



Energy Reduction Programs: Understanding, Implementing & Delivering

PL Energy Services



PL Energy Services Value to Condominium Directors

- ▶ Control Maintenance Fees
- ▶ Maximize Rebates
- ▶ Measurement & Verification





PL Energy Services



- ▶ Industry recognized name for providing engineering services, energy conservation plans & building efficiency upgrades.
- ▶ Performed over 400 commercial energy audits for industrial, commercial and multi-residential property management companies.
- ▶ 22 innovative, qualified employees.



Head Office:
Markham, Ontario

Control Maintenance Fees Energy Audits & Rebates

▶ Retrofit Program

- ▶ Receive up to 50% on Projects.
- ▶ Secure Money Proactively.
- ▶ **Standard Equipment Applies!**
- ▶ Includes Roof/Windows/Elevators

▶ Energy Audit Funding Program

- ▶ 50% Funded



saveONenergy™
RETROFIT PROGRAM

saveONenergy™
AUDIT FUNDING

saveONenergy™
EXISTING BUILDING COMMISSIONING



Retrofit Program: What Upgrades Can I Make?

- ▶ HVAC Systems
- ▶ Chiller Systems
- ▶ Boilers & Heat Recovery
- ▶ CO Sensors
- ▶ Makeup Air units
- ▶ General Exhaust Fans
- ▶ Booster Pumps
- ▶ Motors VFD's
- ▶ Heat Pumps
- ▶ Building Automation Systems
- ▶ Common Area Painting
- ▶ Building Envelope
- ▶ Fan Coil / PTAC
- ▶ Lighting and Controls

Energy Audit: Benchmark Utility Consumption

Project	Annual Savings (Elec, Gas, Water)	Estimated Cost	Estimated Rebate	Cost w/Rebate	Estimated Payback (YRS)
0-3 Year Payback					
LED Parking Upgrade	\$10,246	\$10,794	\$4,269	\$6,524	0.64
VFD Primary Loop Pump 1	\$3,942	\$6,600	\$805	\$5,795	1.47
VFD Primary Loop Pump 2	\$3,942	\$6,600	\$805	\$5,795	1.47
Building Automation System	\$4,659	\$9,480	\$776	\$8,704	1.87
Improved Air Distribution Control	\$7,358	\$18,200	\$4,295	\$13,905	1.89
LED Common Area Upgrade	\$18,537	\$46,500	\$8,937	\$37,563	2.03
0-3 Year	Annual Savings	Cost	Rebates	Cost w/Rebate	Annual Condo Fee Reduction
Total	\$48,683	\$98,174	\$19,887	\$78,286	\$211.67



Energy Audit: Identify Inefficiencies

Project	Annual Savings (Elec, Gas, Water)	Estimated Cost	Estimated Rebate	Cost w/Rebate	Estimated Payback (YRS)
3-5 Year Payback					
VFD - Cooling Tower	\$1,178	\$5,300	\$1,542	\$3,758	3.19
LED Exterior Upgrades	\$3,140	\$13,256	\$2,302	\$10,954	3.49
CO Sensor System Installation	\$3,182	\$15,000	\$2,614	\$12,386	3.89
3-5 Year	Annual Savings	Cost	Rebates	Cost w/Rebate	Annual Condo Fee Reduction
Total	\$7,499	\$33,556	\$6,458	\$27,098	\$32.61




Energy Audit: Implement Solutions

Project	Annual Savings (Elec, Gas, Water)	Estimated Cost	Estimated Rebate	Cost w/Rebate	Estimated Payback (YRS)
5+ Year Payback					
Rooftop Unit Replacement	\$3,363	\$38,000	\$12,185	\$25,815	7.68
Elevator Motor Replacement	\$18,423	\$164,837	\$10,000	\$154,837	8.40
Condensing Boiler	\$3,564	\$70,000	\$5,000	\$65,000	18.24
Window Retrofit	\$4,050	\$180,000	\$2,700	\$177,300	43.78
Roof Replacement	\$4,125	\$185,000	\$2,750	\$182,250	44.18
5+ Year	Annual Savings	Cost	Rebates	Cost w/Rebate	Annual Condo Fee Reduction
Total	\$3,564	\$70,000	\$5,000	\$65,000	\$15.49


