NEJAVI & MPH GLOBAL

AI FOR REFRIGERATION

Giving Grocers Millions

THE PROBLEM

Refrigeration Energy is Extremely Expensive

A Grocer's highest expense is energy with 50% - 60% from refrigeration. It is **hundreds of millions** of dollars annually per chain.

Optimization is an Afterthought.

Grocers barely maintain operability due to retiring workers and dwindling pool of experts. Manual optimization cannot compare to AI driven automation.

The Grocery Vertical is Technologically Stale.

Energy is skyrocketing, little has changed to reduce the billions in cost. Entrenched vendors solutions are weak at high cost.

THE SOLUTION – **D**ynamic **L**oad **H**armonization **(DLH)**

Energy Optimization through AI

SUBSCRIBE

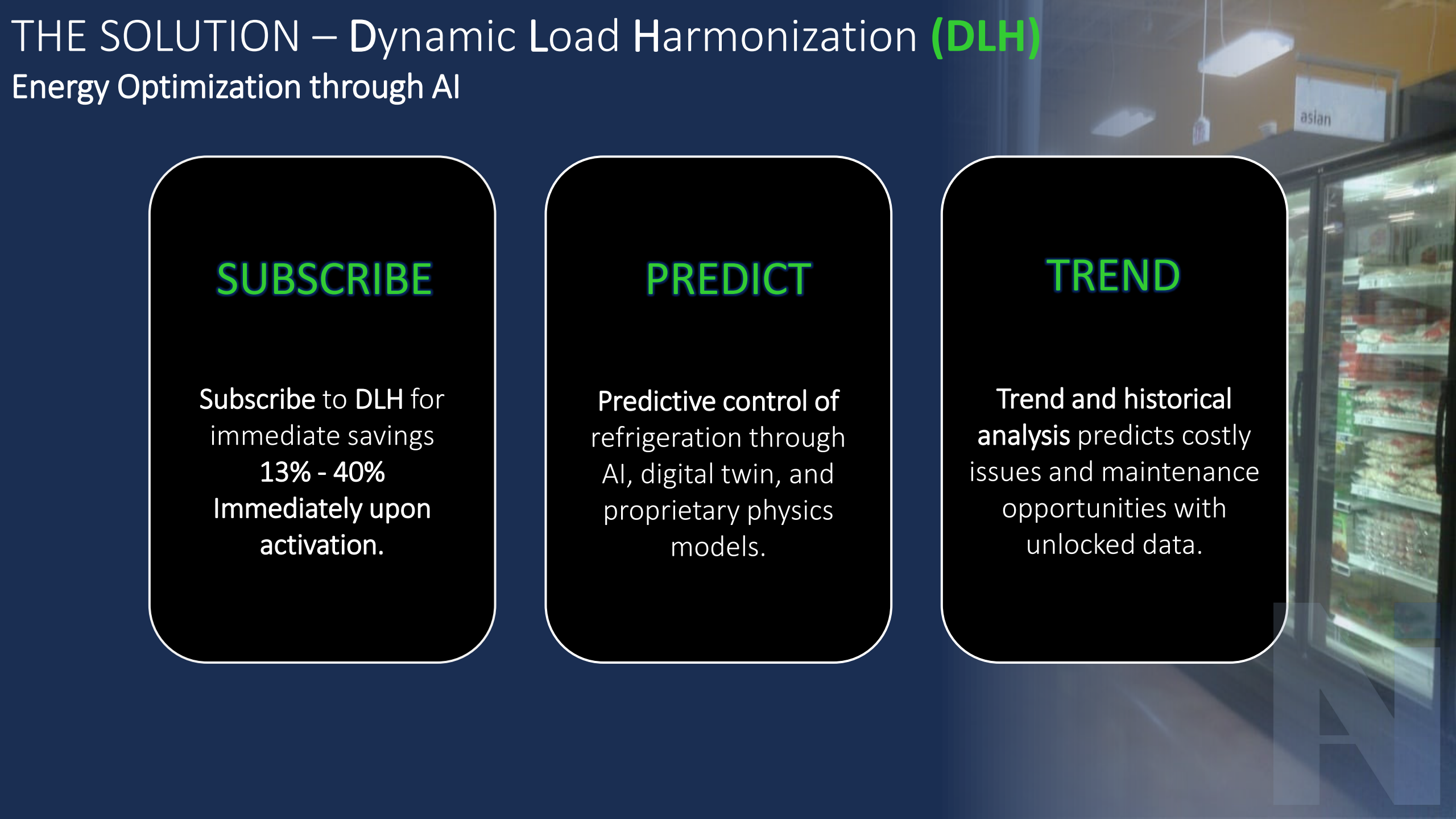
Subscribe to **DLH** for immediate savings **13% - 40%** **Immediately upon activation.**

