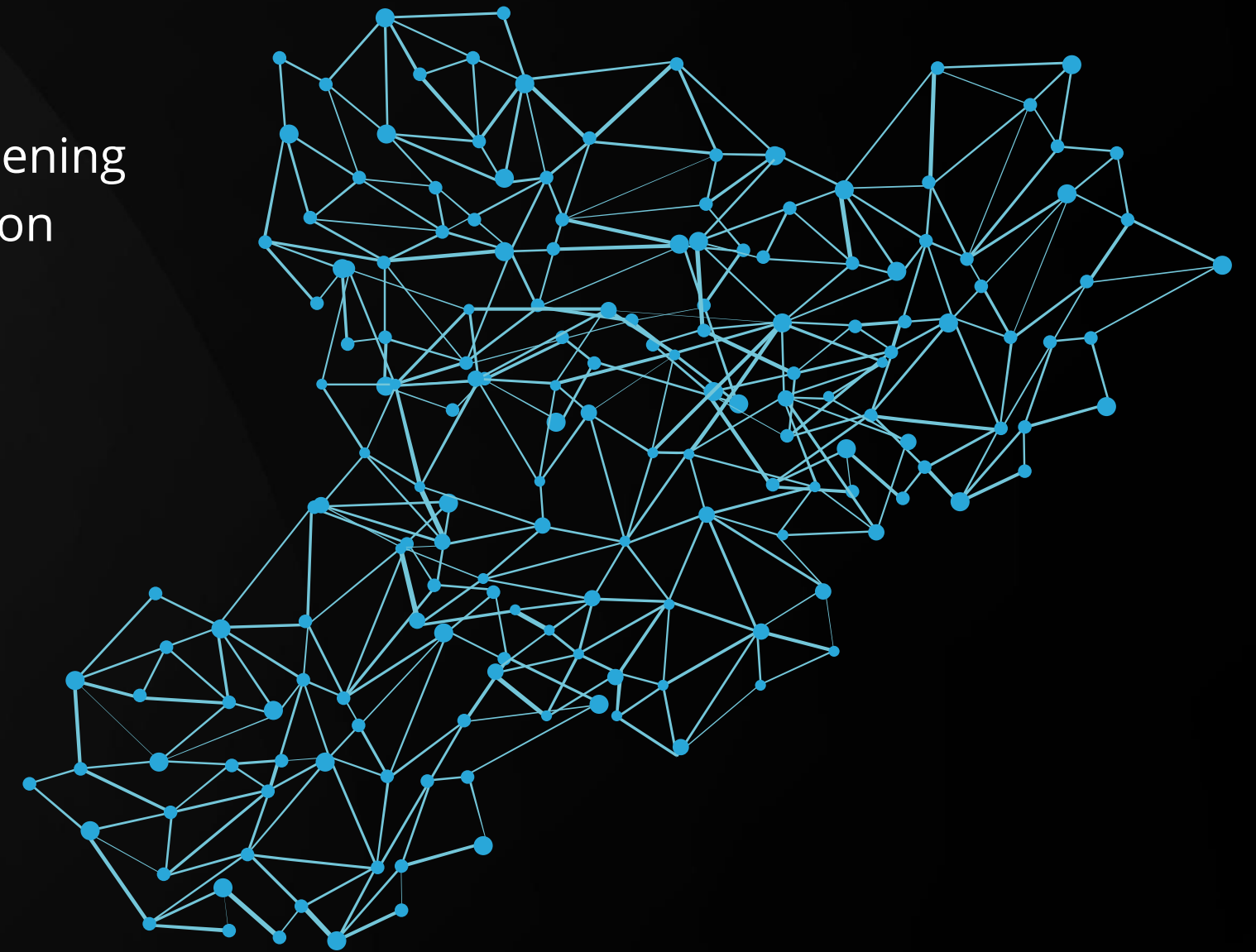


- Energy Usage is distributed across several equipments & people
- Energy usage keeps on changing with several factors
- Without continuous data, nobody can understand when where how energy wastage is happening

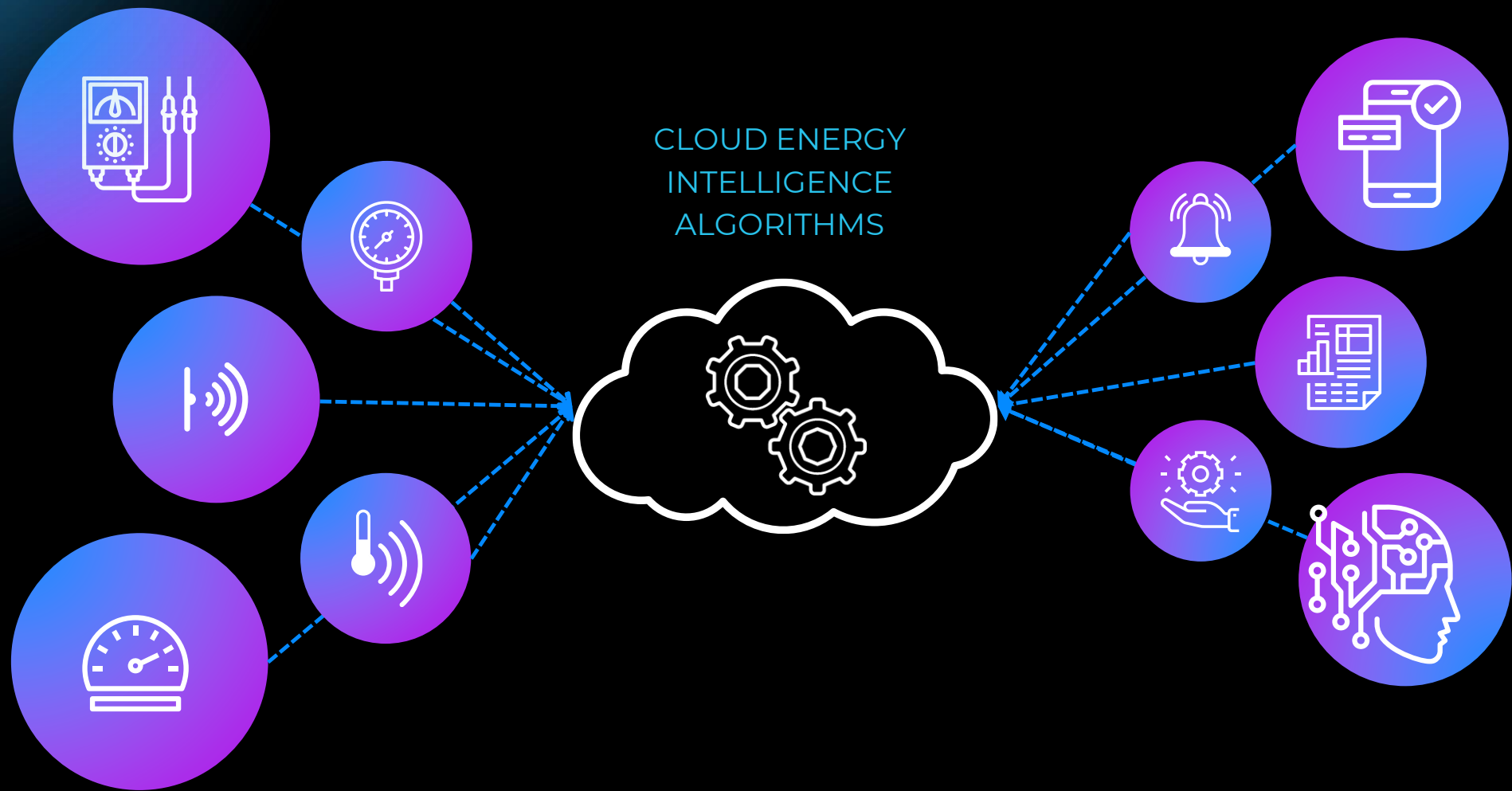
- Most Employees lack the technical expertise to
 - Understand data and analyse
 - Identify actionable points & Implement
 - Communicate to the management on what is required to avoid Energy Wastage

