Demand-Charge Audit: Sample Facility (synthetic interval data)

Rate schedule as entered: **Illustrative small-commercial demand rate (synthetic, not a real tariff)**, $18.50/kW-month demand, $0.1120/kWh energy. Source: 35,040 interval readings at 15-minute resolution, demand measured in 15-minute blocks.

Over 12 months this account paid $83,105 in demand charges, 37% of the modeled bill.

Peak drivers

Each month's bill was set by a single 15-minute block. 12 of 12 monthly peaks fell on weekdays. By start time: 8 started between 6 a.m. and 7 a.m.; 4 started between 2 p.m. and 4 p.m.. Load factor is 31% (average demand over peak demand).

Month	Peak set	Peak	Typical high (95th pct)	Spike above typical	Demand charge
January 2025	Mon, Jan 20, 2025 at 6:00 a.m.	358 kW	297 kW	61 kW	$6,618
February 2025	Wed, Feb 5, 2025 at 6:00 a.m.	351 kW	295 kW	56 kW	$6,493
March 2025	Fri, Mar 14, 2025 at 6:15 a.m.	357 kW	296 kW	61 kW	$6,596
April 2025	Wed, Apr 16, 2025 at 6:30 a.m.	352 kW	296 kW	55 kW	$6,511
May 2025	Fri, May 16, 2025 at 6:30 a.m.	356 kW	299 kW	57 kW	$6,589
June 2025	Fri, Jun 27, 2025 at 2:30 p.m.	372 kW	327 kW	45 kW	$6,891
July 2025	Tue, Jul 15, 2025 at 3:30 p.m.	453 kW	361 kW	92 kW	$8,378
August 2025	Thu, Aug 7, 2025 at 3:30 p.m.	435 kW	365 kW	71 kW	$8,055
September 2025	Wed, Sep 3, 2025 at 3:30 p.m.	410 kW	345 kW	65 kW	$7,592
October 2025	Fri, Oct 31, 2025 at 6:30 a.m.	349 kW	297 kW	52 kW	$6,457

Month	Peak set	Peak	Typical high (95th pct)	Spike above typical	Demand charge
November 2025	Fri, Nov 21, 2025 at 6:00 a.m.	352 kW	293 kW	59 kW	$6,509
December 2025	Wed, Dec 10, 2025 at 6:15 a.m.	347 kW	296 kW	51 kW	$6,417

On average the billed peak sits 60 kW above the month's typical high. That gap is equipment starting or running together, not the base load, and it is the cheapest demand to remove: $13,401 a year at the current rate if every month's peak came down to its typical high.

- Load factor is 31%: short, sharp peaks. Ask your utility about a lower demand-charge rate class (higher energy rate), a demand limiter, or a peak-time credit program.
- Your tariff has a ratchet: one bad afternoon keeps costing money for months. Shaving the single highest peak is worth more than the monthly numbers suggest.

Ratchet exposure

Your schedule as entered bills demand at no less than 60% of the highest peak in the prior 11 months.

The ratchet did not set billed demand in any month of this window: each month's own peak stayed above the floor.

The annual peak of 453 kW (July 2025) sets a 272 kW floor for the next 11 months. On this year's pattern no month falls below it. Each extra kW at the annual peak costs $18.50 that month and up to $122 more through the ratchet. That is the price of one bad afternoon.

Rate-schedule check

| Schedule | Demand | Energy | Total for the window |

|---|---|---|---|

| Illustrative small-commercial demand rate (synthetic, not a real tariff) | $83,105 | $137,816 | $223,141 |

| Illustrative low-demand option (synthetic) | $43,799 | $169,809 | $215,827 |

Switching to Illustrative low-demand option (synthetic) would have cost $7,313 less over this window (3.3%). Confirm eligibility with the utility before requesting the change.

Load-shift and peak-shaving estimate

| Option | Annual saving | What it takes |

|---|---|---|

| Move the top 3 blocks each month | $1,752 | About 4 kWh a month moved to other hours (staggered starts, a demand limiter, pre-cooling) |

| Move the top 5 blocks each month | $2,778 | About 9 kWh a month moved to other hours (staggered starts, a demand limiter, pre-cooling) |

| Move the top 10 blocks each month | $4,750 | About 26 kWh a month moved to other hours (staggered starts, a demand limiter, pre-cooling) |

| Battery capping demand at 307 kW | $14,935 | About 146 kW / 765 kWh, $459,184 installed at $600/kWh, simple payback 30.7 years. Not economic at this rate: no battery recommended |

Assumptions and limits

- Demand and energy charges use the single flat rates entered from the bill (Illustrative small-commercial demand rate (synthetic, not a real tariff)). Time-of-use energy periods, seasonal rates, riders, taxes and franchise fees are not modeled; they change the energy line far more than the demand line.
- Ratchet: 60% over 11 months, as entered. Months before the window are not visible, so a ratchet carried in from an earlier peak would be understated.
- Load shifting assumes the moved energy lands in hours that do not set a new peak. Battery sizing uses 88% round-trip efficiency and 90% usable depth, sized on the heaviest day; installed cost of $600/kWh is an assumption, not a quote.
- Timestamps are read in the meter file's own local clock.
- This is a bill analysis, not an engineering design or a utility determination. Confirm tariff eligibility with the utility and equipment pricing with quotes before acting.

Reviewed by: _____ Date: _____