PREDICT

Predictive control of refrigeration through AI, digital twin, and proprietary physics models.

TREND

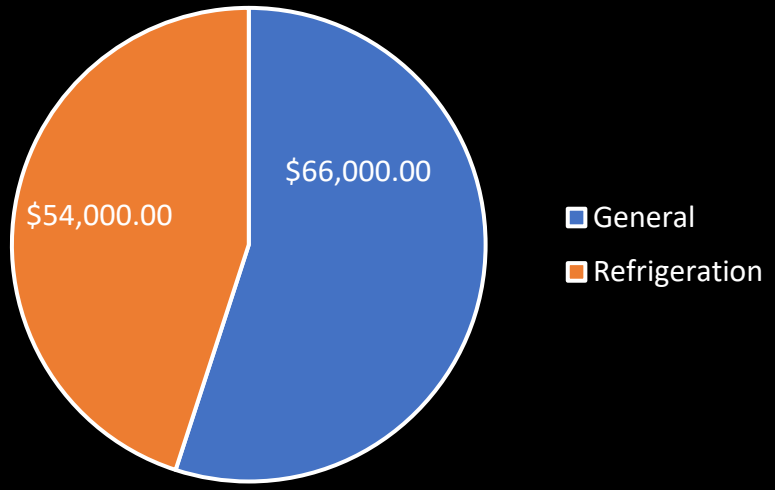
Trend and historical analysis predicts costly issues and maintenance opportunities with unlocked data.



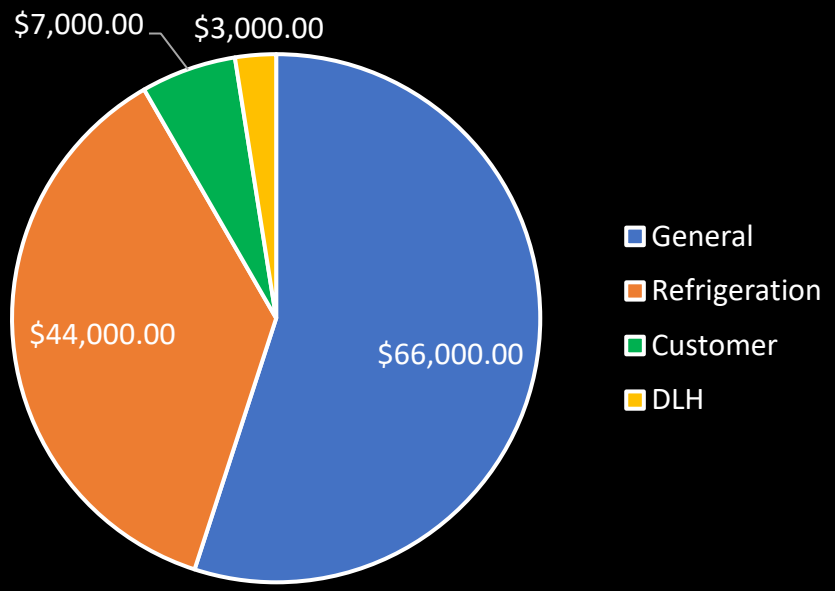
Creating a Greener Energy Future at Zero Cost to You

