

## Energy Report Louth Local Authorities 2005-2008



### Savings to date (30 month period of June 2005 – December 2007)

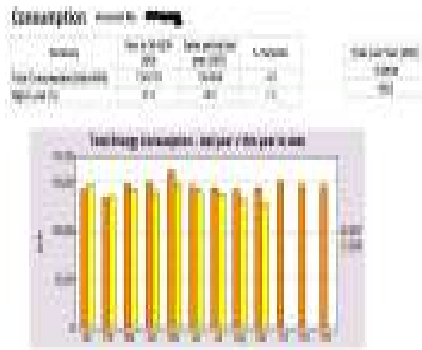
	Thermal	Electric
Total demonstrated savings to date (kWh)	450,000 Kwh approx.	1,400,000 Kwh approx.
Total demonstrated savings to date (€)	€ 22,000 approx.	€ 159,000
Total demonstrated savings to date (CO2)	115,650 Kg	841,400 Kg

## Actual 500,000 kWh saving in Electric

	2006	2007
Annual Thermal Fuel Consumption	2,608,640 kWh	2,547,500 kWh
Annual Thermal Fuel Cost (€)	€128,000	€125,000
Annual Electricity Consumption	14,414,977 kWh	13,955,404 kWh
Annual Electricity Cost (€)	€1,472,529	€1,591,353 (€57,000 saving!)



## Water Conservation Project.....



Pumping Station	% Reduction 2006-2008
1	↓30%
2	↓8.7%
3	↓4.5%
4	↓2.1%

## 160 LLA Electricity A/C's €1.4m 25 Top Users = €1.2 m

1. Pumping Station 1	€600,000
2. Pumping Station 2	143,000
3. Pumping Station LCC	67,000
4. Civic Building 1	60,000
5. Civic Building 2	52,000
6. Pumping Station 3	37,000
7. Civic Building 3	29,000

● **TOP 7 SITES (70%)** **€928,000**

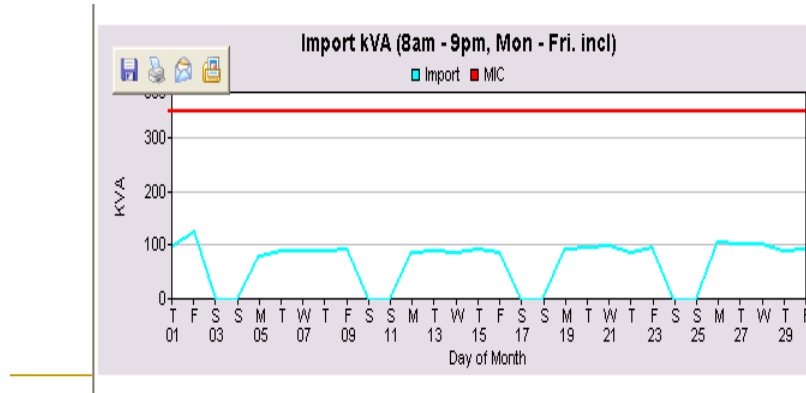
## Big Accounts all 'Max Demand'

- Multiple standing charges!
- MIC, Max Demand, Wattless,
- Day/Night units
- Learn, monitor, analyse...
- Get onto Energy Extra for ease of monitoring,

