

Retro-commissioning is...
A Tune-Up For Your
Existing Building

True Story

- Four air-handlers in this building used to **run non-stop**.
- But they **weren't heating, cooling or ventilating** the space.
- Shutting them off **saves about \$120,000** annually.

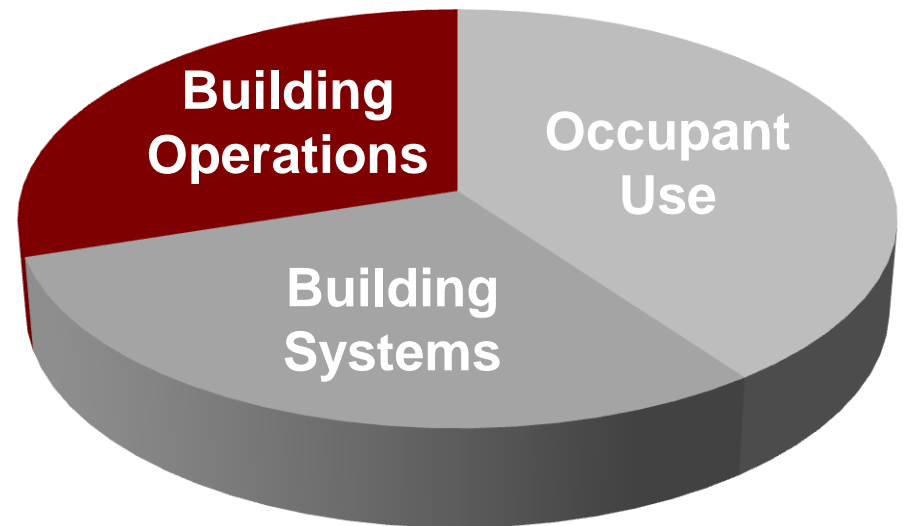


Compared to Energy Audits

**Retro-Commissioning:
Focus on operations**

**Not: Is this the most
efficient pump?**

**But: Is this pump needed
and is it running when
and how it should**



Retro-Commission Your Building to...

- **Improve performance**
- **Improve occupant comfort**
- **Train staff**
- **Save energy and money**