Current Monthly Energy Spend

100% Goes to the Utility



AI Store Energy Strategy



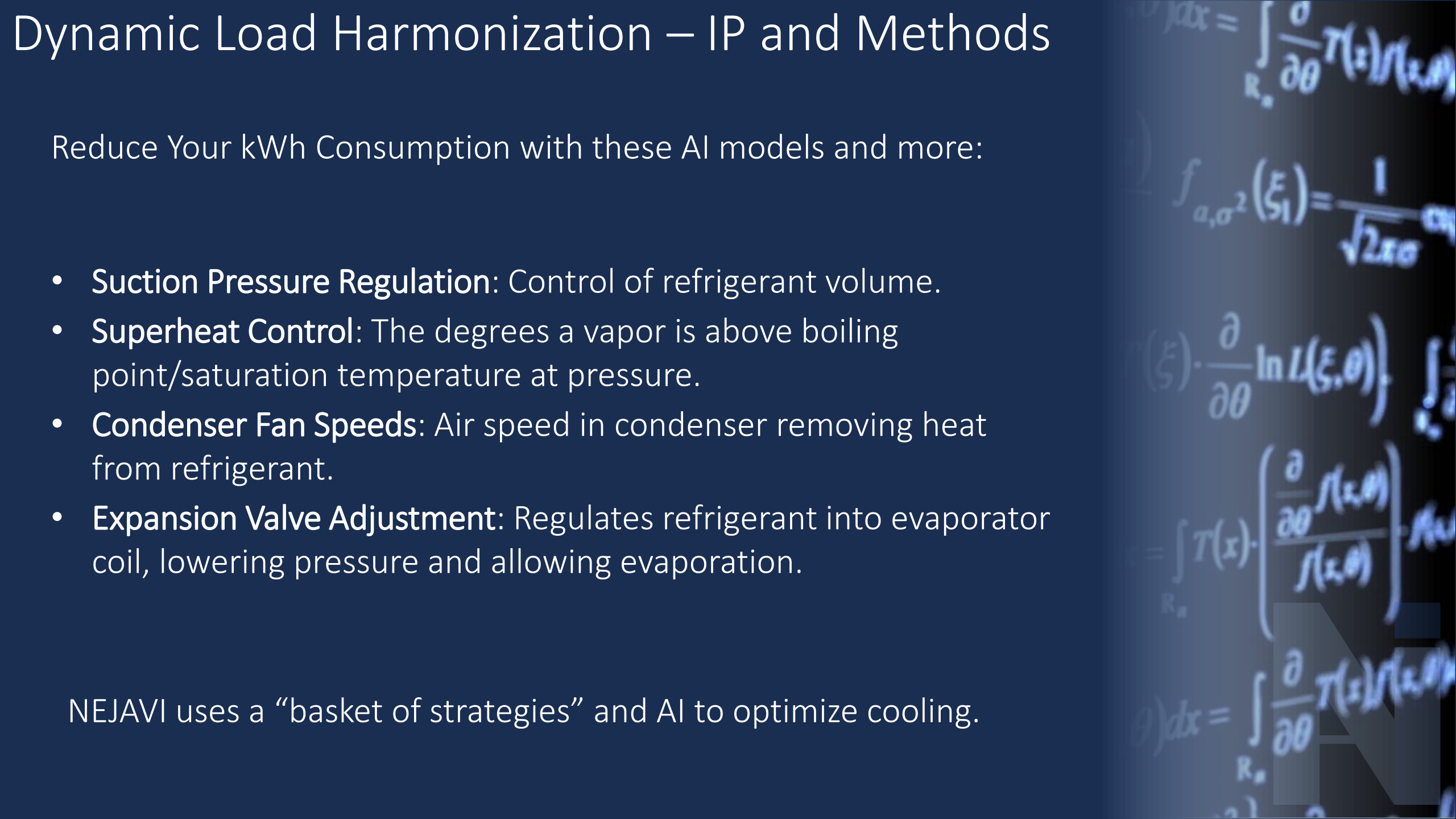
DLH gives some of your existing energy budget back to you.