## MIC....win the small battles first

Present	Previous	Units and Rate (cent)	Description	Amount (CR=Credit)
			MAXIMUM DEMAND LOW VOLTAGE (400V/230V)	
			CHARGE FOR MAXIMUM IMPORT CAPACITY OF 350 KVA:	
			350 KVA FOR 59 DAYS € 0.07 / KVA / DAY	1445.50
			123 KVA - MAX KVA RECORDED THIS PERIOD	
			DEMAND CHARGE:	
			104 KW FOR 59 DAYS € 0.11 / KW / DAY	674.96
9422	8947	57000	MULTIPLIER OF 120 APPLIES	
		35286 X 0.17	DAY UNITS	5928.05
		21714 X 0.14	DAY UNITS	3029.10
3582	3391	22920	MULTIPLIER OF 120 APPLIES	
		22920 X 0.07	NIGHT UNITS	1558.56
5324	5014	37200	MULTIPLIER OF 120 APPLIES	
		26640 X 0.00	WATTLESS UNITS	0.00
		10560 X 0.01	EXCESS WATTLESS	73.08
			59 DAYS @ € 2.81 / DAY STANDING CHARGE	165.79
			PUBLIC SERVICE OBLIGATIONS LEVY JAN,FEB:	
			350 KVA FOR 2 MONTHS € 0.00 / KVA / MONTH	0.00
			VAT @ 13.5% ON 12875.04	1738.13
			LESS ELECTRICITY CHARGE FOR PREVIOUS INVOICE	6499.56 CR
			VAT @ 13.5% ON 6499.56CR	877.44 CR
			ARREARS	7377.00
<b>BILLING PERIOD</b>			<b>PLEASE PAY BY</b>	<b>TOTAL €</b>
1 JAN 07 - 28 FEB 07			OVERDUE	14613.17

# Civic Building MIC November 2007



# Civic Building new MIC

TARIFF: MAXIMUM DEMAND LOW VOLTAGE (400V/230V) -

CHARGE FOR MAXIMUM IMPORT CAPACITY OF 150 KVA:	
150 KVA FOR 31 DAYS @ € 0.0769 / KVA / DAY	357.59
117 KVA - MAX KVA RECORDED THIS PERIOD	
DEMAND CHARGE:	
93 KW FOR 31 DAYS @ € 0.0940 / KW / DAY	271.00
30245 X € 0.1818 DAY UNITS	5498.54
10486 X € 0.0815 NIGHT UNITS	854.61
13577 X € 0.00000 WATTLISS UNITS	0.00
3274 X € 0.00740 EXCESS WATTLISS	24.23
31 DAYS @ € 3.0200 / DAY STANDING CHARGE	93.62
PUBLIC SERVICE OBLIGATIONS LEVY JAN:	
150 KVA FOR 1 MONTH @ € 0.0000 / KVA / MONTH	0.00
PSO RELATED REBATE	144.00 CR
VAT @ 13.5% ON 6955.59	939.00
ARREARS	5729.79

**BILLS MUST BE CLEARED BY THE PAYMENT DATE, OR IMMEDIATELY, IF OVERDUE**

FOR INFORMATION ON WATTLISS CHARGES CALL 1850 372 787

C = Customer reading  
E = Estimated reading  
P = Price Change  
E&D:

BILLING PERIOD

1 JAN 09 - 31 JAN 09

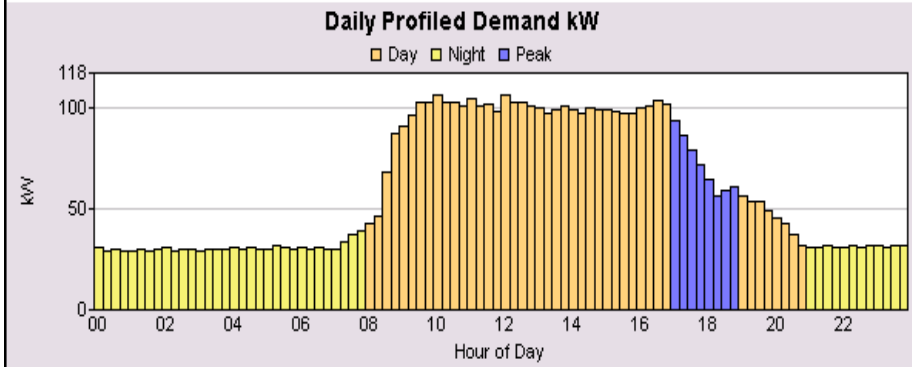
PLEASE PAY BY

OVERDUE

TOTAL €

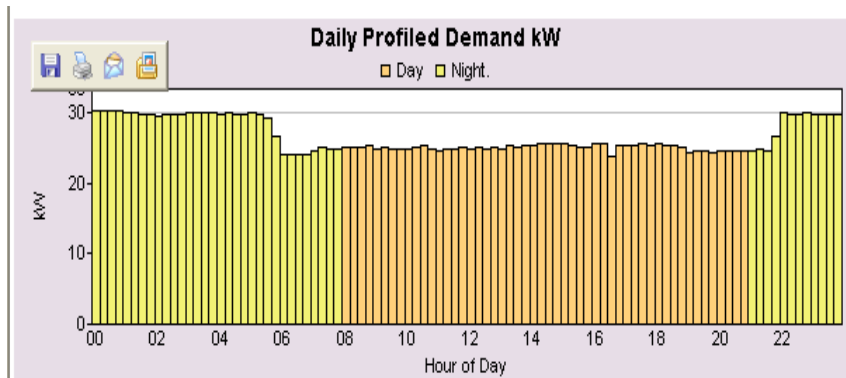
13624.38

## 6<sup>th</sup> January 2009 (working day)



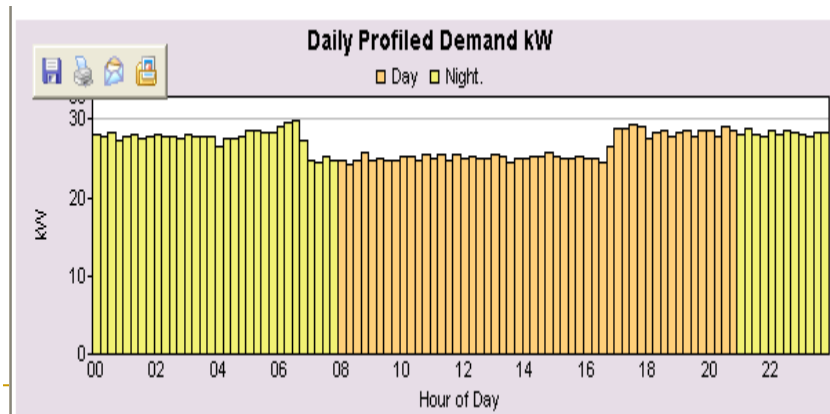
Note: Demand (kW) recorded at weekends is not charged for

