



Six findings on an ordinary school: units and lights that never stand down, weekends run like weekdays, four afternoons that set the demand charge, and a night floor that has been creeping up all year.

Prepared by Pelorus Engineering · pelorusengineering.com · Generated October 4, 2026 · Timezone America/New_York

9 FINDINGS 8 priced	\$30,215 \$ / YR IDENTIFIED 365 days of data, ×1.00	138,239 KWH / YR	6 ACTIVE FAULTS see Faults & operations	\$27,095 HIGH CONFIDENCE	\$3,120 MEDIUM CONFIDENCE
\$0 LOW CONFIDENCE					

Estimated annual savings potential: \$30,215 across 9 findings.

How this building compares

53.8 KBTU / SQFT / YR (ELECTRICITY)	31.7 PEER MEDIAN (EDUCATION)	bottom quartile ~79TH PERCENTILE	453,142 kWh GAP TO REACH PEER MEDIAN / YR
--	---------------------------------	-------------------------------------	--

EIA CBECS 2018 electric-intensity percentiles by activity (electricity-only benchmark). based on a full year of data.

Data sources

Channels: the main meter (kWh) · Weather: upload · Schedule: upload

1 source file · 14 rows · 2024-11-01 → 2025-12-01.

Source ↓	Kind ↓	Origin ↓	Rows ↓	Channels ↓	Coverage ↓	Notes ↓
utility_export.csv	bills	utility	14	—	2024-11-01 → 2025-12-01	

Quick wins	
Top 3 findings by impact ÷ effort.	
1. MET-04: Weekend load shape looks like a weekday — Building	\$13,607
effort: medium · confidence: high · priority score: 6803.5	
2. MET-09: Sudden step change in baseline — Building	\$6,983
effort: medium · confidence: high · priority score: 3492.0	
3. MET-05: Anomalous peak demand event — Building	\$5,696
effort: medium · confidence: high · priority score: 2848.0	

Faults & operations

Fault detection found 6 active faults on 1 piece of equipment, worth an estimated \$27,095/yr (based on 365 days of trend data, annualized ×1.00). Estimates use type-default capacities — confirm the capacity profile to tighten them. Click a column to sort; "Show math" opens the calculation behind each estimate.

Synthetic school from the Energy Agent demo engine. Not a customer result.

#

FAULT

EQUIPMENT

SEVERITY

\$ / YR

CONFIDENCE

EVENTS

HOURS

STATUS

1

MET-04 Weekend load shape looks like a weekday

Building

high

\$13,607

high

102

2,448

open

▼ Show the math

\$13,607 \$/yr likely \$10,886–\$16,329 METER DIRECT

Basis: priced directly from the meter (see assumptions)

INPUT	VALUE	SOURCE
Days of data	365 days	span of the fault's channels
Blended electricity rate	\$0.155/kWh	from bills

STEP	RESULT	FORMULA
Wasted energy over the data window	87,901 kWh	priced directly from the meter (see assumptions)
Annualization factor	1 ×	365 / 365 days
Annualized energy	87,901 kWh/yr	wasted kWh × factor
Annual savings	13,607 \$/yr	annualized kWh × \$0.155/kWh

• 102 weekend days ran like weekdays: 125572 kWh above each day's overnight floor × 70% avoidable = 87901 kWh

• a scheduled weekend would run near the overnight floor; 30% is kept for legitimate weekend use

• 365 days of data

• priced directly from the meter

2

MET-09 Sudden step change in baseline

Building

medium

\$6,983

high

1

168

open

▼ Show the math

\$6,983 \$/yr likely \$5,587–\$8,379 METER DIRECT

Basis: priced directly from the meter (see assumptions)

INPUT	VALUE	SOURCE
Days of data	365 days	span of the fault's channels
Blended electricity rate	\$0.155/kWh	from bills

STEP	RESULT	FORMULA
Wasted energy over the data window	45,113 kWh	priced directly from the meter (see assumptions)
Annualization factor	1 ×	365 / 365 days
Annualized energy	45,113 kWh/yr	wasted kWh × factor
Annual savings	6,983 \$/yr	annualized kWh × \$0.155/kWh

• baseline stepped up 10.3 kWh/h × 8760 h × 50% assumed reversible

• 365 days of data

• priced directly from the meter

3

MET-05 Anomalous peak demand event

Building

high

\$5,696

high

2298

0

open

Synthetic school from the Energy Agent demo engine. Not a customer result.

▼ Show the math

\$5,696

\$/yr

likely \$4,557–\$6,836

METER DIRECT

Basis: priced directly from the meter (see assumptions)

INPUT ↓	VALUE ↓	SOURCE ↓
Days of data	365 days	span of the fault's channels
Blended electricity rate	\$0.155/kWh	from bills
STEP ↓	RESULT ↓	FORMULA ↓
Wasted energy over the data window	0 kWh	priced directly from the meter (see assumptions)
Annualization factor	1 ×	365 / 365 days
Annualized energy	0 kWh/yr	wasted kWh × factor
Demand-charge savings	5,696 \$/yr	priced directly from the meter (see assumptions)
Annual savings	5,696 \$/yr	annualized kWh × \$0.155/kWh + demand \$

• 40.4 kW of monthly peak attributable to spikes × \$11.75/kW-month (demand \$/kW from bills) × 12

• 365 days of data

• priced directly from the meter

4

MET-11 Lighting on after hours

Building

medium

\$521

high

19

65

open

▼ Show the math

\$521 \$/yr likely \$416–\$624

METER DIRECT

Basis: priced directly from the meter (see assumptions)

INPUT ↓	VALUE ↓	SOURCE ↓
Days of data	365 days	span of the fault's channels
Blended electricity rate	\$0.155/kWh	from bills
STEP ↓	RESULT ↓	FORMULA ↓
Wasted energy over the data window	3,363 kWh	priced directly from the meter (see assumptions)
Annualization factor	1 ×	365 / 365 days
Annualized energy	3,363 kWh/yr	wasted kWh × factor
Annual savings	521 \$/yr	annualized kWh × \$0.155/kWh