Dynamic Load Harmonization – IP and Methods

Reduce Your kWh Consumption with these AI models and more:

- **Suction Pressure Regulation**: Control of refrigerant volume.
- **Superheat Control**: The degrees a vapor is above boiling point/saturation temperature at pressure.
- **Condenser Fan Speeds**: Air speed in condenser removing heat from refrigerant.
- **Expansion Valve Adjustment**: Regulates refrigerant into evaporator coil, lowering pressure and allowing evaporation.

NEJAVI uses a “basket of strategies” and AI to optimize cooling.



SECURITY

Standard cloud security protocols and will pass strict ITSEC requirements.

RECOVERY AND REDUNDANCY

During an internet outage, original set-points maintained, normal operation continues until recovery.

ONLINE VISIBILITY AND CONTROL

All sites and systems can be viewed online and controlled by administrators remotely.

The Solution – How It Happens

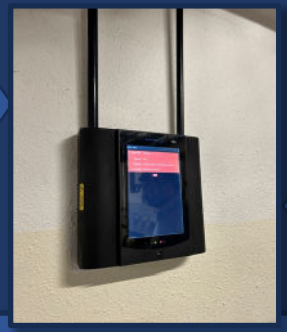
DLH CLOUD

Digital Twin

"The Strategies"
Active AI Models
Logic Rules
Static and Time Series AI
The Mimic (Digital Twin)