## August Bank Hol..... 17C



Note: Demand (kW) recorded at weekends is not charged for

## Oct Bank Hol ...20C

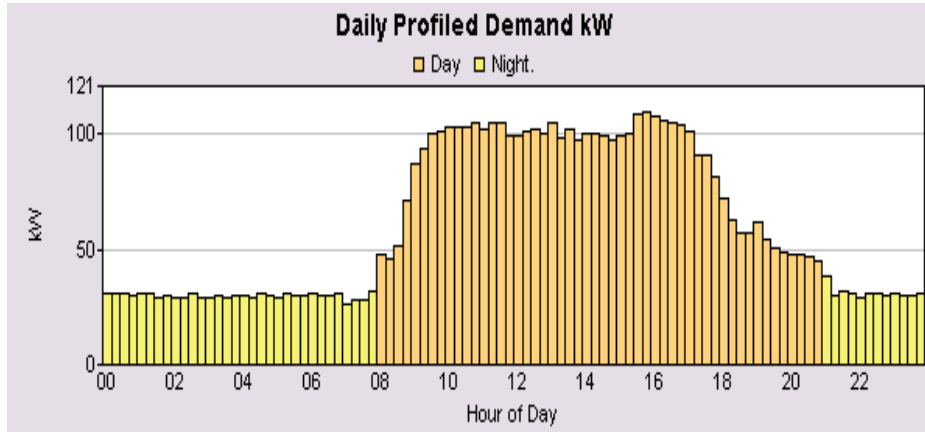


## IT projects.....

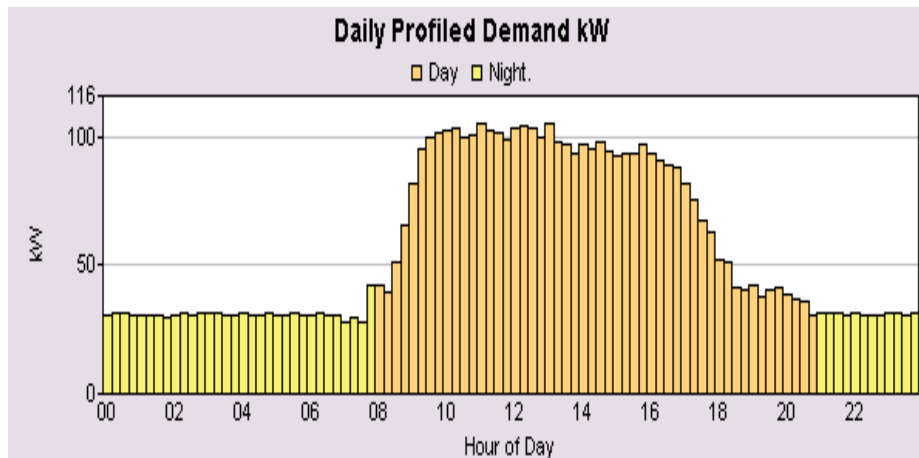
- PC Auto shut down (€17k/yr)
- Re-insulate comms room
- Virtual servers
- Above may let 1 of 2 A/C units stood down
- TFT roll out (Heat as well as electric!)

9<sup>th</sup> March 2009

## Lighting outside Core Hours



12<sup>th</sup> March, new protocol





# 100 kWh a day saved....

Note: Demand (kW) recorded at weekends is not charged for

Demand :

Date	Max Demand (kW) 24Hours	Max Demand (kW) Normal Period (8am - 9pm)	Max Demand (kW) Peak Period (5pm - 7pm)	Maximum Import Capacity (MIC) kVA	Highest Imported (kVA) Normal Period (8am - 9pm)
09-Mar-2009	109 @ 16:00	109 @ 16:00	100 @ 17:15	100.00	111 @ PF 0.98382 @ 16:00

Unit Consumption Summary

Date	Total Energy Consumed (kWh)	Day Consumption (kWh)	Night Consumption (kWh)	Wattless Units (kVArh)
09-Mar-2009	1,451	1,182	268	181

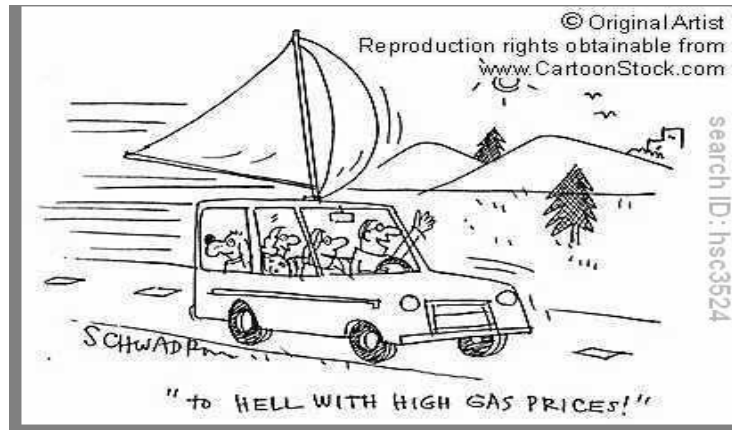
Demand :

Date	Max Demand (kW) 24Hours	Max Demand (kW) Normal Period (8am - 9pm)	Max Demand (kW) Peak Period (5pm - 7pm)	Maximum Import Capacity (MIC) kVA	Highest Imported (kVA) Normal Period (8am - 9pm)
12-Mar-2009	105 @ 11:15	105 @ 11:15	81 @ 17:15	100.00	106 @ PF 0.98766 @ 11:15

