



CASE STUDY



WHEN VOLTAGE SWINGS 25% AND VFDS FAIL, EVERY PRODUCTION HOUR IS AT RISK

INTRODUCTION

Teva Canada's Stouffville facility was losing equipment, burning through rentals, and absorbing unplanned outages – until a targeted power conditioning system changed the equation.



COMPANY OVERVIEW

Teva Canada Limited is one of Canada's largest pharmaceutical manufacturers.

Their Stouffville facility spans 129,000 sq ft, employs 200+ people, and produces over 140 molecules – making it one of the largest pharma manufacturing centres in North America.

Peak demand at the site reaches 2,300 kW across two main electrical rooms.

THE PROBLEM

Unstable power was threatening production reliability across the entire facility

- Severe voltage instability: swings from 505V to 630V on a 600V nominal system – a 25% swing. Two phases undervoltage, one phase overvoltage simultaneously.
- High harmonic distortion (THD) across the facility. Power factor running at 90–93%.
- 4 VFDs failed within a single 6-month window due to transient events – direct equipment loss.
- Chillers and standalone equipment tripping during power events, impacting production continuity.
- New fan system installations impacted by ongoing voltage instability.
- 1–2 unplanned power outages per year, each costing 8 hours of lost production.
- ~\$500K USD/year spent on generator rentals across 3 facilities to manage electrical costs.

STOUFFVILLE

LOCATION

2,300 kW

PEAK DEMAND

129,000

AREA SIZE

SOLUTION IMPLEMENTED

825 kVAR detuned APFC system — deployed across three sections

4 × 150 kVAR units + 1 × 225 kVAR unit = 825 kVAR total. Two units installed in the main electrical rooms, one downstream unit for satellite coverage.

Detuned Active Power Factor Correction (APFC) system, CSA-certified: voltage stabilization, THD elimination, ride-through capability, and 1–2% energy reduction. ON/OFF testing provided at no charge.

KEY METRICS

\$171,575

System value

825 KVAR

Total capacity

8 HRS

Outage cost
/ event

4

VFDs lost
(6 months)

\$24,000

Utility
incentives

\$500K USD

Generator
spend / yr

BEFORE VS AFTER

Before

Voltage swinging 505V–630V ($\pm 25\%$ of 600V nominal)

High THD — harmonic distortion across facility

4 VFD failures in 6 months from transients

PF at 90–93%, potential utility penalties

After

→ Voltage stabilized within acceptable operating band

→ THD eliminated via detuned APFC system

→ Transient ride-through protection in place

→ Power factor corrected; 1–2% energy reduction targeted



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