• 3736 kWh of lighting above the unoccupied norm over 65 h × 90% avoidable = 3363 kWh

• 365 days of data

• priced directly from the meter

5

MET-03 After-hours operation

Building

low

\$188

high

7

27

open

▼ Show the math

\$188 \$/yr likely \$151–\$226

METER DIRECT

Basis: priced directly from the meter (see assumptions)

INPUT :	VALUE :	SOURCE :
Days of data	365 days	span of the fault's channels
Blended electricity rate	\$0.155/kWh	from bills
STEP :	RESULT :	FORMULA :
Wasted energy over the data window	1,217 kWh	priced directly from the meter (see assumptions)
Annualization factor	1 ×	365 / 365 days
Annualized energy	1,217 kWh/yr	wasted kWh × factor
Annual savings	188 \$/yr	annualized kWh × \$0.155/kWh

- 1521 kWh above the normal unoccupied load over 27 h × 80% avoidable = 1217 kWh
- 365 days of data
- priced directly from the meter

6	MET-01 Excessive night / weekend baseload	Building	medium	\$99	high	5	8,787	open
---	---	----------	--------	------	------	---	-------	------

Synthetic school from the Energy Agent demo engine. Not a customer result.

↓

FAULT ↓

EQUIPMENT ↓

SEVERITY ↓

\$ / YR ↓

CONFIDENCE ↓

EVENTS ↓

HOURS ↓

STATUS ↓

▼ Show the math

\$99

\$/yr likely \$80–\$120

METER DIRECT

Basis: priced directly from the meter (see assumptions)

INPUT ↓	VALUE ↓	SOURCE ↓
Days of data	365 days	span of the fault's channels
Blended electricity rate	\$0.155/kWh	from bills

STEP ↓	RESULT ↓	FORMULA ↓
Wasted energy over the data window	642 kWh	priced directly from the meter (see assumptions)
Annualization factor	1 ×	365 / 365 days
Annualized energy	643 kWh/yr	wasted kWh × factor
Annual savings	99.46 \$/yr	annualized kWh × \$0.155/kWh

• 1285 kWh above the normal night load across 4 flagged nights × 50% achievable

• the nights are compared with the same weekday/weekend nights of the surrounding four weeks

• 365 days of data

• priced directly from the meter

Equipment scorecard

EQUIPMENT ↓	ACTIVE FAULTS ↓	\$ / YR ↓	FAULT HOURS ↓	WORST SEVERITY ↓
Building	6	\$27,095	28,967	high

Findings

WHOLE-BUILDING METER

\$13,607 HIGH

MET-04: Weekend load shape looks like a weekday — Building

WHAT IT MEANS

Saturday and Sunday demand profiles look almost identical to weekday profiles, despite no occupancy.

WHY IT MATTERS

An entire empty building running 7 days a week instead of 5 — a 40% energy overhang. Common in tenant-controlled HVAC and BMS schedules that were never set.

START HERE

Enable weekend setback. Verify schedule applies to all zones. Look for tenant overrides that defeat the BMS.

Detected 102 events totalling 2,448 h between 2025-01-04 and 2025-12-21.

Estimated savings: \$13,607 (87,903 kWh, confidence: high)

Show the math

\$13,607 \$/yr likely \$10,886–\$16,329 METER DIRECT

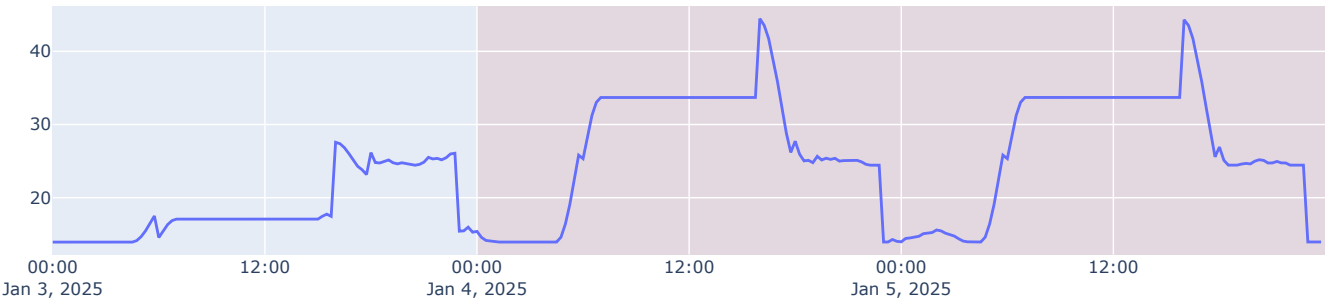
Basis: priced directly from the meter (see assumptions)

INPUT	VALUE	SOURCE
Days of data	365 days	span of the fault's channels
Blended electricity rate	\$0.155/kWh	from bills

STEP	RESULT	FORMULA
Wasted energy over the data window	87,901 kWh	priced directly from the meter (see assumptions)
Annualization factor	1 × 365 / 365 days	
Annualized energy	87,901 kWh/yr	wasted kWh × factor
Annual savings	13,607 \$/yr	annualized kWh × \$0.155/kWh

- 102 weekend days ran like weekdays: 125572 kWh above each day's overnight floor × 70% avoidable = 87901 kWh
- a scheduled weekend would run near the overnight floor; 30% is kept for legitimate weekend use
- 365 days of data
- priced directly from the meter

Evidence — MET-04 Building: around the longest event



Synthetic school from the Energy Agent demo engine. Not a customer result.

MET-09: Sudden step change in baseline — Building

WHAT IT MEANS

Baseload demand jumped discontinuously up or down on a specific date and didn't return.