WHAT IF THERE IS AN INTELLIGENT SYSTEM WHICH CAN

- Measure relevant parameters continuously at **LOW COST**
- Processes data and make it available to the entire team on what is happening with energy usage **REAL TIME** - in a way they can understand and act upon
- Give **ACTIONABLE INSIGHTS** to the team on
 - Where and How Energy Wastage is happening
 - What they can do to prevent energy wastage
- Forms the basis of every operational and capital investment decision
- Detects equipment failures early
- Monitors carbon footprint of entire facility
- Automates the entire energy usage & ESG Reporting



ZEROWATT ENERGY INTELLIGENCE



Historical & Real-Time Energy Monitoring

AI-Powered Analytics

Custom Alerts & Notifications

Abnormality Detection

Predictive Maintenance

Maximum Demand Optimization

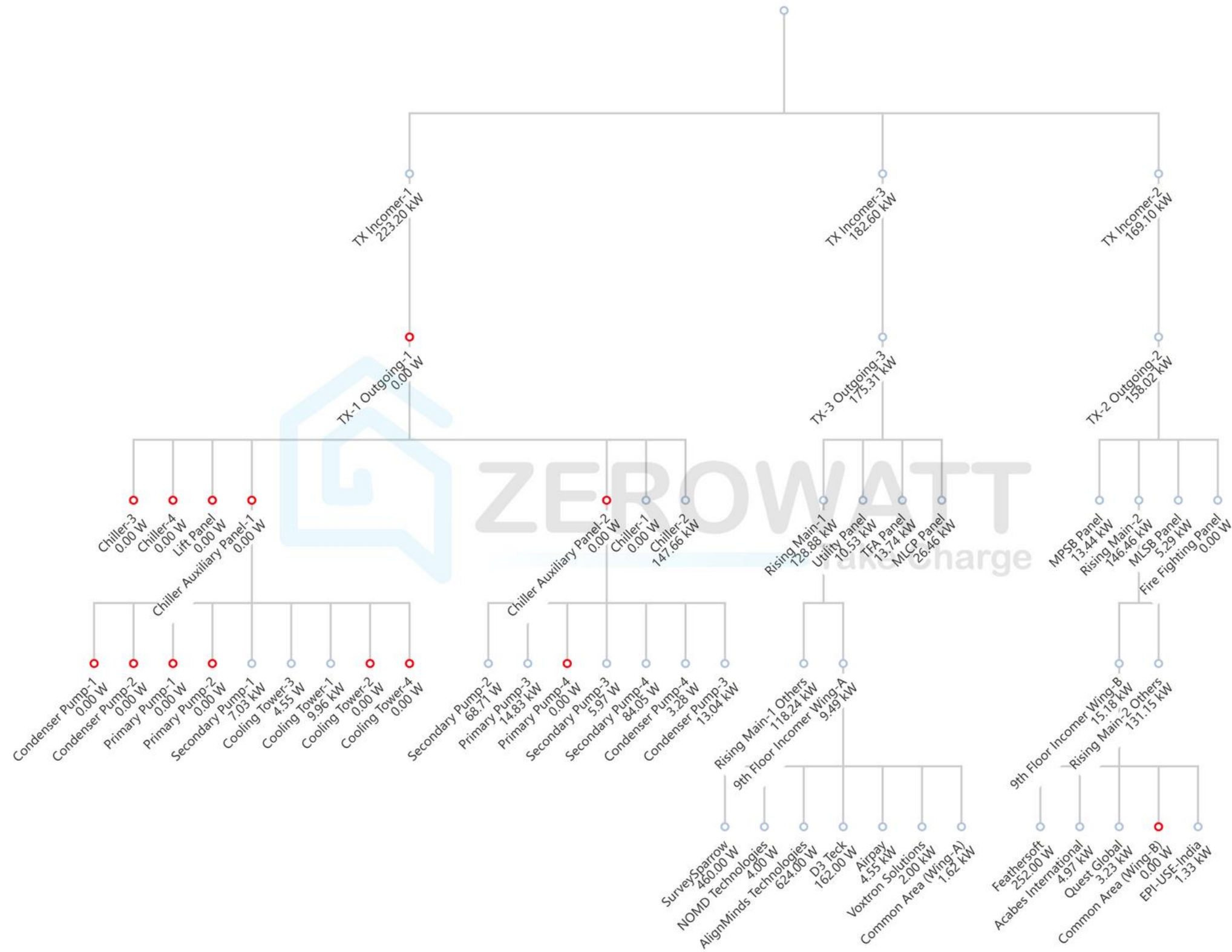
Energy Reports

Corporate Dashboards


Equipment Benchmarking



LIVE SINGLE LINE DIAGRAM



CONTINUOUS MONITORING



Billing period: 2024-03-01 - 2024-03-31


Hi alphageekdemo3

DASHBOARDS

- Main Dashboard
- Management Overview
- Shift Usage
- Zoe AI
- Device Dashboard
- Today Stats
- Insights
- Analytics
- Live SLD
- Water Dashboard
- Reports
- Max Demand Analyser

Usage Current bill cycle

1,53,500 units



Current Cost

₹22,08,600

Fixed Charge	Variable Charge
₹7,35,000	₹14,73,600

Forecasted Cost

₹26,11,175

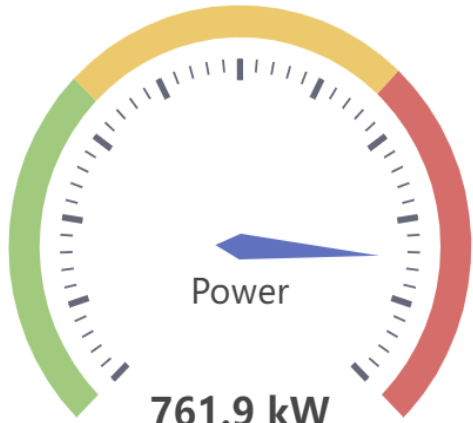
Fixed Charge	Variable Charge
₹7,35,000	₹18,76,175