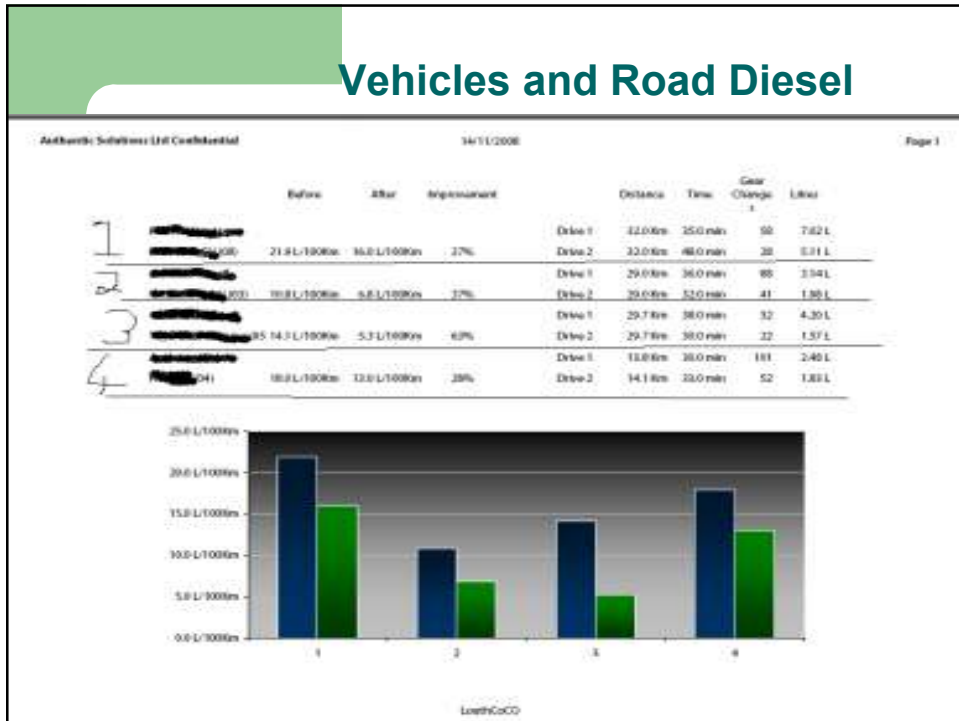
Unit Consumption Summary

Date	Total Energy Consumed (kWh)	Day Consumption (kWh)	Night Consumption (kWh)	Wattless Units (kVArh)
12-Mar-2009	1,366	1,087	278	176

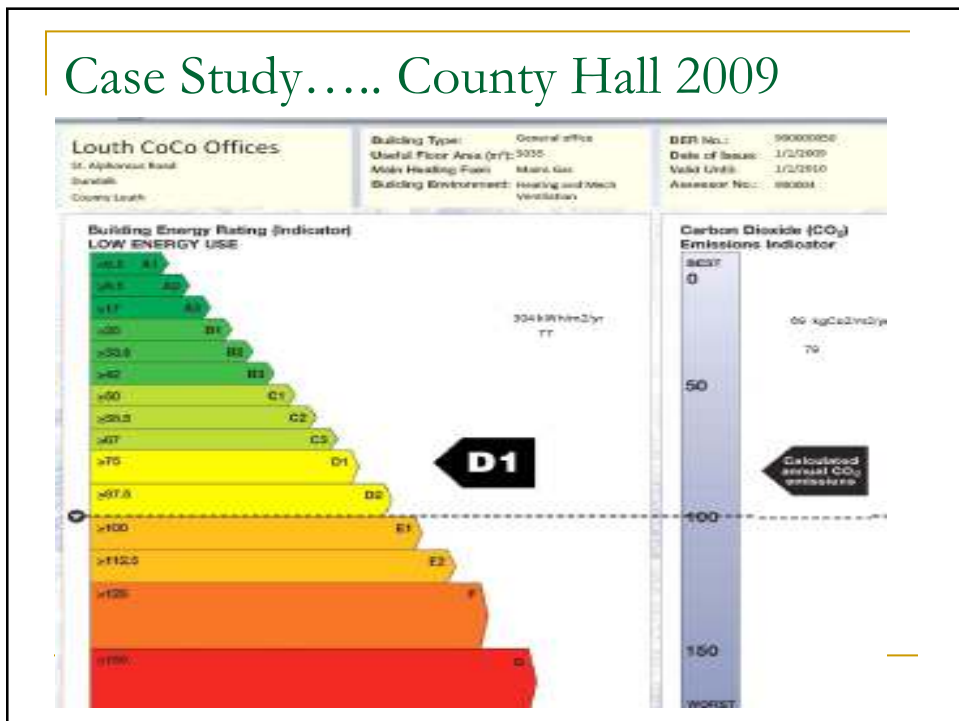
## ROAD DIESEL USE



# Vehicles and Road Diesel



# Case Study..... County Hall 2009



## Case Study... Over-Heating County Hall?

- A/C Retrofit €450,000
- Annual Running costs €60,000
- Was there a passive solution???
- Energy Group/SEI action vital