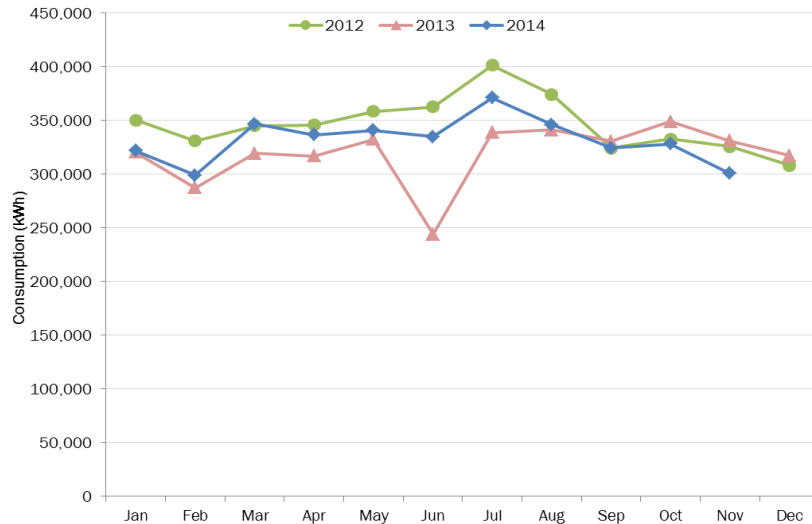
Focus Area: Building Energy Usage

Log energy use overtime

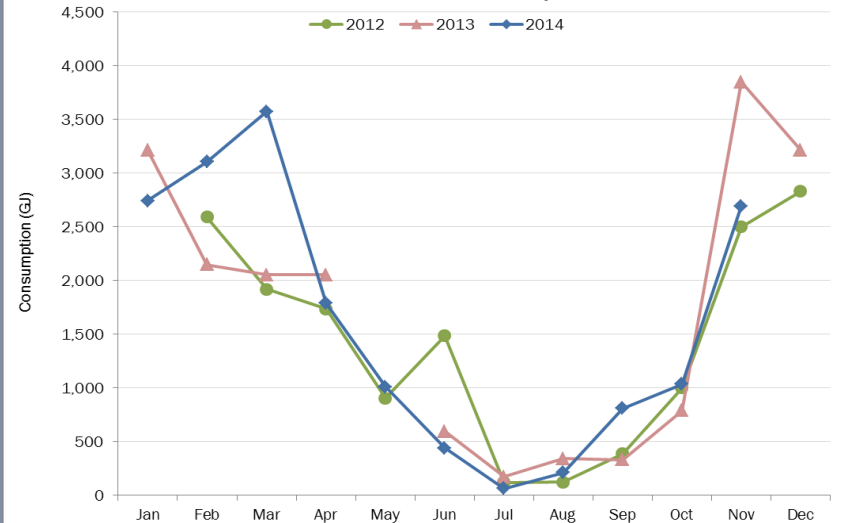
- Energy Star
- Tracking Utility Data



Electricity Consumption

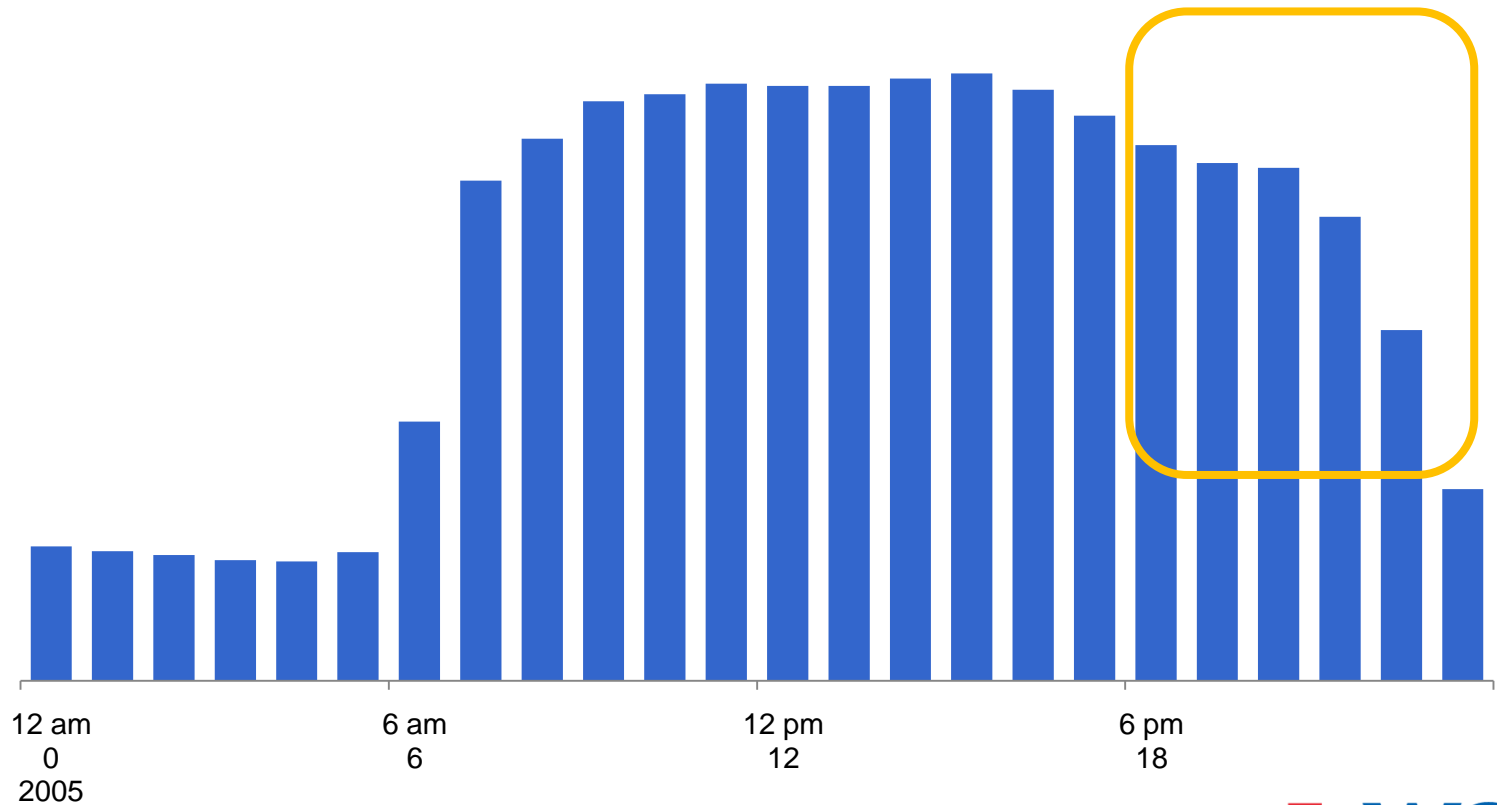


Natural Gas Consumption



Focus Area: Building Operation






- Occasions for fresh eyes
- **Regular examinations of performance**







Focus Area: Building Automation

- Letting the BAS do its job
- **Standard operating procedures**

Status	Item	Value
	Base Bldg Power Supply	5,528.0 kW
	Building Tonnage	303.0 tons
	Average Return Temp from 3rd to 36th Flrs	22.6 deg C
	Outdoor Air Temp	17.1 deg C
Operator Override	Sec Chilled Water_Day-Night Mode	Day
	2CS0111_Pri CWS Temp	8.8 deg C
	2CS0114_Pri CWR Temp	6.3 deg C
	2CS0113_Sec CWS Temp	10.4 deg C
	2CS0115_Sec CWR Temp	15.1 deg C
	2CS0116_Pri CHW Return	14.2 deg C
	Sec Chilled Water_CHW Flow	3,060.0 gpm
	Sec Chilled Water Flow	1,531.0 gpm
Operator Override	Sec Chilled Water_Diff Press Ctrl Valve	15.0 psi
	Sec Chilled Water_P11 Status	On
	Sec Chilled Water_P10 Status	Off
	Sec Chilled Water_P102 Status	On
Operator Override	Sec Chilled Water_P11 Control	On
Operator Override	Sec Chilled Water_P10 Control	Off
Operator Override	Sec Chilled Water_P102 Control	On
	P11 Speed	94.7 %
Operator Override	Sec Chilled Water_P11 Speed Output	95.0 %
Operator Override	Sec Chilled Water_P11 Speed at 100	No
	Sec Chilled Water_P11 DP Transmitter	50.6 psi
	Sec Chilled Water_P11 P10 Diff Setpoint	35.0 psi
	P10 Speed	94.8 %
	Sec Chilled Water_P10 Speed Output	95.0 %
	Sec Chilled Water_P10 Speed Control	95.0 %
	Day Night Switchover of Controls for P10-P102 VFD	Day