Today's Usage

4,340 units

From Average	From Yesterday
↑ 8.03%	226.32% ↑

Power Consumption Live

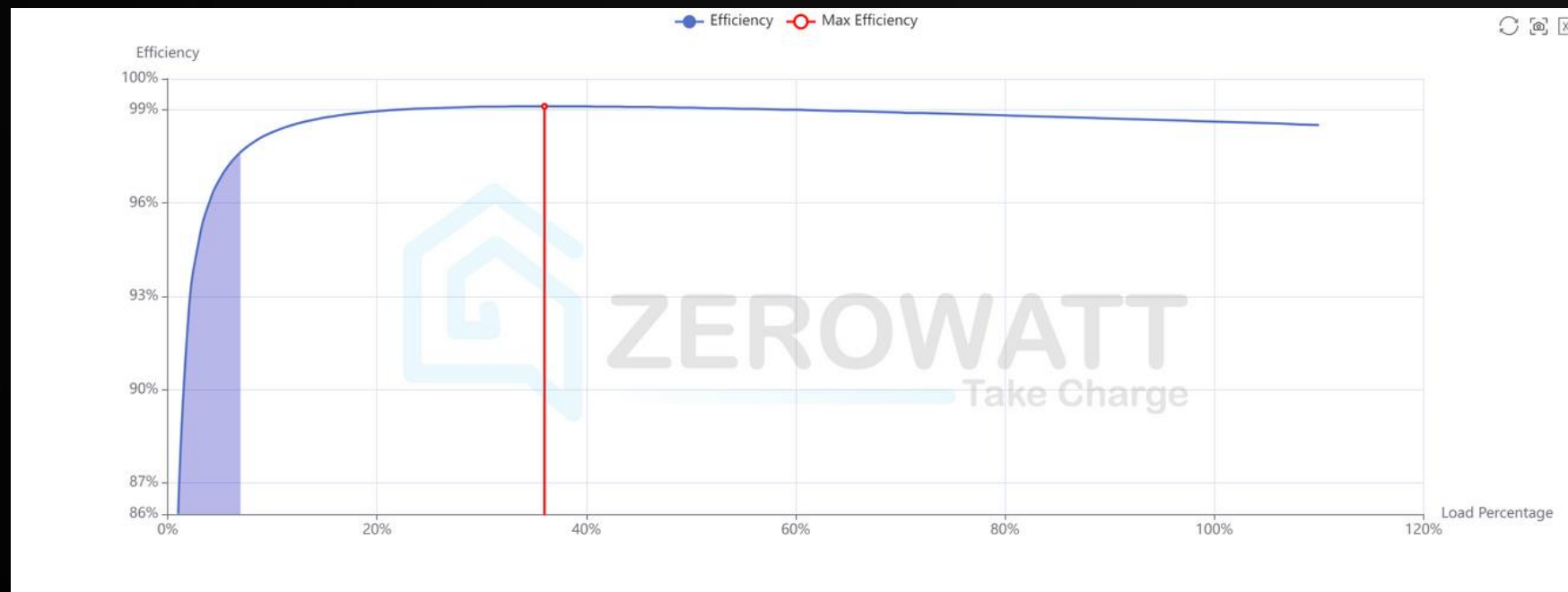


761.9 kW

Device Power Consumption Live

9th Floor Wing-A 26.1KW				Secondary Pumps 12.8KW			Primary Pumps 44.0KW			Condenser Pumps 28.6KW		Fire ... 0W	Powe... 14.4...
EPI-USE-I... 1.4KW	Feath... 4.8KW	Com... 2.6KW	Voxtr... 3.2KW	Conden... 6.0KW	Seco... 91W	Seco... 0W	Primary P... 14.7KW	Pri... 0W	Pri... 14....	Conden... 0W	Co... 13....	Fir... 0W	MP... 14....
Common ... 0W	Airpay 4.1KW		NOMD ... 0W	Seconda... 5W	Secondary Pu... 6.7KW		Primary P... 14.4KW			Conden... 15.6KW			
Quest Glo... 3.3KW	D3 Teck 1.5KW			Cooling Towers 19.5KW			Chillers 275.3KW			Lighting 4.2KW	Treated ... 14.7KW	Utilities 8.6KW	
Acabes In... 4.6KW	AlignMinds ... 630W	Survey... 0W		Cooling To... 9.5KW	Cooling To... 10.0KW	Chiller-1 135.2KW		Ch... 14...	Ch... 0W	MLSB Panel 4.2KW	TFA Pa... 14.7KW	Utilit... 8.6KW	
				Cooling To... 0W	Cooling To... 0W	Chiller-2 0W				Car Parking 48.0KW	Lifts 7.6KW		
						MLCP Panel 48.0KW							

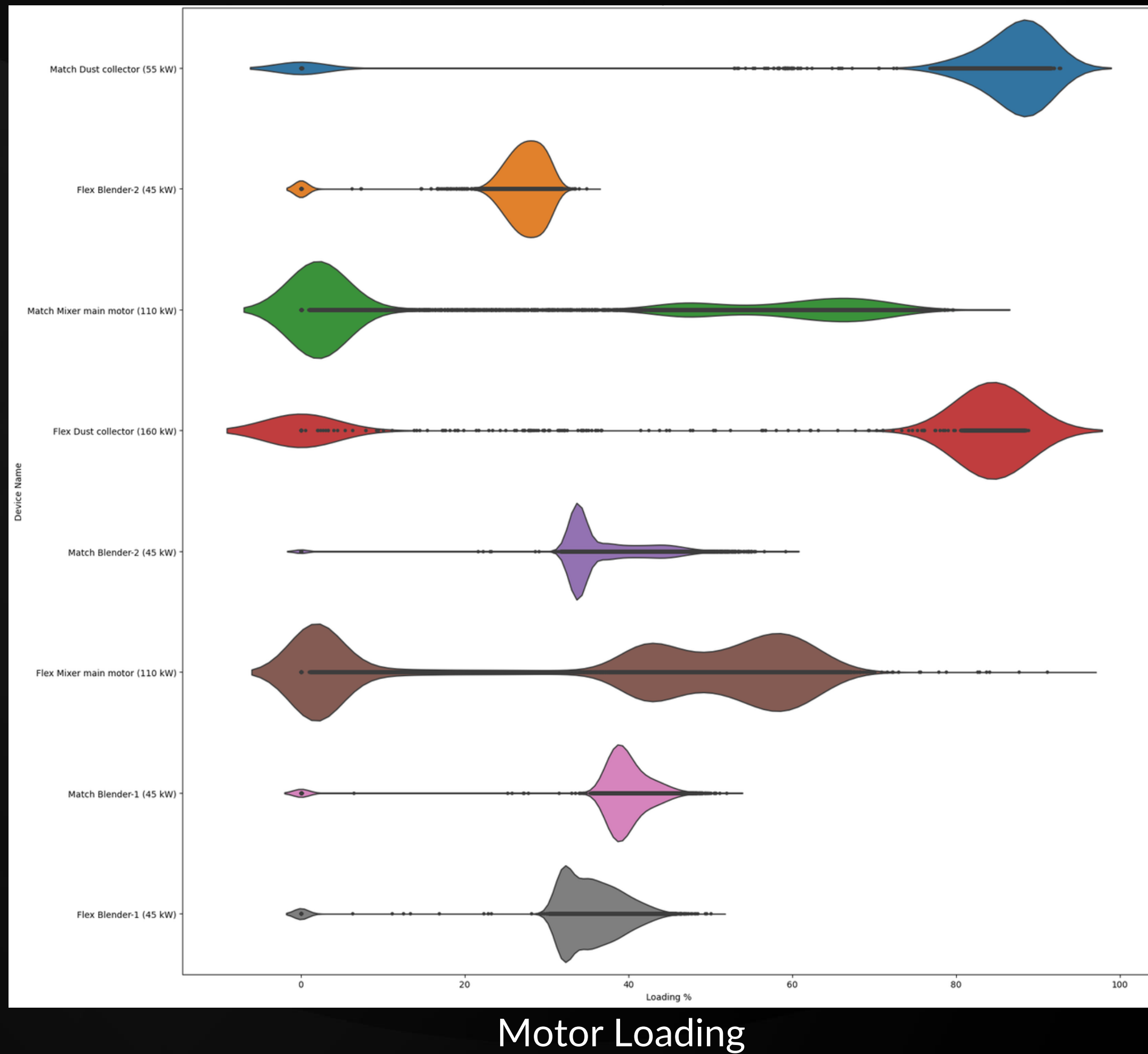
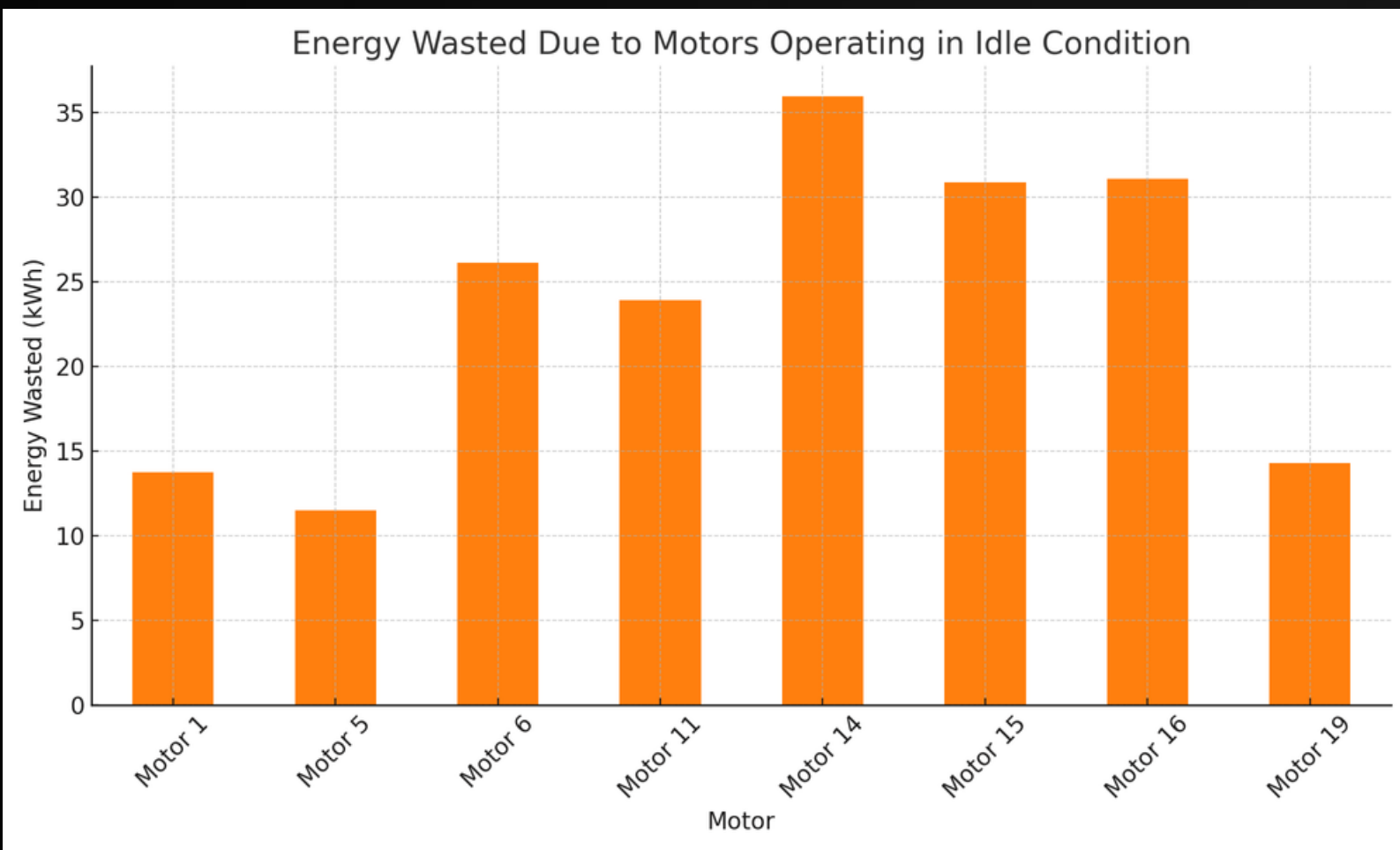
AUTOMATED ANALYSIS