WHY IT MATTERS

Step changes usually mark an event: equipment failure, retrofit, schedule change. Understanding which it was tells you whether to celebrate or fix.

START HERE

Identify the date, cross-reference with maintenance logs and commissioning records.

Detected 1 event totalling 168 h between 2025-03-22 and 2025-03-29.

Estimated savings: \$6,983 (45,114 kWh, confidence: high)

Show the math

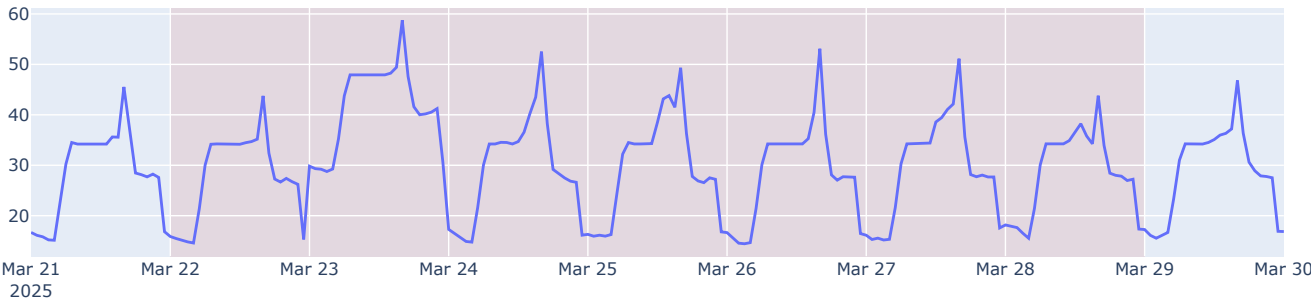
\$6,983 \$/yr likely \$5,587–\$8,379 METER DIRECT

Basis: priced directly from the meter (see assumptions)

INPUT	VALUE	SOURCE
Days of data	365 days	span of the fault's channels
Blended electricity rate	\$0.155/kWh	from bills
STEP	RESULT	FORMULA
Wasted energy over the data window	45,113 kWh	priced directly from the meter (see assumptions)
Annualization factor	1 × 365 / 365 days	
Annualized energy	45,113 kWh/yr	wasted kWh × factor
Annual savings	6,983 \$/yr	annualized kWh × \$0.155/kWh

- baseline stepped up 10.3 kWh/h × 8760 h × 50% assumed reversible
- 365 days of data
- priced directly from the meter

Evidence — MET-09 Building: around the longest event



MET-05: Anomalous peak demand event — Building

WHAT IT MEANS

A measured peak demand interval is far above what historical demand for that calendar position would predict.

WHY IT MATTERS

Utility demand charges are usually billed on the single highest 15-minute interval of the month. One bad peak can dwarf weeks of careful energy management.

START HERE

Investigate what was running during the peak interval — startup sequences, lighting test, HVAC pre-cool. Stagger startups to flatten the peak.

Detected 2298 events between 2025-08-18 and 2025-11-17.

Estimated savings: **\$5,696** (confidence: high)

Show the math

\$5,696 \$/yr likely \$4,557–\$6,836 METER DIRECT

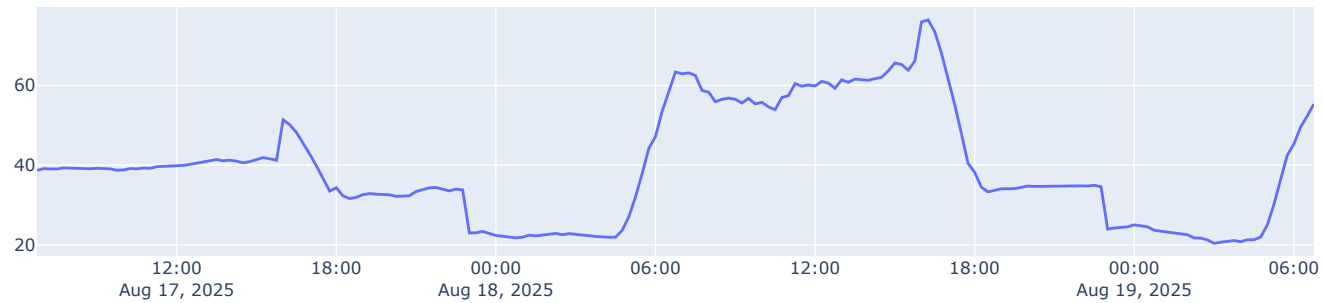
Basis: priced directly from the meter (see assumptions)

INPUT	VALUE	SOURCE
Days of data	365 days	span of the fault's channels
Blended electricity rate	\$0.155/kWh	from bills

STEP	RESULT	FORMULA
Wasted energy over the data window	0 kWh	priced directly from the meter (see assumptions)
Annualization factor	1 ×	365 / 365 days
Annualized energy	0 kWh/yr	wasted kWh × factor
Demand-charge savings	5,696 \$/yr	priced directly from the meter (see assumptions)
Annual savings	5,696 \$/yr	annualized kWh × \$0.155/kWh + demand \$

- 40.4 kW of monthly peak attributable to spikes × \$11.75/kW-month (demand \$/kW from bills) × 12
- 365 days of data
- priced directly from the meter

Evidence — MET-05 Building: around the longest event



Time-of-use load shifting on the main meter: on_peak runs at a 0.07 \$/kWh premium

32% of the main meter's energy lands in the on_peak period at \$0.144/kWh vs \$0.072/kWh off-peak. Shifting a tenth of it (pre-cooling, staggered equipment starts, rescheduling batch loads) is worth about \$2,564/yr.