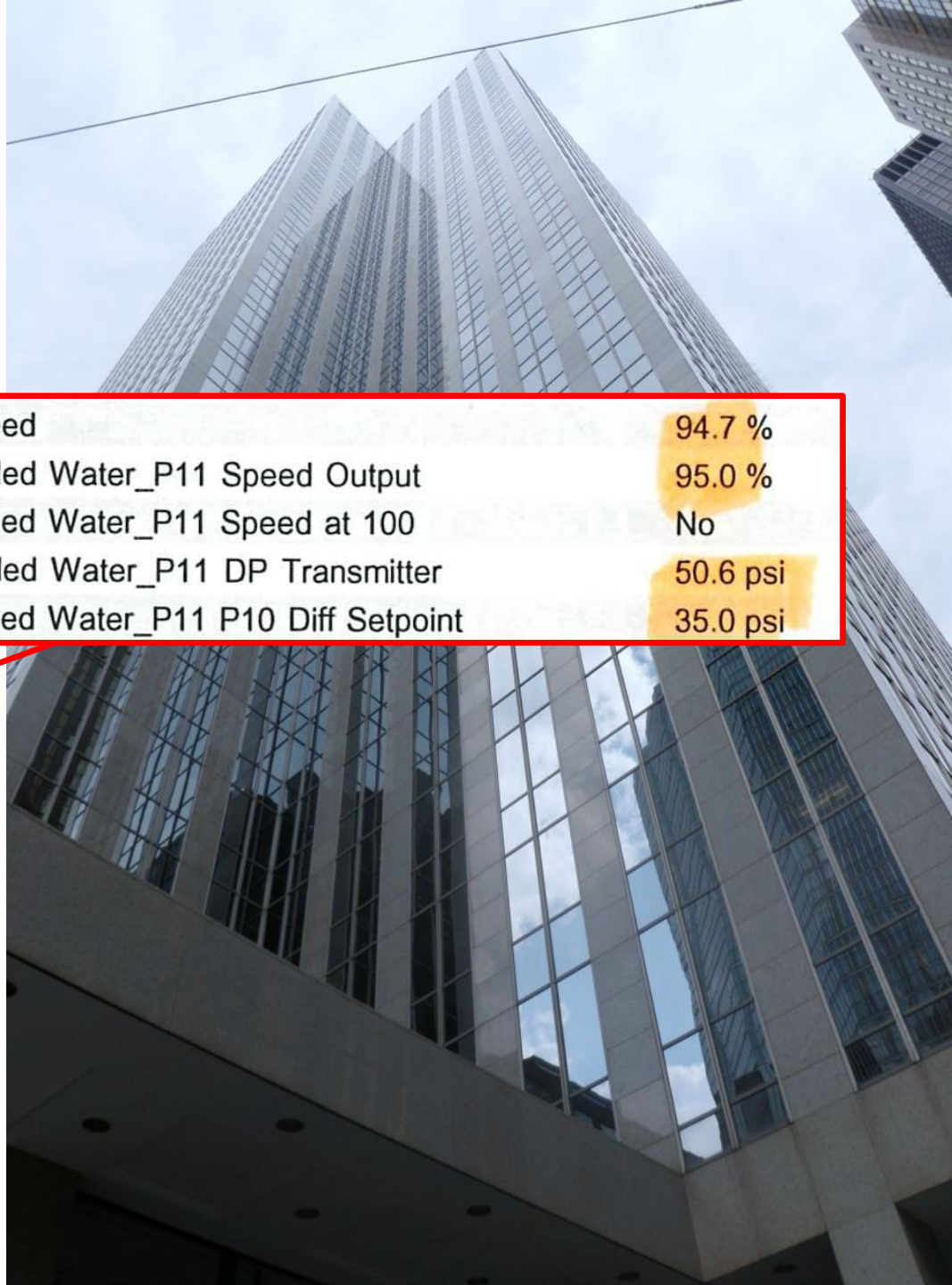
	 P11 Speed	94.7 %
Operator Override	 Sec Chilled Water_P11 Speed Output	95.0 %
Operator Override	 Sec Chilled Water_P11 Speed at 100	No
	 Sec Chilled Water_P11 DP Transmitter	50.6 psi
	 Sec Chilled Water_P11 P10 Diff Setpoint	35.0 psi

Operator Override	 Storage Tanks_P17 Status	Off
Operator Override	 Storage Tanks_P17 Control	Off
	 Sec Chilled Water_P102 Speed Output	95.0 %
	 P102 Mode	Auto