Transformers

AUTOMATED ANALYSIS

AI processes this data to identify patterns and detect inefficiencies.



MONITORING NUMBER OF START-STOPS

Users receive immediate notifications about energy wastage, enabling swift corrective actions.

Starting Current Analyser Select a device and a time range to see the starting current of the device

Start Date: 01/05/2024 End Date: 16/07/2024

Device: Match Blender-1 (45 kW)

Sunday, 26/5/2024 +

Monday, 27/5/2024 +

Friday, 31/5/2024 -

4:02 am

4:18 am

6:16 am

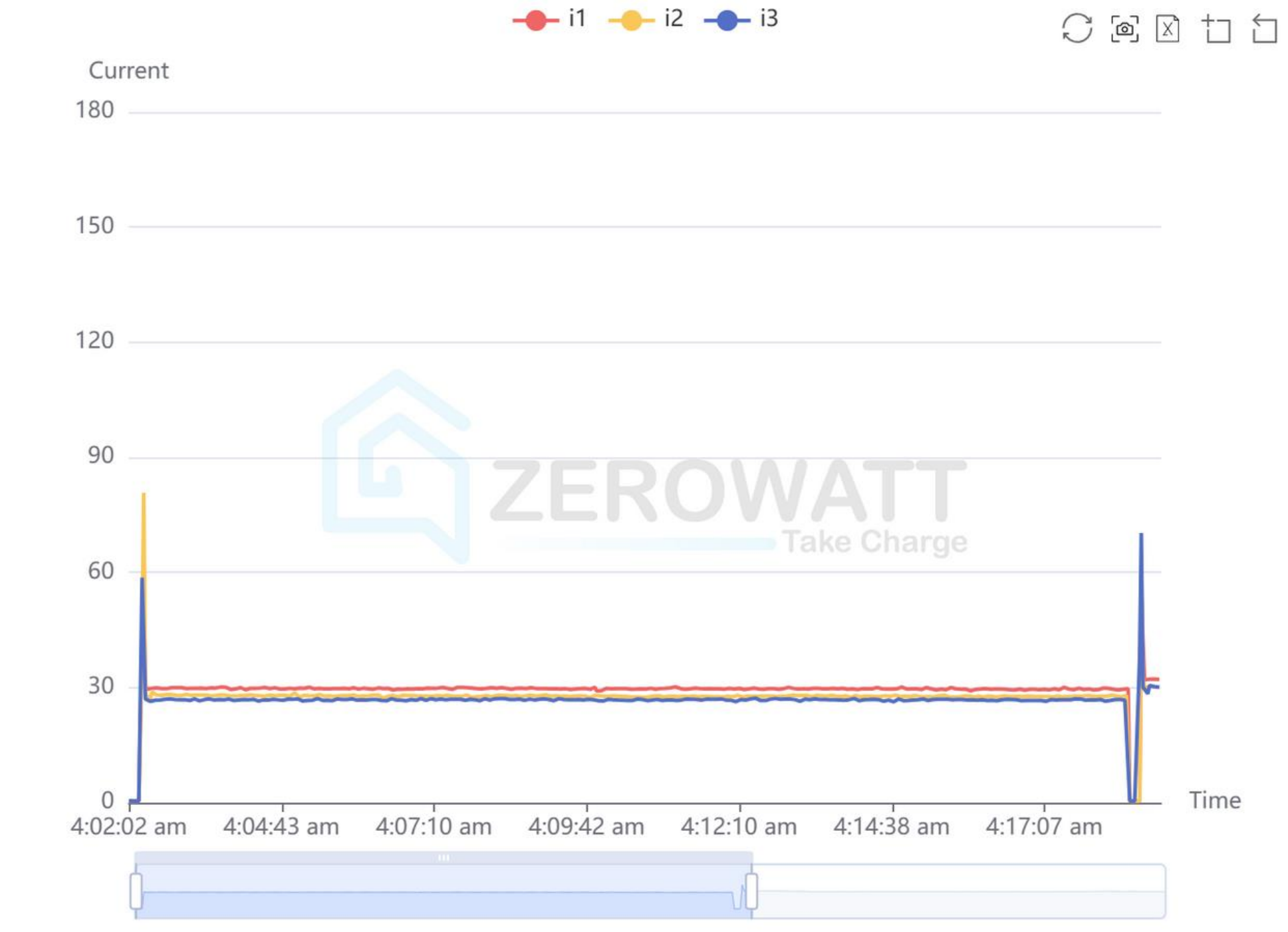
9:51 pm

Saturday, 1/6/2024 +

Sunday, 2/6/2024 +

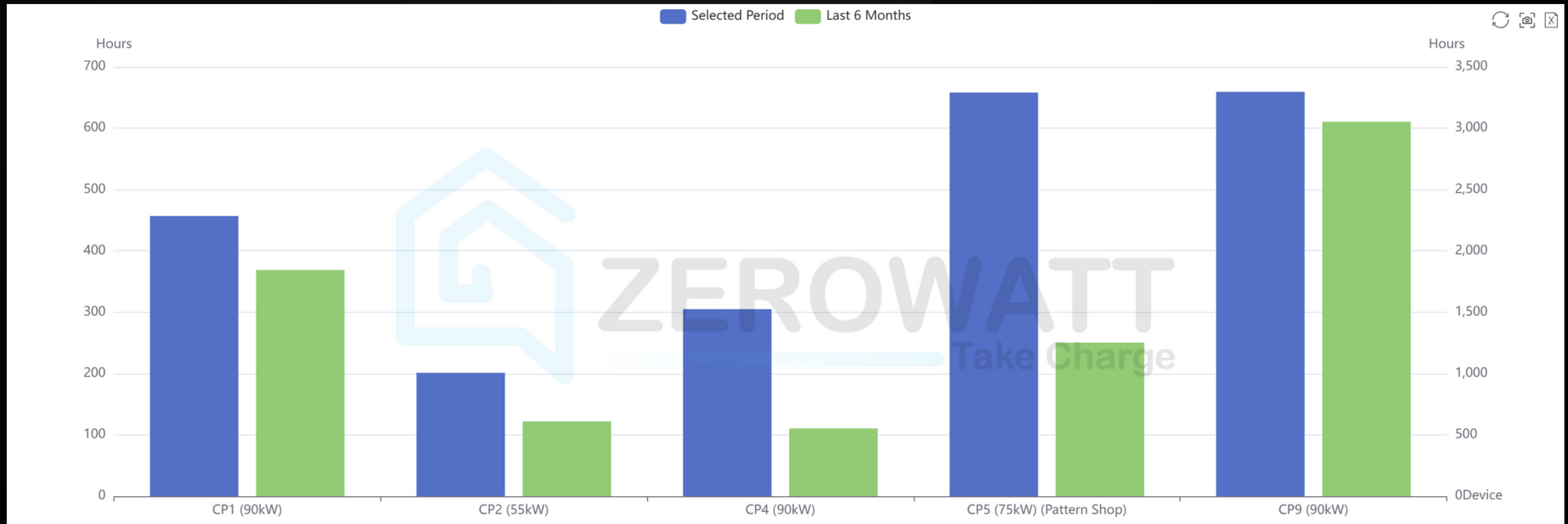
Monday, 3/6/2024 +

Tuesday, 4/6/2024 +



RUNNING HOURS OF VARIOUS SYSTEMS

Users receive immediate notifications about energy wastage, enabling swift corrective actions.