## BDP Survey and solution

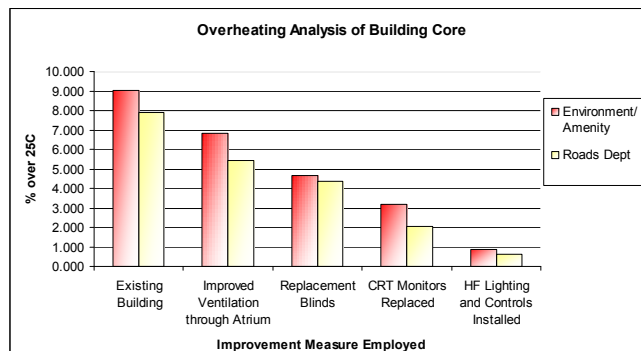
- Install passive ventilation system
- Help by identifying and reducing the causes of over heating
- 3D Simulation to verify
- Cost €170,000 and fees of €30,000
- Running costs will not only be zero, but will be a significant reduction on current situation, allow us to hit the 'green' zone in BER
- HOW?

## Modelling the Solution

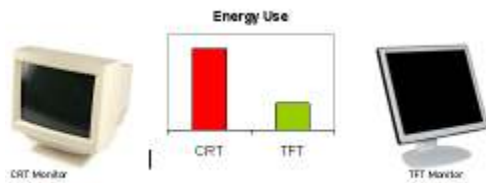
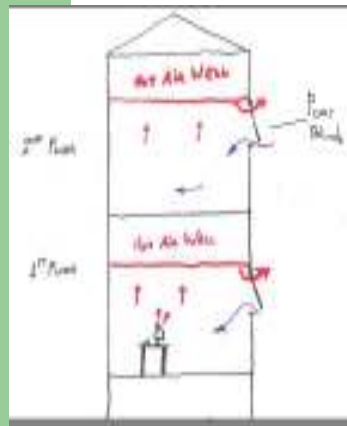


Three dimensional views of the building model

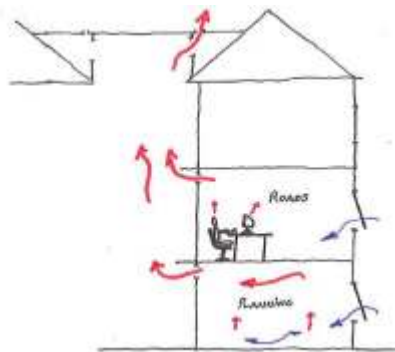
Building Model for Thermal Analysis Results



