



Beyond the Hype: Real-World Lessons in Al for Energy Management

Speakers



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Agenda



- Background
- Problem
- Introducing Clive
- How AI is delivering operational savings
- Other AI use cases in the built environment
- Questions?

Before we start...



What do you do? What does your company do?

What is your experience with Ai?



What is your experience with Ai?











What is your experience with Ai?







Our Vision:



Sustainability integrated into every organisation's performance.



86,371 тсо2е

Emissions avoided



Savings achieved

Product Spotlight





Advanced utility management software

Actively reduce utilities with dynamic reporting, cutting-edge analytics, and smart, AI-driven fault detection.

Take control and make a difference.











Take control and make a difference.





Customer Devices







MODBUS RTU

MODBUS TCP

BACnet

LoRaWAN

4G/LTE

BraveGen Connect Software BraveGen Software Private IoT APN Private IoT APN Connection Persistence

Secondary Expansion Board



BraveGen

BraveGen Utility

BraveGen View

OTA Device Management

The Problem:

Alerting at scale was broken...

- Overwhelming Volume of Data 10,000+ loads generating continuous data – too much for manual analysis.
- Ineffective Filtering
 Legacy system used basic daily filters still produced too many irrelevant alerts.
- Manual Review Was Unsustainable A 5-person team could only review each load every 2–3 weeks.
- **Delayed and Missed Alerts** Critical issues weren't detected in time – or at all.
- **No Pattern Recognition** Meaningful trends and anomalies were easily overlooked.



Introducing:



Clever Logical Intelligent eVent Engine













- Autonomous Monitoring
- Issue Identification and Alerting
- Improve performance





What does Clive do?



- Clive is an AI and Machine Learning-powered utility anomaly detection system.
- It examines utility data across multiple resolutions and hierarchical levels (such as main incomers and sub-loads) to detect abnormal usage patterns.
- The system sends daily notifications to clients regarding any identified anomalies.



Statistical Anomalies ≠ Business or Operational Issues

- Clive AI understands different usage patterns.
 For example, energy usage during weekdays, afterhours, weekends, holidays etc.
- Not all statistical anomalies are business or operational anomalies

















Common Anomaly Patterns





What defines Effective Alert AI?



Key Components:

- Anomaly Detector
- Qualifying Model
- Impact Estimation Mode



How Clive is already making a difference:



- **Real-time monitoring** of refrigerant gas concentration levels with Carel GLD Small Series detectors.
- Immediate alert when a leak exceeds a set threshold.
- Proportional analogue output, providing precise leak data.
- Seamless integration with BraveGen Utility



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How Clive is already making a difference:





Compressor air leak



At **Christchurch site**, I guess the busy season has ended and all the load has returned to normal. However, I do notice a slight increase in the **Balance Load** (all the remaining unmetered area) over the **past weekend**. The usage has been consistent from 6 AM Saturday to 6 AM Monday at around **4.5 - 5.3 kW/hour**, compared to the typical weekend load of around 2.5 kW/hour. This suggests that some devices (likely lighting) were turned on at 6 AM Saturday and remained running. Would you possibly be aware of any activity?

If this were to happen every weekend, it could lead to an additional consumption of 5,928 kWh or \$1,304 annually. Please refer to the graph below:



Hi all

Due to an air leak, the compressor appears to have run for the whole weekend.

The leak was fixed on Monday morning, so the additional use should stop.

Regards

Water usage base load increase



Hi Johny,

The Te Wao Nui-Non Potable Water load remains a higher base load of **7** m³ per hour over the past week, despite another shut down from 10 pm Sunday - 7am Monday. Have you identified any potential reason for this?

Please refer to the graph below:



Hello,

Thanks for the email.

The shutdown on the 6^{th of} Feb, is due to the high filter pressure tripping, this is a safety feature to prevent over heating when water is trying to push through a dirty filter. This is common during the hotter seasons with all the duck weed etc.

The increase is due to filter being cleared and flow increased to suit our water needs.

Many thanks

Increase weekend usage



Hope you are all good.

It is noticed that the **base load** usage of **Lower Hutt** site during past weekend was **increased from a typical 7 kw/hour to 27 kw/hour**. This suggests that some additional devices were left running since Friday night. Would you possibly know the cause of it?

If this were to happen every weekend, it can result into an additional consumption of 49,920 kWh or \$10,982 annually. Please refer to the graph below:



Lights left on over the weekend



We noticed an increase in electricity usage for load G15 Omet Machine last weekend. The baseload increased by 2 kW compared to the previous week.

If this continues, it will result in an addition of 17,520 kWh or \$3,850 annually for energy consumption.

Would you please advise if this is expected or are there any operational changes on site that could lead to this increase?



Hi Sienna

Looks like the lamps were not turned off over the weekend. I will remind the operator.

Regards,

Changes usage pattern



We have observed changes in the usage patterns for **Services Building Sub B - Chiller 4** and **Services Building Sub C - Chiller 1 C1** between Monday, February 3rd and Wednesday, February 12th. During this period, the chillers were frequently turned on and off on an hourly basis. Are you aware of any changes or maintenance on the chillers that might explain this shift in usage patterns? Please refer to the graphs below.

Services Building Sub B - Chiller 4: The baseload dropped from 47 kW per hour to zero, and peak loads decreased from 64 kW per hour to 56 kW per hour.



Proof of usage reductions



Al in progress at BraveGen:







Al in progress at BraveGen:

High-Performing vs. Low-Performing Buildings

We leverage AI and data science to compare buildings, analysing over 40 factors, including Energy Usage per Net Lettable Area (NLA).

- Identify Inefficiencies: Outliers with higher energy consumption are key targets for operational improvements.
- Benchmarking: Allows comparison across buildings, portfolios, or industry standards.





Building Benchmarking



Where to start?



Where there is data too big to comprehend, there is a place for AI.

- Assess where AI can help your building operations.
- Start with data—what data do you have
- What is to big to bite off?
- What insights are you missing?
- Could AI help?

AI in Buildings



Key Takeaways



AI is already saving property owners money



It helps prevent costly maintenance surprises



Al-powered data automation reduces admin work



It's not a future technology—it's here, now.





Questions?