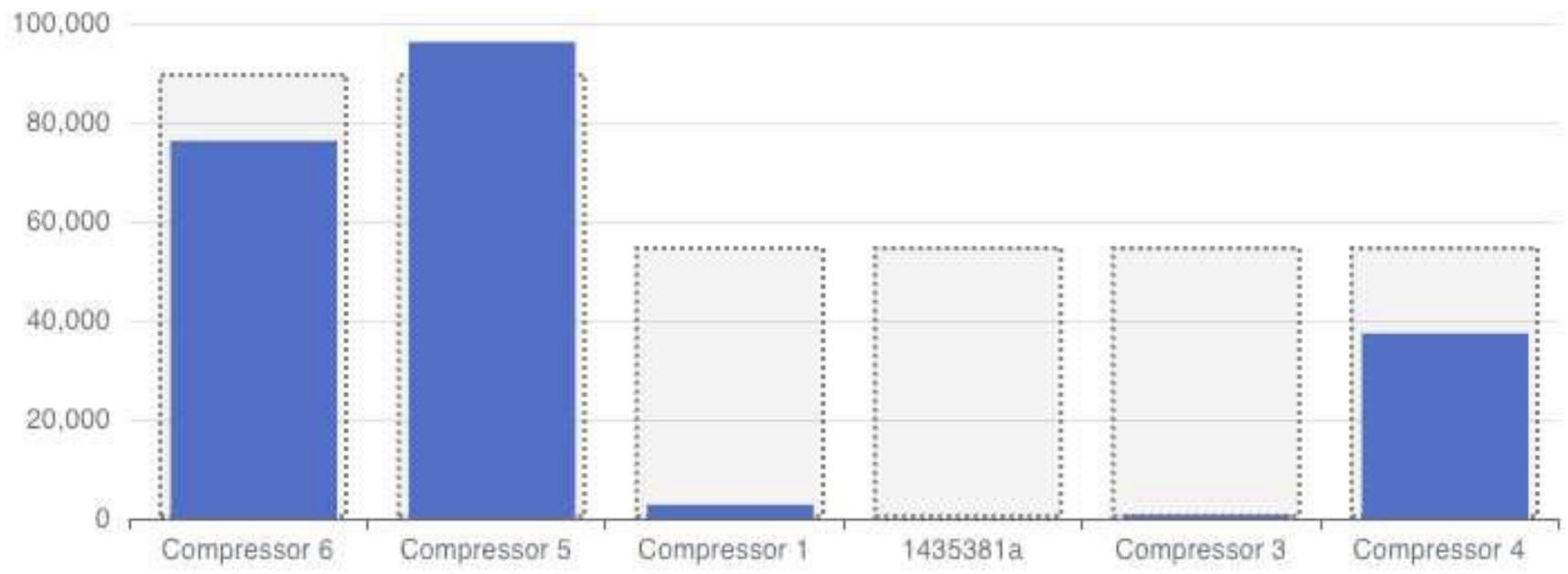


RUNNING HOURS OPTIMIZATION

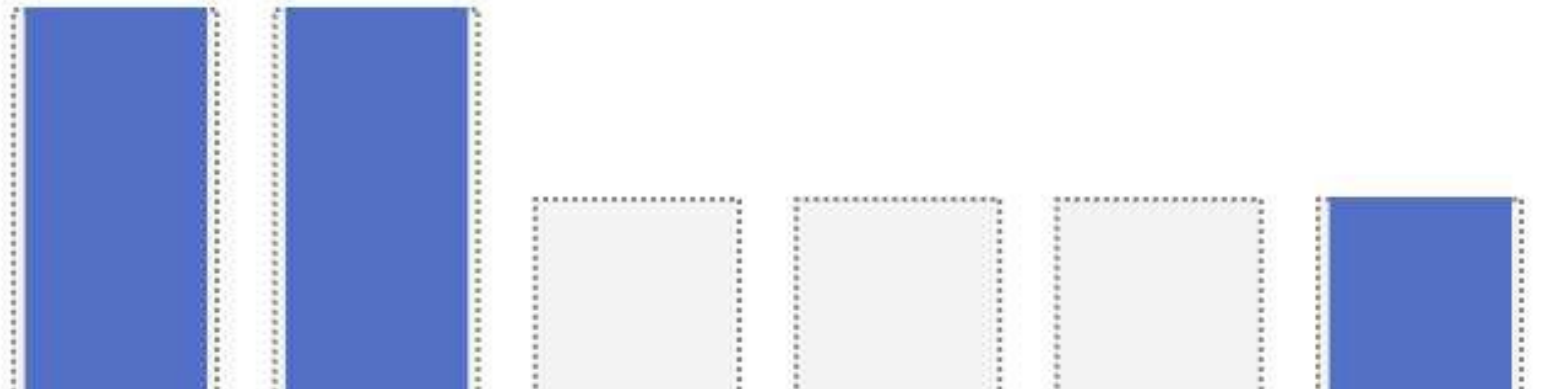
Available Insights

- 20/02/2024, 15:00:00
- 20/02/2024, 16:00:00
- 20/02/2024, 17:00:00
- 20/02/2024, 18:00:00
- 20/02/2024, 19:00:00
- 20/02/2024, 20:00:00
- 20/02/2024, 21:00:00
- 20/02/2024, 22:00:00
- 20/02/2024, 23:00:00
- 21/02/2024, 00:00:00
- 21/02/2024, 01:00:00
- 21/02/2024, 02:00:00
- 21/02/2024, 03:00:00
- 21/02/2024, 04:00:00