Estimated savings: \$2,564/yr (confidence: medium)

Show the math

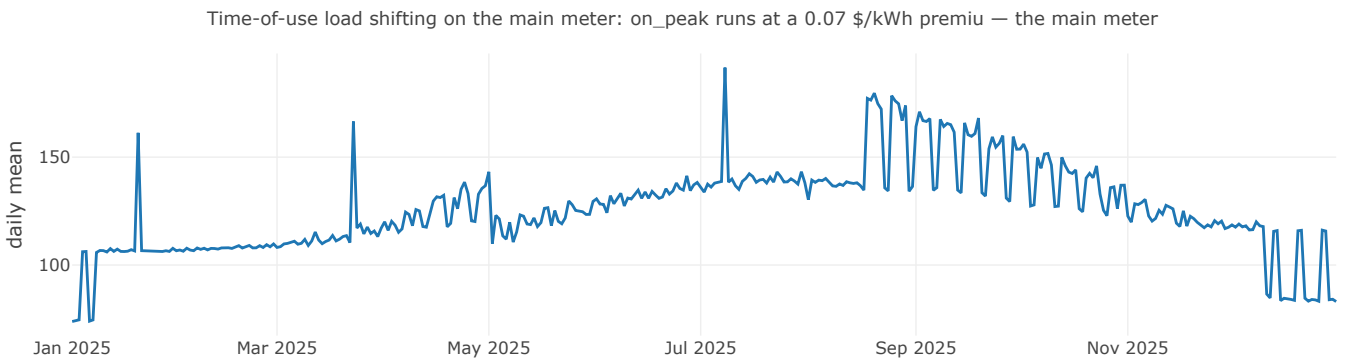
2,564 \$/yr RATE ENGINE

Basis: Move a share of on_peak consumption into the cheapest period (0.072 \$/kWh premium).

INPUT	VALUE	SOURCE
Annual on_peak energy	358,589 kWh/yr	simulated bill
Shiftable share (assumption)	0.1 ×	planning assumption — adjust in the workbook
on_peak premium over cheapest period	0.07 \$/kWh	rate schedule GSDT — General Service Demand, Time of Use

STEP	RESULT	FORMULA
Energy shifted	35,859 kWh/yr	onpeak_kwh × shift_fraction
Annual savings	2,564 \$/yr	shift_kwh × premium

- Assumes 10% of on_peak kWh can move (pre-cooling, staggered starts, batch loads).
- computed from the reviewed rate schedule and this run's metered intervals



MET-11: Lighting on after hours — Building

WHAT IT MEANS

The lighting submeter runs well above its normal unoccupied level outside the occupancy schedule.

WHY IT MATTERS

Lighting left on after hours is close to 100 % avoidable — schedules, sweeps and occupancy sensors are the cheapest measures in the building.

START HERE

Add or fix the lighting sweep / schedule in the lighting control panel or BAS; check for zones on manual override.

Detected 19 events totalling 65 h between 2025-01-20 and 2025-08-27.

Estimated savings: \$521 (3,363 kWh, confidence: high)

▼ Show the math

\$521 \$/yr likely \$416–\$624 METER DIRECT

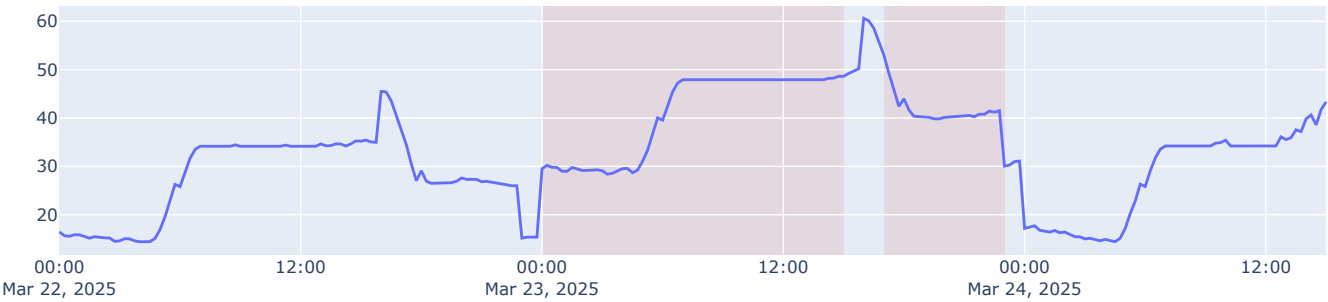
Basis: priced directly from the meter (see assumptions)

INPUT	VALUE	SOURCE
Days of data	365 days	span of the fault's channels
Blended electricity rate	\$0.155/kWh	from bills

STEP	RESULT	FORMULA
Wasted energy over the data window	3,363 kWh	priced directly from the meter (see assumptions)
Annualization factor	1 ×	365 / 365 days
Annualized energy	3,363 kWh/yr	wasted kWh × factor
Annual savings	521 \$/yr	annualized kWh × \$0.155/kWh

- 3736 kWh of lighting above the unoccupied norm over 65 h × 90% avoidable = 3363 kWh
- 365 days of data
- priced directly from the meter

Evidence — MET-11 Building: around the longest event



Demand ratchet penalty on the main meter: 2 month(s) billed above measured demand

The schedule ratchets billing demand to 80% of the trailing peak. In 2 of 12 months the main meter was billed for more kW than it used (worst: 260 kW billed vs 226 kW measured, 2025-12) — about \$556/yr. One high-peak month costs money for a year; peak-limiting during the ratchet-setting season removes it.