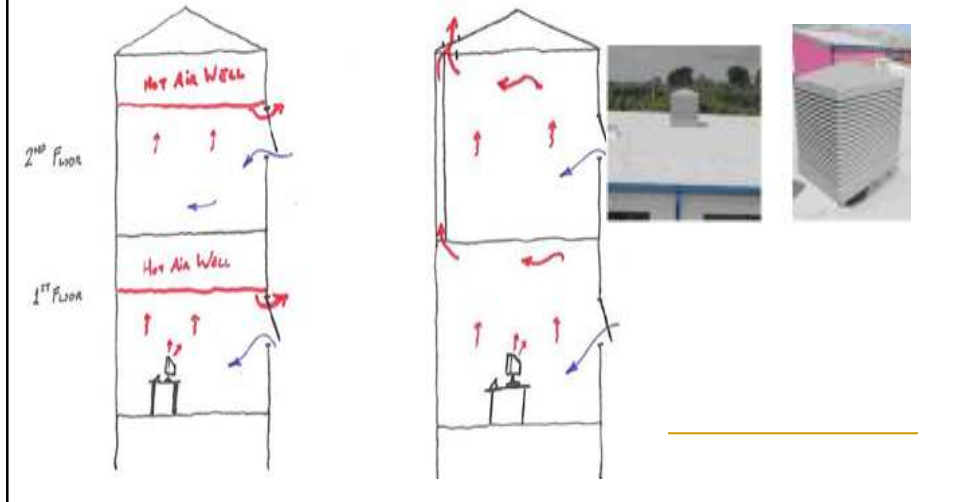
## The Crux of the Problem



## Passive solution Core Building



## The Extensions.....



### Retrofit Light (40% of buildings electric use)

- T8 to T5 (40% less electric and 40% less heat) lower wattage for same output and no electromagnetic ballast, overall circuit savings
- Twice lifetime
- Occupancy and daylight dimming
- 40% Saving

## Lighting Controls

New Generation Technology :Lighting Controls



Lights on when needed

Simple Movement Detectors

Internal Use Only



Refer registers for extra info

Simple Movement Detectors  
+Luminaire Integrated Daylight  
Sensors

Content Owner: Sustainable Lighting Asia Pacific 2008

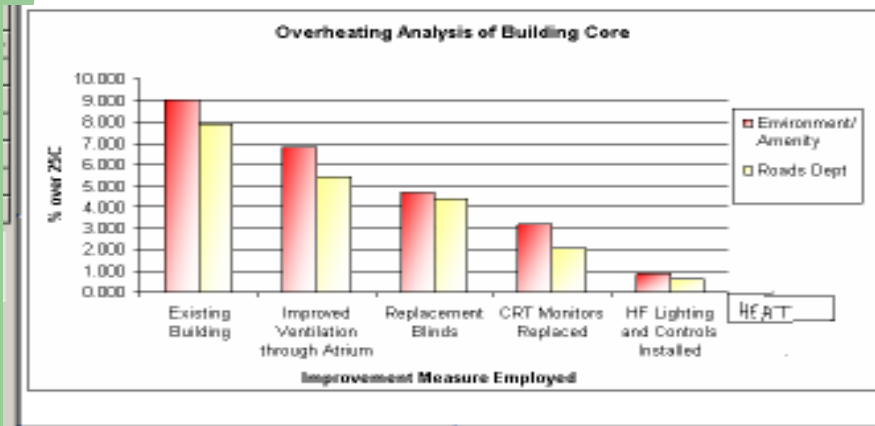
www.led.com

## Heating

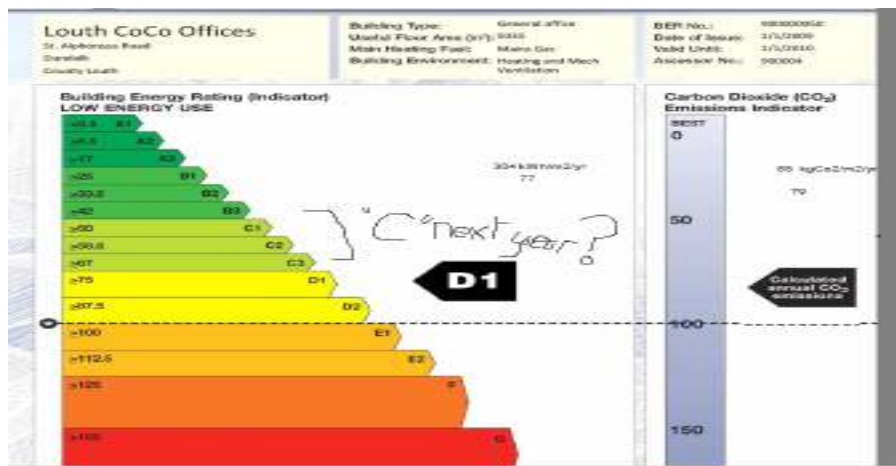
- Condensing Boiler
- 78% to 93%
- Weather compensation
- Controls to Porters desk
- 2 Port valve
- electronic
- stat big offices



## Gaining control, saving money



Target for next Year?





## After Energy Map Training...

- Structured approach to energy management
- Gradual engagement from all levels
- Early small wins leading slowly to bigger projects

2 BIG LESSONS.....

- 1) **Change the machine, not the person**
- 2) **Forward planning**