Running Status



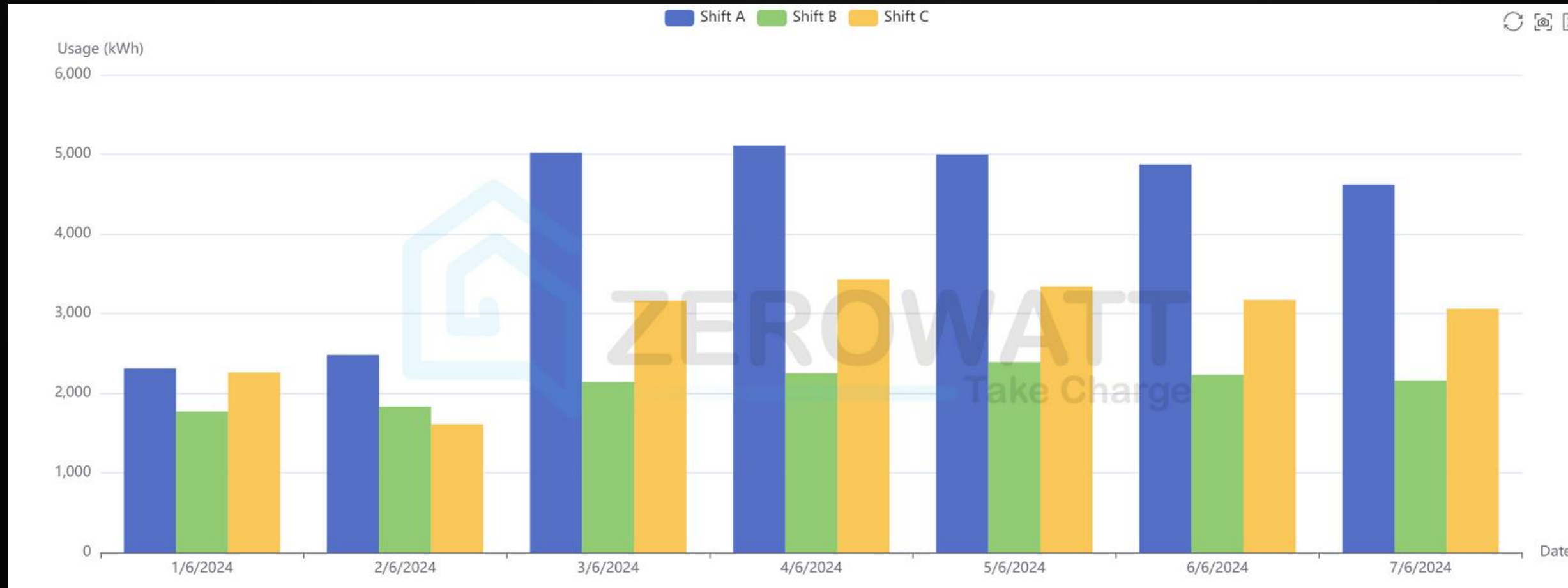
After Optimization



DEMAND MANAGEMENT

Max Demand Breakdown: Contributions of each device to the max demand.

Alerts will be triggered if the Max Demand is going to exceed.

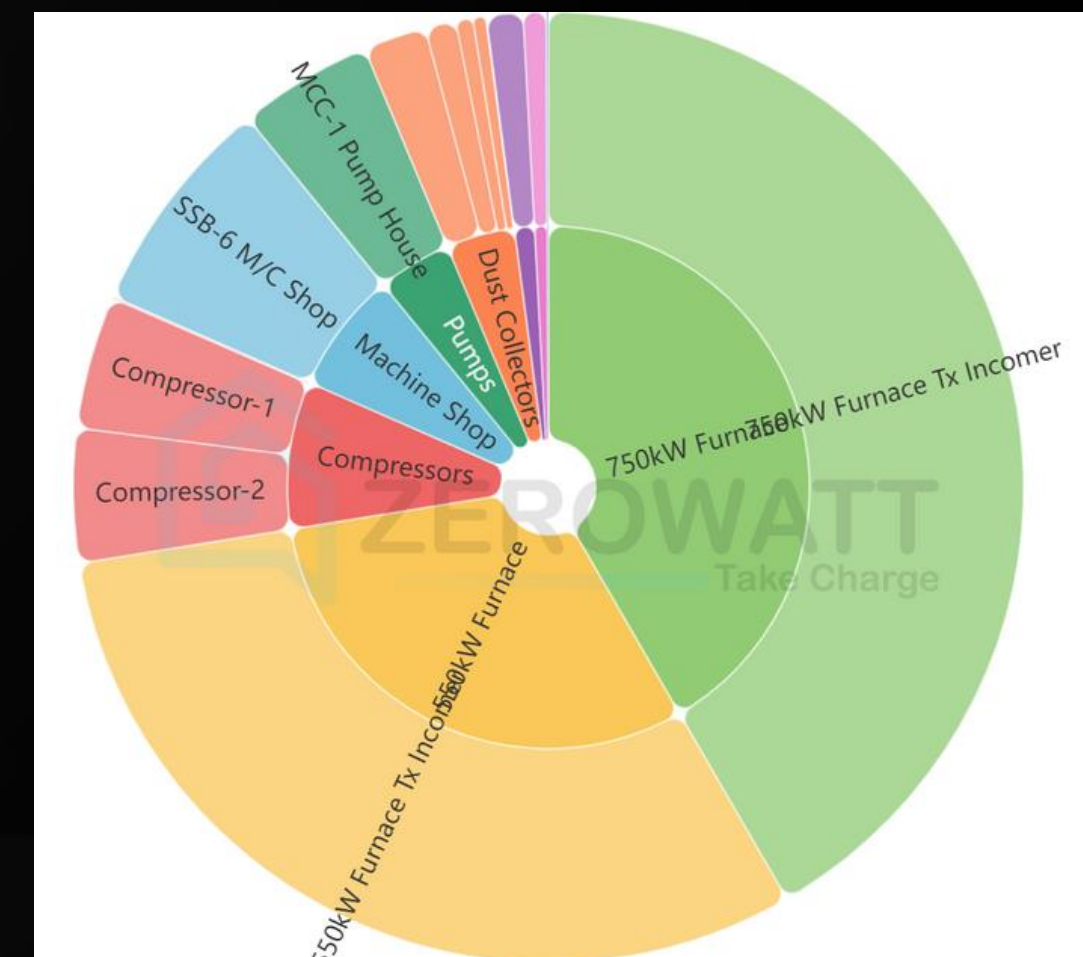


Shift wise usage can be monitored

Max Demand Top 25 fifteen-minute blocks with highest KVA

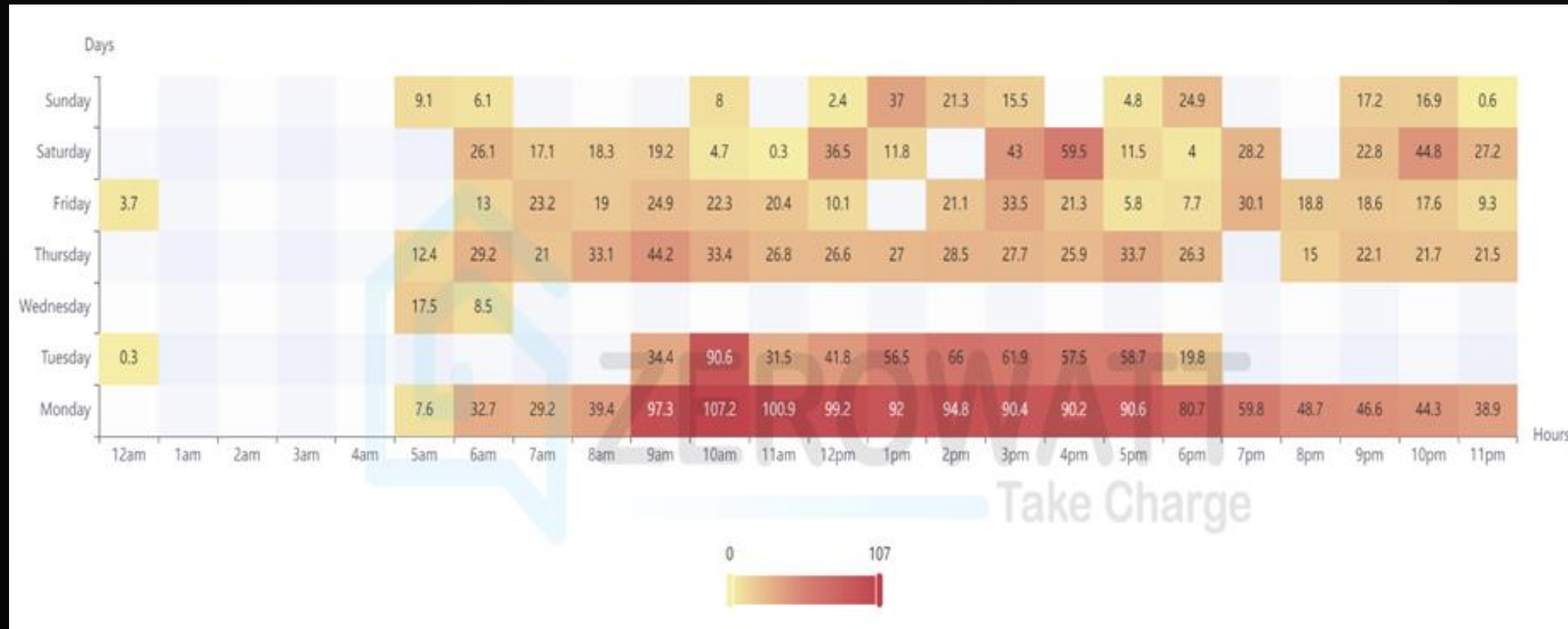
Date	Time	KVA ↓	View Breakdown
2024-07-15	11:30:00	2250.91 KVA	View Breakdown
2024-07-15	11:15:00	2235.01 KVA	View Breakdown
2024-07-15	14:00:00	2214.00 KVA	View Breakdown
2024-07-15	13:30:00	2160.27 KVA	View Breakdown
2024-07-15	11:45:00	2158.88 KVA	View Breakdown
2024-07-15	15:15:00	2124.48 KVA	View Breakdown
2024-07-15	15:45:00	2121.76 KVA	View Breakdown