Case Study: HVAC RTU REPLACEMENTS



**Project Cost:**
\$157,900.00

**Demand Savings:**
50 kW

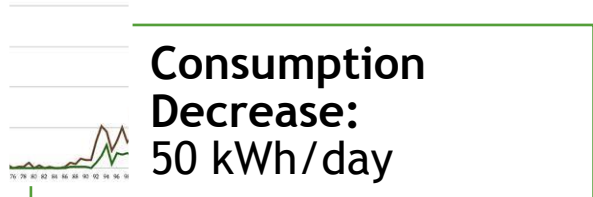

**Energy Savings:**
33,000 kWh

**Grant Incentive:**
\$40,000.00

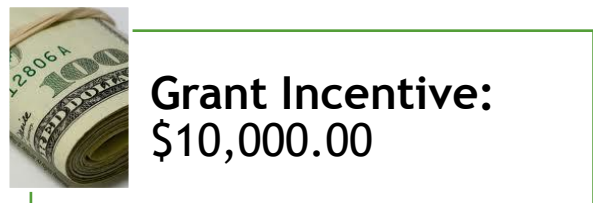


Case Study: ELEVATOR MOTOR RETROFIT

- ▶ Retrofit of three elevators that serve a 14-story residential building.
- ▶ The existing elevators ran on 25hp, 1150rpm AC hoist that were in continuous operations. Each elevator was replaced with more efficient 25hp AC low slip, controlled by VVVF non-regenerative motor drives.

**Energy Savings:
122,815 kWh**





Case Study: BUILDING AUTOMATION SYSTEM

- ▶ Installation of a Building Automation System with the existing blower fan system on a 20 story commercial building.
- ▶ Results : Accurate, real-time information, reduced contractor calls and 1.5 year payback.
- ▶ The incentive for this project paid 50% of the total cost of the project and the energy savings had a payback of less than 1 year.
- ▶ Installed by PL



**Project Cost:
\$17,500.00**

2008-2009 SIGNAL RETIRING PROJECT
PROJECT RESULTS SUMMARY
ENERGY'S BENEVOLENT FUND

Year	Actual Energy Savings (kWh)	Percentage Savings	Actual Fuel Savings (\$)	Annual Fuel Savings (\$)
2008	10,200	2.5%	100,000	75
2009	20,200	5.0%	175,000	150
2010	107,000	27.0%	800,000	700
2011	245,200	61.0%	1,800,000	1,500
2012	298,000	74.0%	2,200,000	1,800
2013	276,400	69.0%	2,000,000	1,600
2014	198,000	49.0%	1,500,000	1,200

**Energy Savings:
367,226 kWh**



**Grant Incentive:
\$8,750.00**

Case Study: FAN COIL RETROFIT

- ▶ Retrofit of fan coil motors throughout a Condominium building.
- ▶ Results: Elimination of maintenance issues, annual energy savings \$56,936.00



**Consumption
Decrease:
113 kWh/day**

Month	Actual kWh	Target kWh	Savings (%)	Actual Cost (\$)	Target Cost (\$)	Savings (\$)
Jan 11	10,000	10,000	0%	1,000.00	1,000.00	0.00
Feb 11	8,000	10,000	20%	800.00	1,000.00	200.00
Mar 11	6,000	10,000	40%	600.00	1,000.00	400.00
Apr 11	4,000	10,000	60%	400.00	1,000.00	600.00
May 11	2,000	10,000	80%	200.00	1,000.00	800.00
Jun 11	1,000	10,000	90%	100.00	1,000.00	900.00
Jul 11	1,000	10,000	90%	100.00	1,000.00	900.00
Aug 11	1,000	10,000	90%	100.00	1,000.00	900.00
Sep 11	1,000	10,000	90%	100.00	1,000.00	900.00
Oct 11	1,000	10,000	90%	100.00	1,000.00	900.00
Nov 11	1,000	10,000	90%	100.00	1,000.00	900.00
Dec 11	1,000	10,000	90%	100.00	1,000.00	900.00
Annual Total	30,000	120,000	75%	3,000.00	12,000.00	9,000.00

**Energy Savings:
331,997 kWh**



**Grant Incentive:
\$90,960.00**



Case Study: NEW WINDOWS RETROFIT

- ▶ Old single glazed windows were replaced with more energy efficient double-glazed windows at this commercial facility.
- ▶ Done in conjunction with other rebates at the same building.