Typical Finding

Status	Item	Value
	Base Bldg Power Supply	5,528.0 kW
	Building Tonnage	303.0 tons
	Average Return Temp from 3rd to 36th Flrs	22.6 deg C
	Outdoor Air Temp	17.1 deg C
Operator Override	Sec Chilled Water_Day/Night Mode	Day
Operator Override	P11 Speed	94.7 %
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Operator Ov	Sec Chilled Water_P11 DP Transmitter	50.6 psi
Operator Ov	Sec Chilled Water_P11 P10 Diff Setpoint	35.0 psi
Operator Override	Sec Chilled Water_P10 Control	Off
Operator Override	Sec Chilled Water_P102 Control	On
Operator Override	P11 Speed	94.7 %
Operator Override	Sec Chilled Water_P11 Speed Output	95.0 %
Operator Override	Sec Chilled Water_P11 Speed at 100	No
Operator Override	Sec Chilled Water_P11 DP Transmitter	50.6 psi
Operator Override	Sec Chilled Water_P11 P10 Diff Setpoint	35.0 psi
	P10 Speed	94.8 %
	Sec Chilled Water_P10 Speed Output	95.0 %
	Sec Chilled Water_P10 Speed Control	95.0 %
	Day Night Switchover of Controls for P10-P102 VFD	Day
Operator Override	Sec Chilled Water_P10-P102 Speed at 100	No
	P11 Current	92.8 A
	P10 Current	0.0 A
	P11 Power	75.3 kW
	P10 Power	0.0 kW
	P11 Mode	Auto
	P10 Mode	Auto
	Sec Chilled Water_HE1 Bypass Valve	Off
	Sec Chilled Water_P103 Status	Off
	Sec Chilled Water_P103 Control	Off
Out of Service	Storage Tanks_P17 Status	Off
Operator Override	Storage Tanks_P17 Control	Off
	Sec Chilled Water_P102 Speed Output	95.0 %
	P102 Mode	Auto

Operator Override	P11 Speed	94.7 %
Operator Override	Sec Chilled Water_P11 Speed Output	95.0 %
Operator Override	Sec Chilled Water_P11 Speed at 100	No
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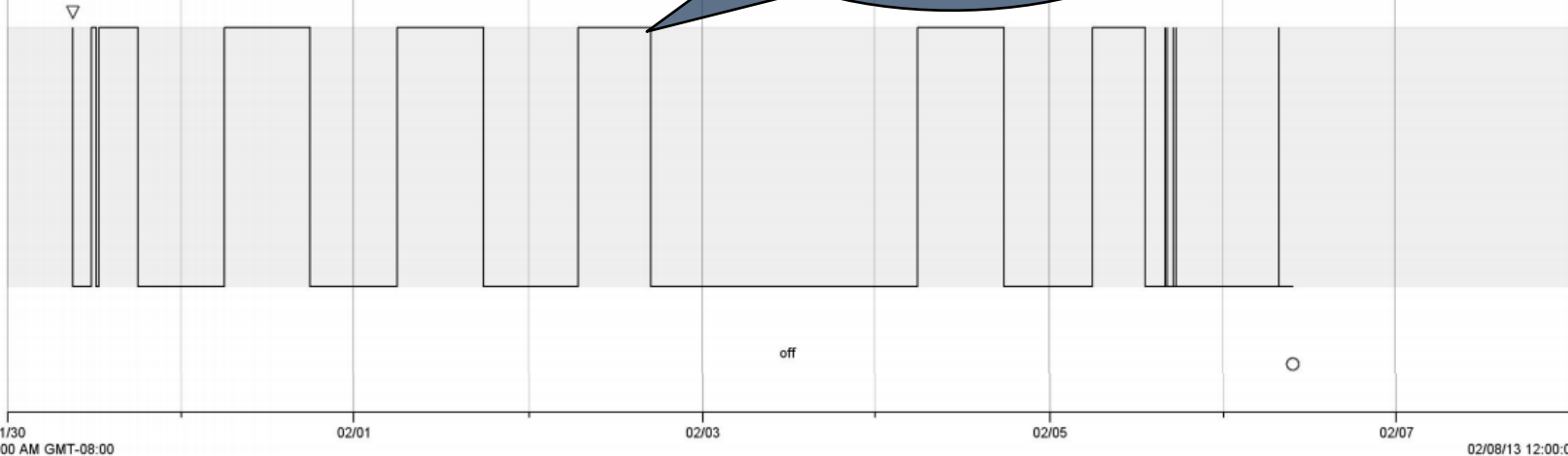