Estimated savings: \$556/yr (confidence: medium)

Show the math

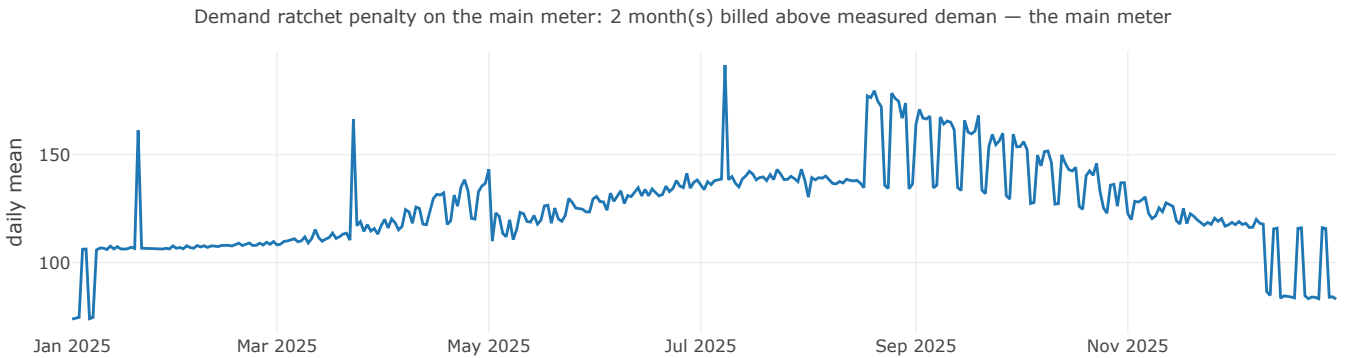
556 \$/yr RATE ENGINE

Basis: Months billed on the ratchet floor pay for demand that never occurred; trimming the annual peak lowers the floor.

INPUT	VALUE	SOURCE
Σ (billed – measured) kW across floor-bound months	47.3 kW-mo	simulated bill (conservative: measured proxied by the month's peak)
Demand rate	11.75 \$/kW	rate schedule GSDT — General Service Demand, Time of Use

STEP	RESULT	FORMULA
Observed ratchet penalty	556 \$	penalty_kw_months $\times$ demand_rate
Annualized penalty	556 \$/yr	penalty_usd $\times$ 12 / 12

- Fully avoiding the penalty requires holding the annual peak below the ratchet-setting month — see the demand chart.
- computed from the reviewed rate schedule and this run's metered intervals



MET-03: After-hours operation — Building

WHAT IT MEANS

Building demand is well above baseload during hours the schedule says it should be off.

WHY IT MATTERS

Every hour over baseload is paid-for conditioning of an empty building. Together with MET-01, the single biggest controllable energy story in most commercial buildings.

START HERE

Check BMS schedules, tenant override panels, after-hours request logging, and HVAC zone schedules.

Detected 7 events totalling 27 h between 2025-01-20 and 2025-08-18.

Estimated savings: **\$188** (1,217 kWh, confidence: high)

Show the math

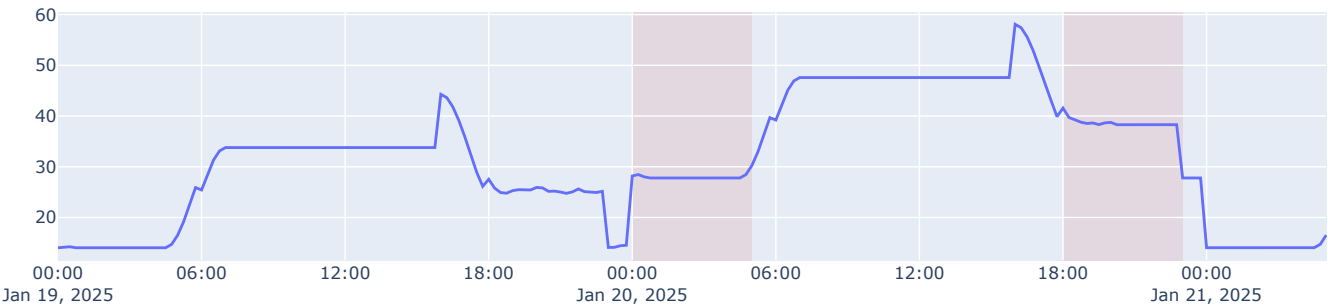
\$188 \$/yr likely \$151–\$226 METER DIRECT

Basis: priced directly from the meter (see assumptions)

INPUT	VALUE	SOURCE
Days of data	365 days	span of the fault's channels
Blended electricity rate	\$0.155/kWh	from bills
STEP	RESULT	FORMULA
Wasted energy over the data window	1,217 kWh	priced directly from the meter (see assumptions)
Annualization factor	1 ×	365 / 365 days
Annualized energy	1,217 kWh/yr	wasted kWh × factor
Annual savings	188 \$/yr	annualized kWh × \$0.155/kWh

- 1521 kWh above the normal unoccupied load over 27 h × 80% avoidable = 1217 kWh
- 365 days of data
- priced directly from the meter

Evidence — MET-03 Building: around the longest event



MET-01: Excessive night / weekend baseload — Building

WHAT IT MEANS

Baseload power during unoccupied hours is higher than expected for the building's size and type.

WHY IT MATTERS

Baseload runs every hour of the year. Even a small fraction of avoidable baseload (lighting circuits, plug loads, HVAC override) adds up to a measurable annual bill.

START HERE

- Walk the building during unoccupied hours. Check for lighting circuits left on, plug-load schedules, and HVAC overrides that never expired.
- Detected 5 events totalling 8,787 h between 2025-01-01 and 2026-01-01.
- Estimated savings: **\$99** (642 kWh, confidence: high)