1 row selected Rows per page: 100 1-25 of 25



ACTIONABLE INSIGHTS FOR CHILLERS

IT park: Chiller utilization



		Chiller 1	Chiller 2	Chiller 3	Chiller 4	
Power taken	MIN	80.31	16.53	134.46	43.62	kW
	MAX	209.26	214.53	205.36	213.42	kW
	AVG	114.48	130.65	150.09	127.56	kW



These chillers are suitable candidates for VFD retrofit (A single VFD with control system capable of handling transitions between chillers smoothly)

Anticipated annual energy savings = 155504 kWh
 Annual cost savings = Rs. 1317123/-
 Approximate investment required = Rs. 2000000/-
 Payback period = 1.6 years

REAL-TIME ALERTS


Users receive immediate notifications about energy wastage, enabling swift corrective actions.

- Motor 1 is Overload for more than 1 hour, Preventive maintenance should be carried out and reduce the risk of equipment failure.
- There is a 10% decrease in pump efficiency from the rated efficiency for this pump
- Motor 1 is taking vampire power for more than 1 hour, Switch it OFF if possible
- 4 number of compressors are working in unload condition for more than 15 Minutes. Switch OFF the smaller capacity compressor
- Custom made alerts: Voltage, Current, Power etc.

WHEN Total Energy Consumed BY UNITS BETWEEN AND ON EVERY


WHEN Hourly Consumption OF IS GREATER THAN UNITS ON EVERY

WHEN Deviation Of Hourly Consumption OF IS GREATER THAN PERCENTAGE ON EVERY

 Voltage Alert 31 min ago

CP4 (90kW)

Zerowatt has noticed that Voltage is greater than the set threshold of 250.0 for device CP4 (90kW)

 device_offline 23 min ago

Dear customer, the Zerowatt devices monitoring the following: CP2 (55kW) have not responded for the last 21 days. Please ensure that they are turned on and WiFi is connected.

TAILORED INSIGHTS

Actionable insights for facility Managers

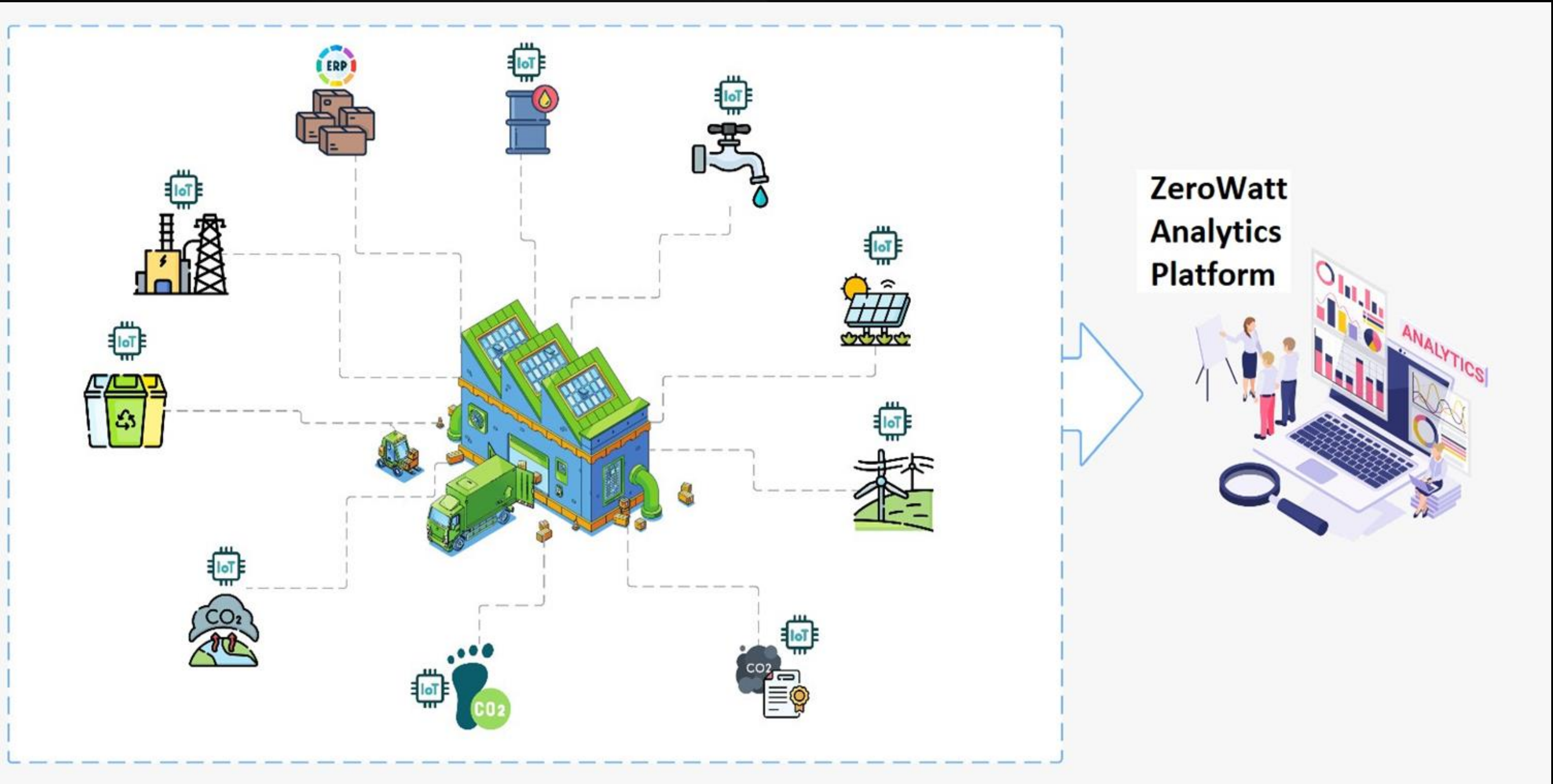
- Realtime Equipment Running Status
- High voltage/current/power Alerts
- Extra Equipment Running Alerts
- Running Hours Comparison
- Idling Equipment Alerts
- Unscheduled Equipment Operation Alerts
- Equipment health tracking
- Breakdown Alerts
- Shift-wise Electricity Consumption Tracking
- Pre- and Post-Maintenance Performance