Typical Finding

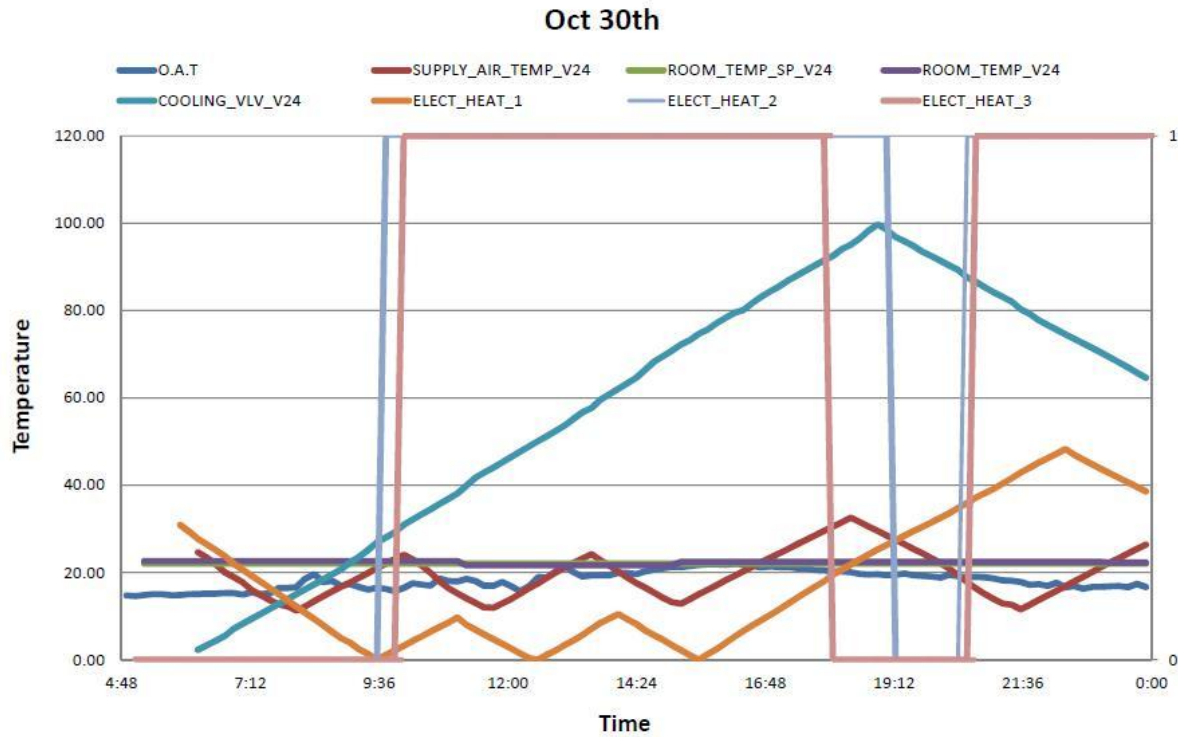
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Unit still running
on Saturday...

- Motor
- ▽ Internal Calibration
- ◆ Host Connected
- Stopped
- × End Of File



Typical Finding



True Story

- A shopping centre located here in Alberta was operating its chilled water and heating water pumps **non-stop**. This represented over **600 horse-power** of energy operating **24** hours per day, **365** days of the year.
- Shutting these pumps off when there is no demand will **save about \$200,000 annually**.

**Cost Effective Savings:
16% Energy Savings
13-Month Payback**