Show the math

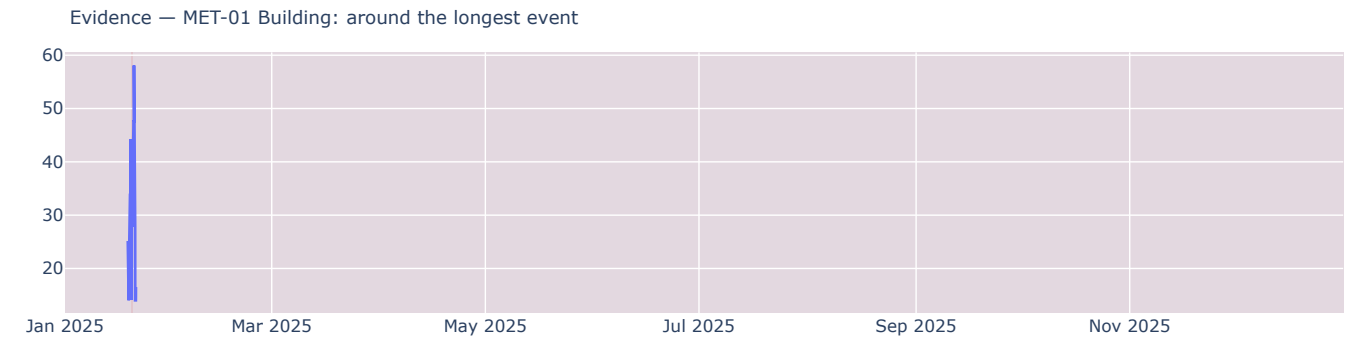
\$99 \$/yr likely \$80-\$120 METER DIRECT

Basis: priced directly from the meter (see assumptions)

INPUT	VALUE	SOURCE
Days of data	365 days	span of the fault's channels
Blended electricity rate	\$0.155/kWh	from bills

STEP	RESULT	FORMULA
Wasted energy over the data window	642 kWh	priced directly from the meter (see assumptions)
Annualization factor	1 ×	365 / 365 days
Annualized energy	643 kWh/yr	wasted kWh × factor
Annual savings	99.46 \$/yr	annualized kWh × \$0.155/kWh

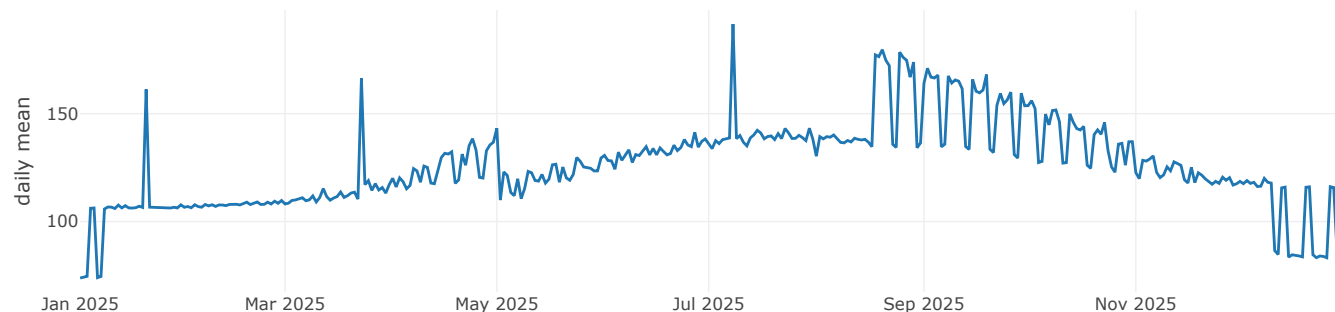
- 1285 kWh above the normal night load across 4 flagged nights × 50% achievable
- the nights are compared with the same weekday/weekend nights of the surrounding four weeks
- 365 days of data
- priced directly from the meter



29% of the main meter's bill is demand, riders, fixed charges and taxes

Only 71% of the simulated bill is energy at the metered rate — the rest is demand (\$37,275), riders (\$0), fixed charges and taxes. kWh-reduction measures alone cannot touch that share; demand management and tariff options matter as much as efficiency here.

29% of the main meter's bill is demand, riders, fixed charges and taxes — the main meter

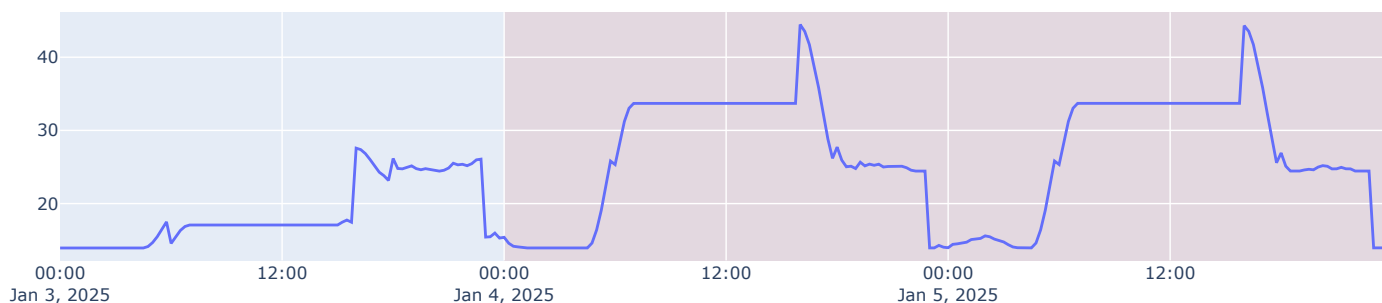


Capital plan

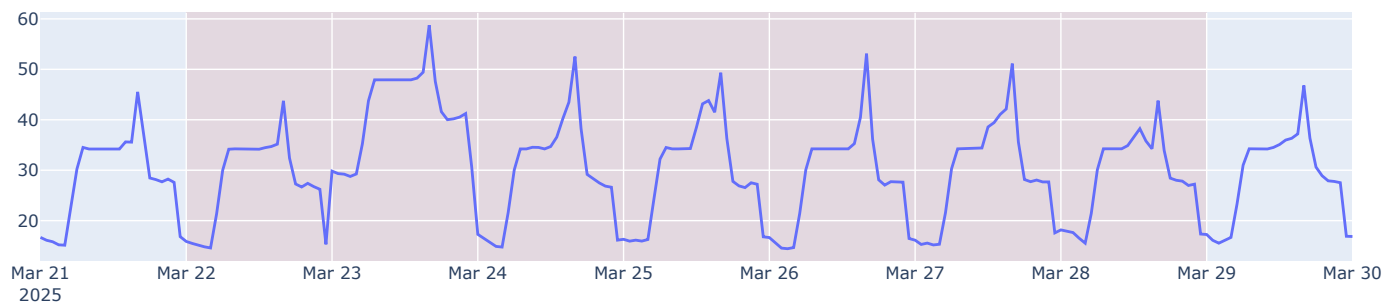
0 planned projects — 0 supported by this analysis, 0 worth verifying, 0 gaps.