Comparison

Strategic perspective for Higher Management

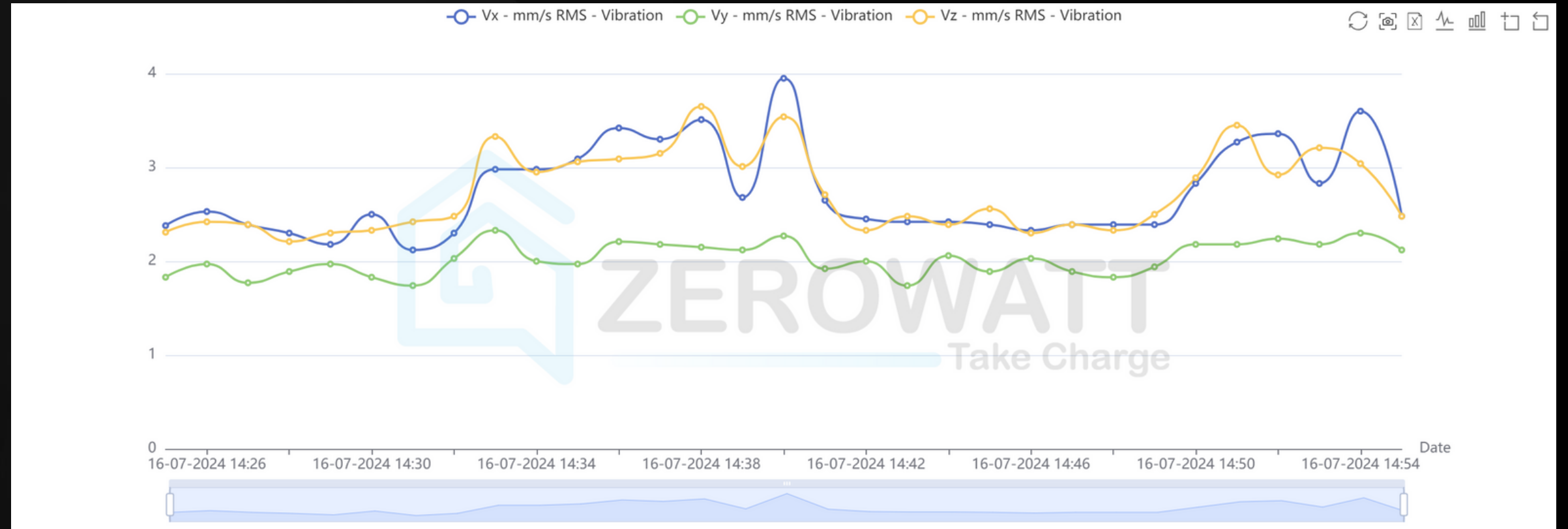
- Corporate Energy Intelligence Dashboard
- Real-Time Cost Tracking of Operations
- Automated MIS Reports
- Remote Process Monitoring and Management
- Electricity Bill Forecasting
- Month-over-Month Performance Comparison
- Industry Benchmarking
- Energy Efficiency Upgrade Recommendations
- Corporate Sustainability Reporting

ALL-IN-ONE PLATFORM

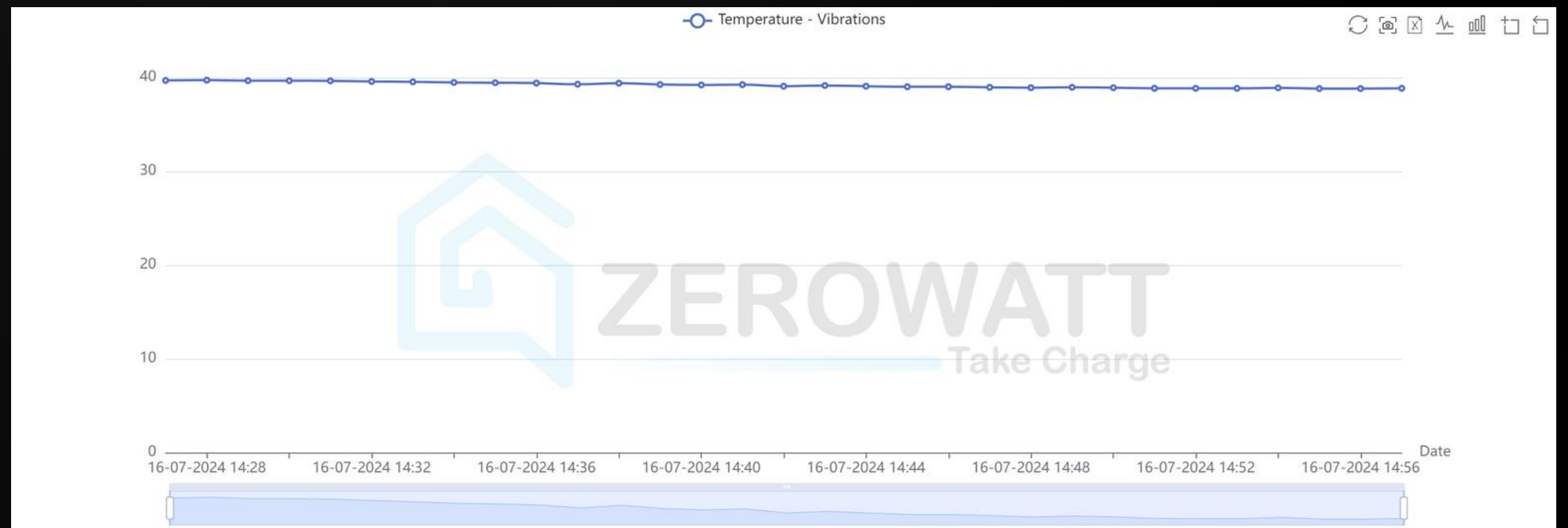


CONTINUOUS MONITORING OF MOTOR HEALTH

Vibration Monitoring

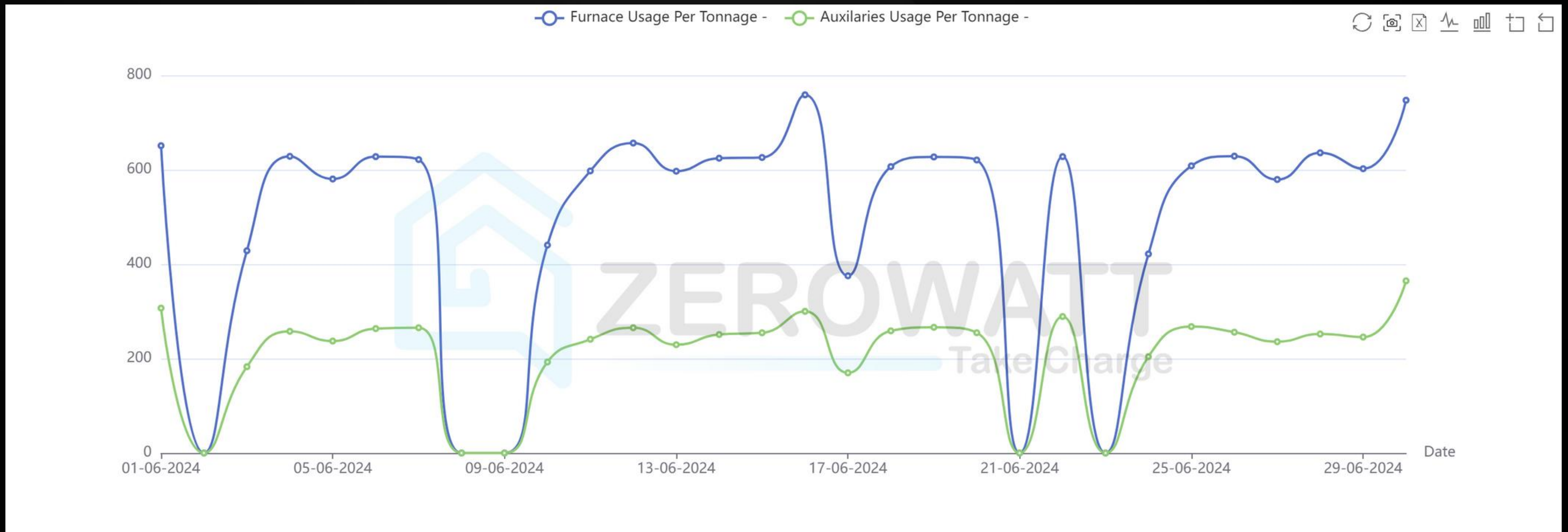


Temperature Monitoring



CONTINUOUS MONITORING OF FURNACE PERFORMANCE

Specific Energy Consumption of Furnaces can be compared with the Industrial Standards



WATER MONITORING

Water or any fuels such as diesel, natural gas etc can also be monitored on a continuous basis





Optimizes Electricity Cost

High electricity costs hinder profitability of businesses. 10% to 30% of electricity is wasted due to inefficiencies. Zerowatt helps to identify and avoid energy wastage.



Prevent Unplanned Outages

Equipment breakdowns result in huge productivity loss to businesses. Zerowatt can monitor equipment health and help to prevent breakdowns.



Empower Sustainability

Reducing carbon footprint is crucial for sustainability of businesses. Zerowatt provides a platform for monitoring and reporting carbon emissions.

Zerowatt is the embodiment of our unwavering conviction:

‘ Sustainability isn't an expense, it's an investment that pays dividends - for your business, for our shared future ’

Thank you for giving us the opportunity to build a sustainable future together

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