Project Costs:
48,000.00

2018-2019 SIGNAL RETROFIT PROJECT			
PROJECT RESULTS SUMMARY			
WEEKDAYS (MONDAY - FRIDAY)			
Category	Baseline	Target	Actual
Energy Savings	27,000 kWh	27,000 kWh	27,000 kWh
Cost	48,000.00	48,000.00	48,000.00
Grant Incentive	2,700.00	2,700.00	2,700.00
Total	27,000 kWh	27,000 kWh	27,000 kWh

Energy Savings:
27,000 kWh




Grant Incentive:
\$2,700.00

Case Study: CHILLER REPLACEMENTS


- ▶ This project consisted of the replacement of a buildings 260 Ton chiller system to a high efficiency unit.
- ▶ The project ended up having 75kW of energy savings and yielded a grant incentive of \$44,000.00.





Project Cost:
\$180,000.00



Demand Savings:
75 kW



Energy Savings:
209,000 kWh



Grant Incentive:
\$44,000.00

Measurement & Verification

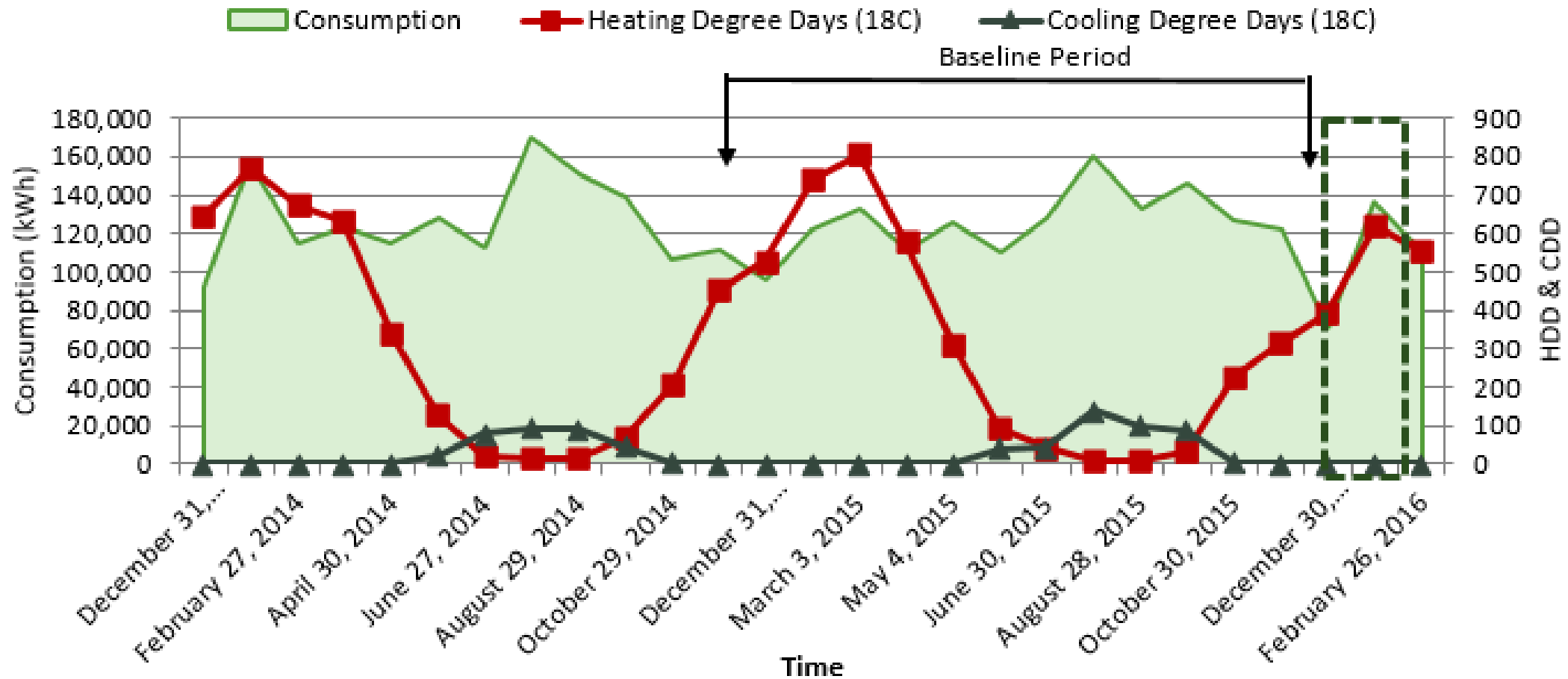


- ▶ Educate Boards & Owners
- ▶ Horror stories spread faster than success!
- ▶ “Pick and Peck” Systems
 - ▶ Multiple contractors have worked on site over the year