Charts

Evidence — MET-04 Building: around the longest event

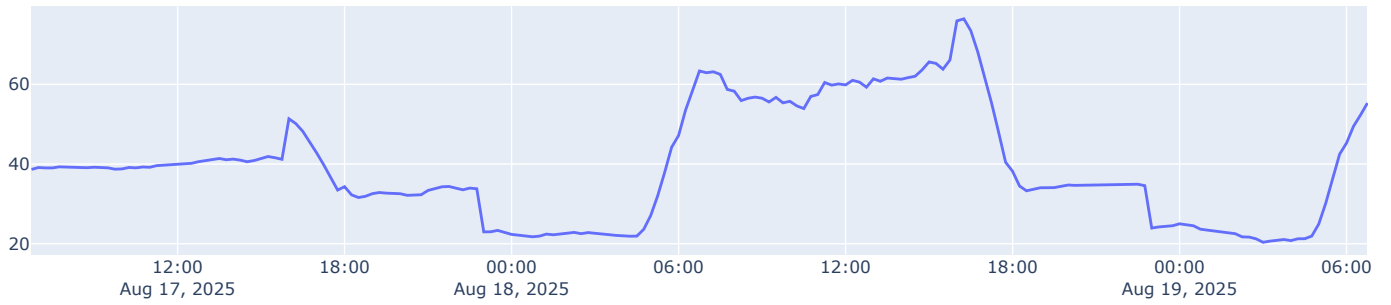


Evidence — MET-09 Building: around the longest event

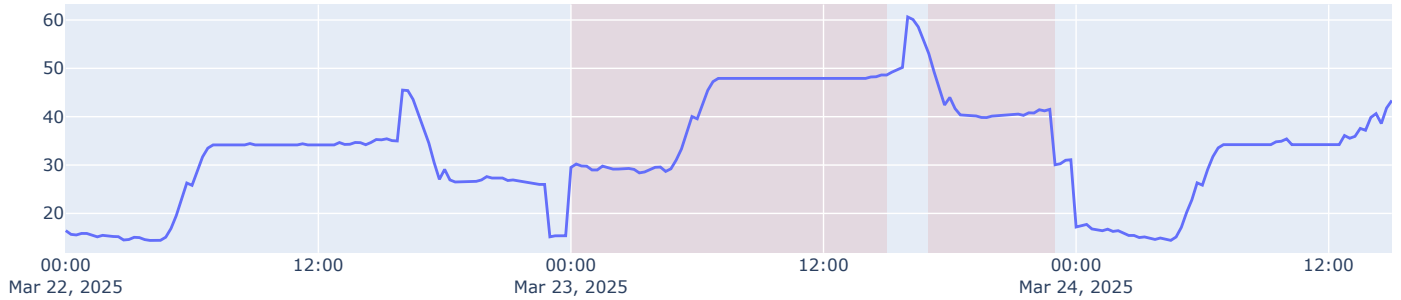


Synthetic school from the Energy Agent demo engine. Not a customer result.

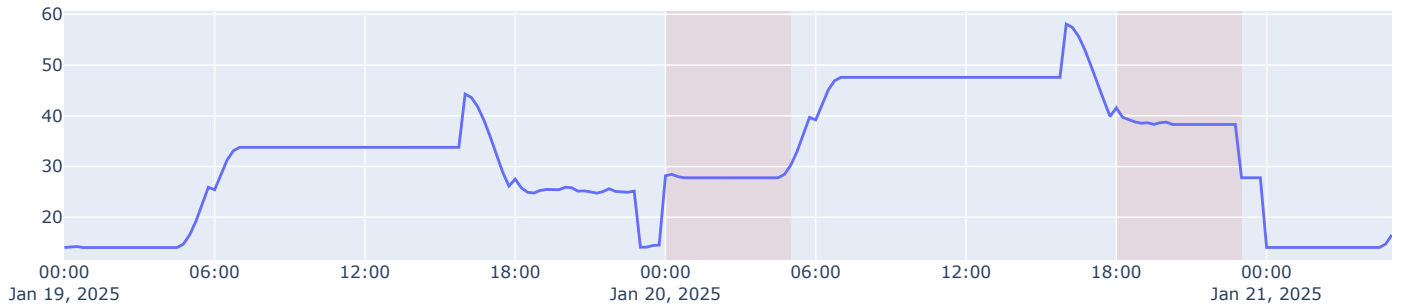
Evidence — MET-05 Building: around the longest event



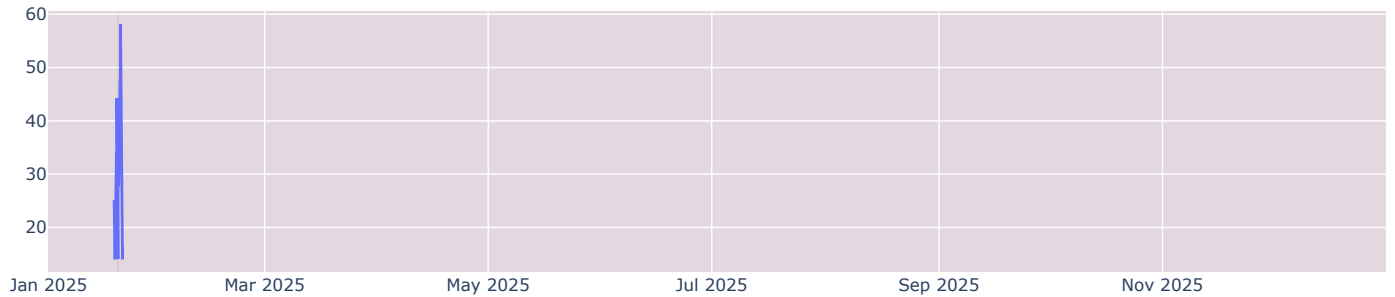
Evidence — MET-11 Building: around the longest event