IP

Data



Network Access

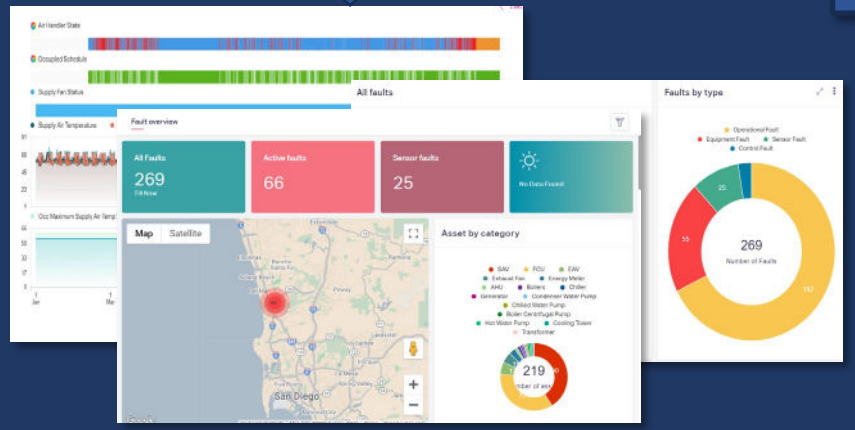
Data

Racks/Packs

Compressors

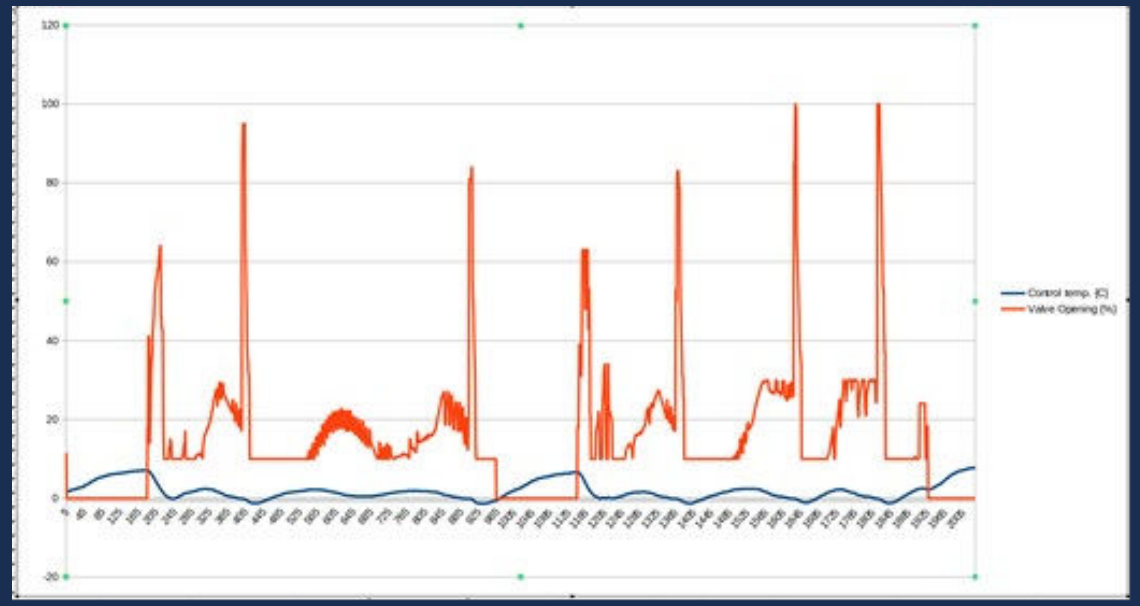
Minute by Minute Feedback Loop

Cases



AI in Action - Electronic Expansion Valve Strategy

Normal Operation

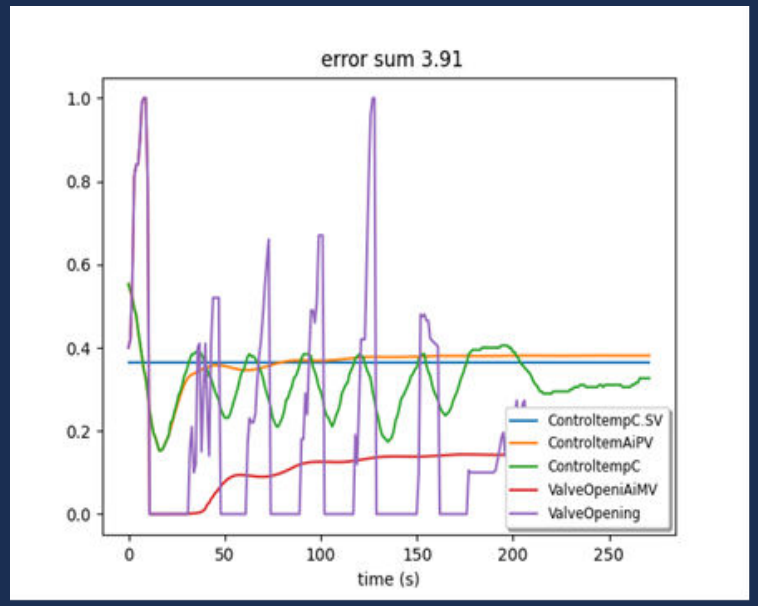


Red Line = Electronic Expansion Valve

Wide swings in open/closed cause:

- Wasted energy
- Temperature Fluctuations of degrees
- Unnecessary compressor wear

Surrogate Modeling - AI in Action



Red Line = AI Electronic Expansion Valve

Flattened open/closed causes:

- Reduced energy consumption
- Smaller Temperature Fluctuations
- Reduced compressor load

This is a single strategy in our group of more than 25 strategies.