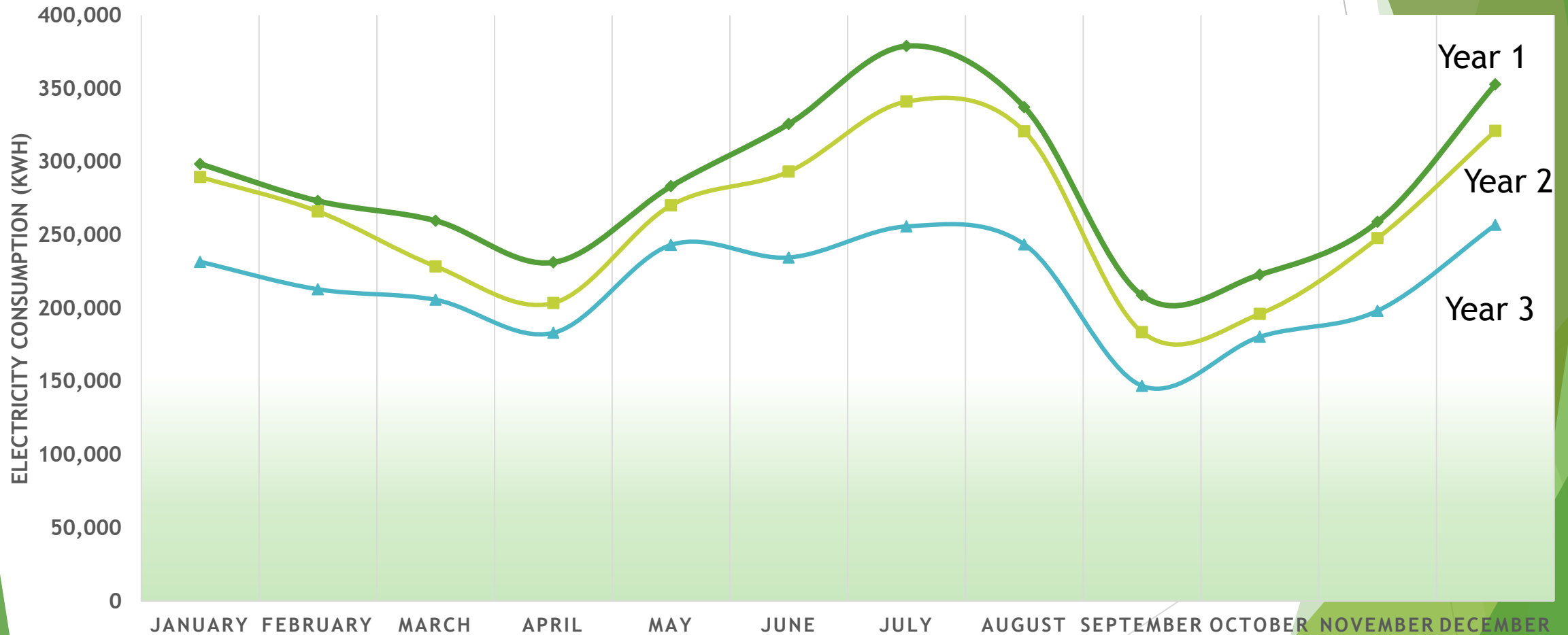
Measurement & Verification

Electricity Consumption Trend



Measurement & Verification

ELECTRICITY CONSUMPTION TRENDS





Retrofit Program: Rules & Guidelines

- ▶ Hydro Projects **MUST** be pre-approved before commencement
- ▶ Gas Project may be approved post-retrofit
- ▶ Must reduce energy demand reduction for a minimum of 48 months.
- ▶ Minimum of 1kW Reduction.



Moving Forward...



- ▶ Energy costs are rising - and will continue to do so!
 - ▶ Strategically invest into reducing consumption - the savings will follow.
- ▶ Measurement & Verification
 - ▶ Provide proof projects are saving energy
- ▶ Maximize Rebates
 - ▶ Boards are informed and educated with accurate, concise information



Questions?



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