Evidence — MET-03 Building: around the longest event

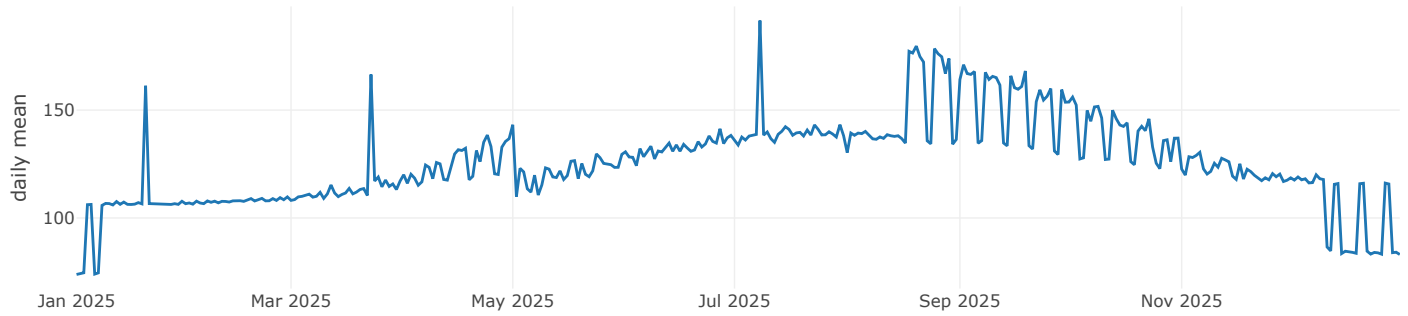


Evidence — MET-01 Building: around the longest event

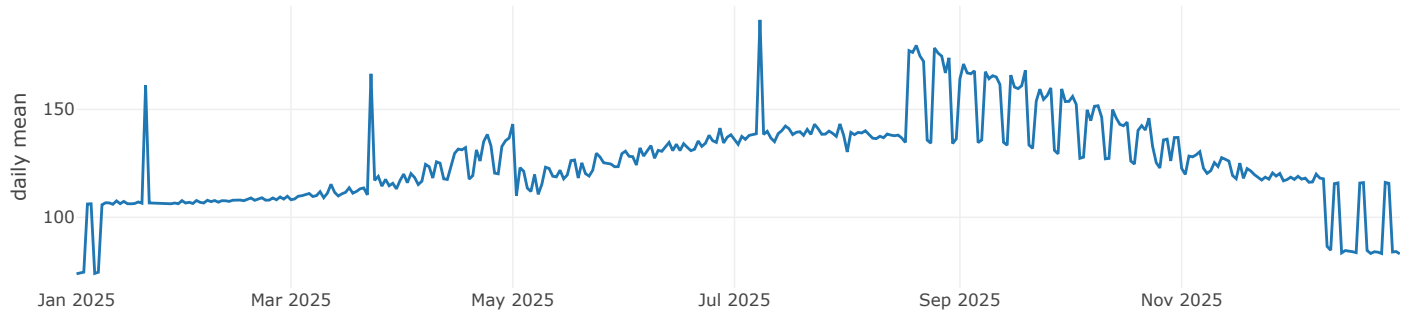


Synthetic school from the Energy Agent demo engine. Not a customer result.

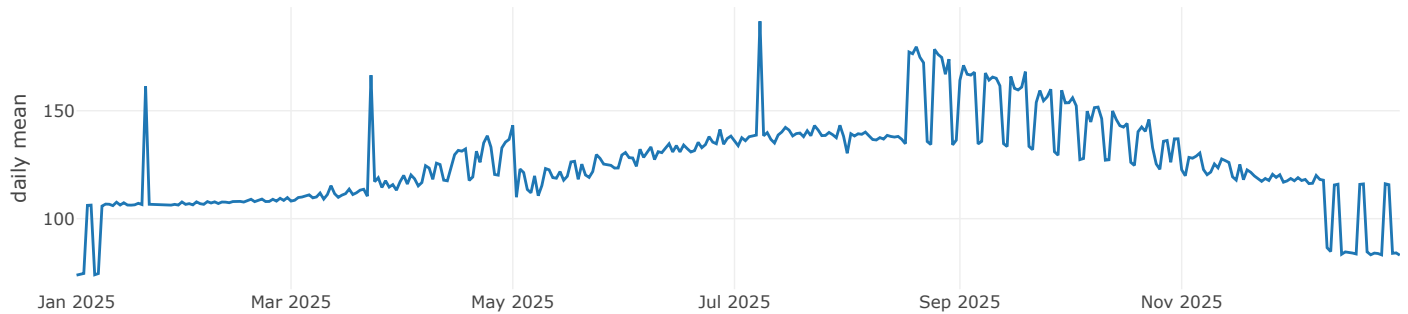
Time-of-use load shifting on the main meter: on_peak runs at a 0.07 \$/kWh premium — the main meter



Demand ratchet penalty on the main meter: 2 month(s) billed above measured demand — the main meter



29% of the main meter's bill is demand, riders, fixed charges and taxes — the main meter



Generated by Pelorus Engineering · October 4, 2026 365 days of trend data Rate: \$0.155/kWh (blended rate from 14 electric bills) Timezone America/New_York

Values recomputed with the what-if bar are marked and are not saved. Screening-level estimates; confirm with measurement and verification before capital commitment.