



Kitchen Oven Efficiency Audit Case Study

Data Data-driven load Optimisation unlocks savings

At a Glance

01 **10% Reduction**
In daily energy use

02 **180 - 82 hours**
per month Drop in Runtime

03 **16% of the time**
Oven operated on >80% capacity unnecessarily

04 **£16/month saved**
totaling £190/year

Issue:

The restaurant's kitchen oven was running inefficiently, frequently operating at over 80% of capacity, leading to energy spikes and increased strain on equipment. Energy consumption in April was high, and daily usage patterns indicated poor load distribution.

The Root Cause:

Overloading and inconsistent runtime, particularly during peak tariff hours, led to excessive consumption, faster wear, and missed savings opportunities. A lack of real-time monitoring and appliance-specific benchmarks caused the inefficiencies to go unnoticed.

What the data showed:

In April 2024, daily consumption averaged 39.4 kWh, with runtime of 180 hours and frequent spikes up to 9.2 kW. By May, after optimisation, these dropped significantly – energy use fell by 10%, runtime by 54%, and average power by 12%.

The Solution:

The OAK Network implemented load monitoring, usage alerting, and runtime optimisation based on the oven's specs. This led to improved scheduling and distribution of use, resulting in 88 kWh saved monthly, and £190 saved annually.

 [Learn More here](#)

Issue

80%

operating capacity of kitchen oven frequently used, increasing wear on equipment



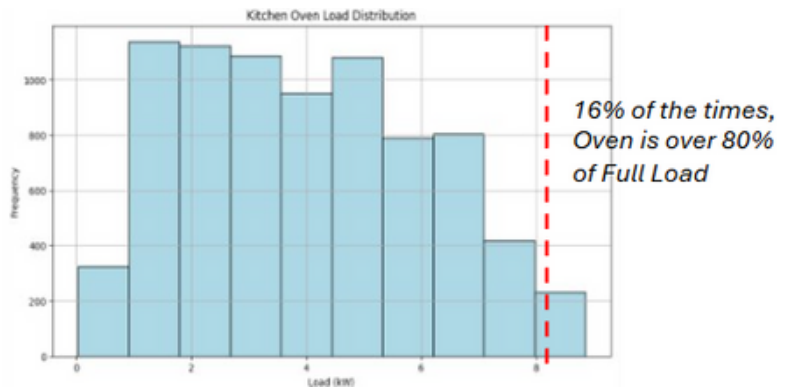
Average power usage decreased by 12%, from 5.21 kW in April to 4.58 kW in May, while maximum power remained nearly unchanged at around 9.2 kW

The Root Cause

The root cause was a lack of real-time load awareness and intelligent scheduling: with no usage-based tracking or threshold alerts, the oven spent 16% of its operating time above 80% capacity, frequently during peak tariff windows and overlapping other high kitchen loads. That combination of unnecessarily high-load runtime and missing optimization drove energy spikes, inflated bills, and accelerated equipment wear.

What the Data Showed

- ⓘ Oven runtime hours dropped sharply by 54% from 180.25 hours in April to 82.04 hours in May 2024, leading to a 10% reduction in daily average consumption (from 39.4 kWh to 35.6 kWh)



- 🏠 The oven operated above 80% of its full load 16% of the time, indicating frequent periods of high load despite overall reductions in usage

Metric	April 2024	May 2024	% Change
Daily Avg. Consumption	39.4 kWh	35.6 kWh	↓ 10%
Runtime Hours	180.25 hrs	82.04 hrs	↓ 54%
Runtime %	69%	63%	↓ 6%
Avg. Power (kW)	5.21 kW	4.58 kW	↓ 12%
Max Power (kW)	9.21 kW	9.2 kW	≈ Same

The Solution

By introducing intelligent runtime control, peak-load alerting, and load redistribution, the oven's energy profile was sharply improved: runtime dropped 54%, cutting monthly usage from 907 to 819 kWh (a ~9.7% reduction) and saving £16 a month (~£190 annually). Overload risk fell 16%, easing mechanical stress and extending equipment life, while usage benchmarks now give a basis for ongoing tuning.



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