Initial Discovery and Analysis

Cases With Faults

DAIRY-MILK-S36

JUICE-MARGARINE-S55

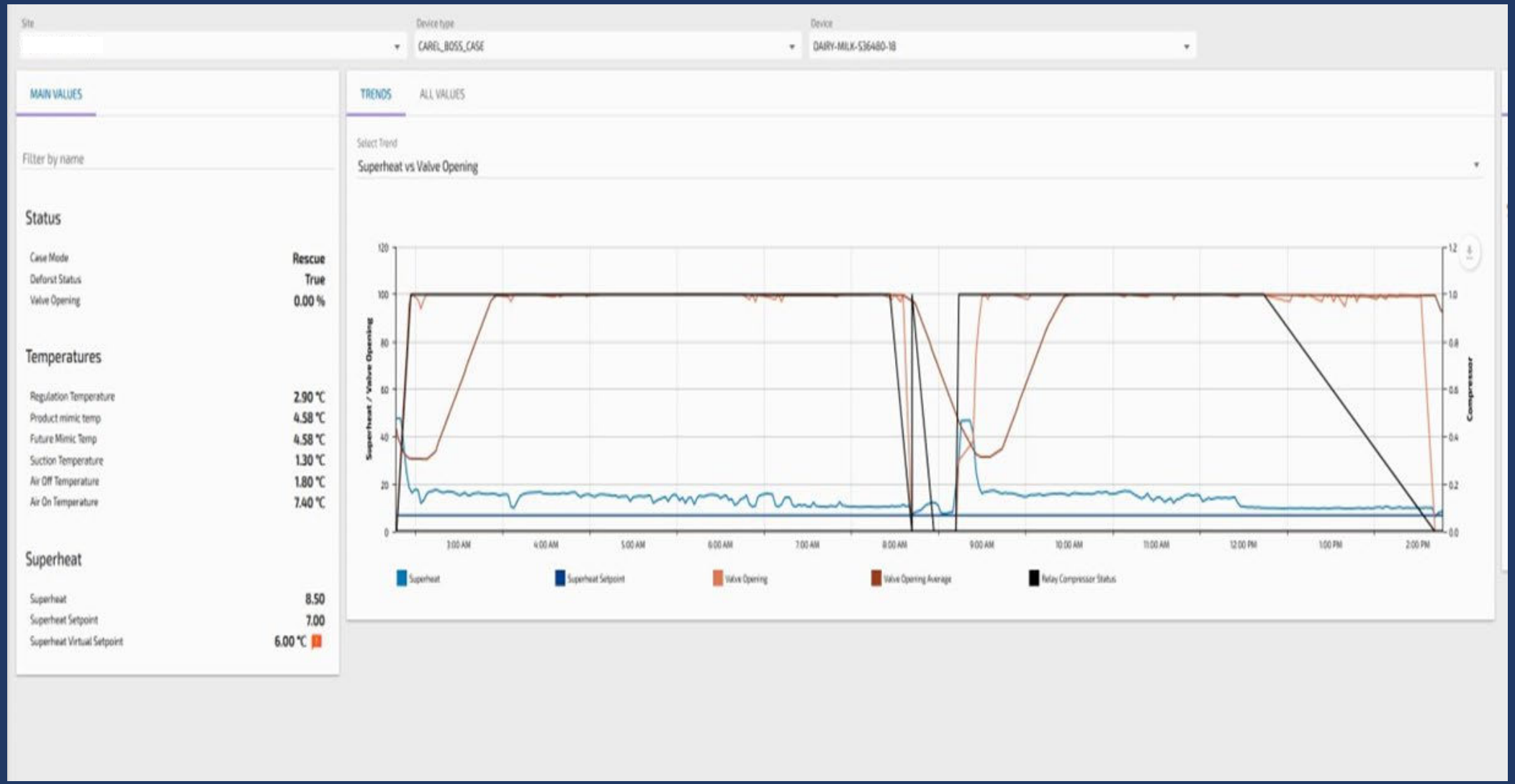
JUICE-S35

MEAT-364

MEAT-S36

MEAT-S36

YOGHURT-S36



DLH highlights cases with faults in preparation for optimization.

We Are Eager to Start Saving You Money.

Thank you

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