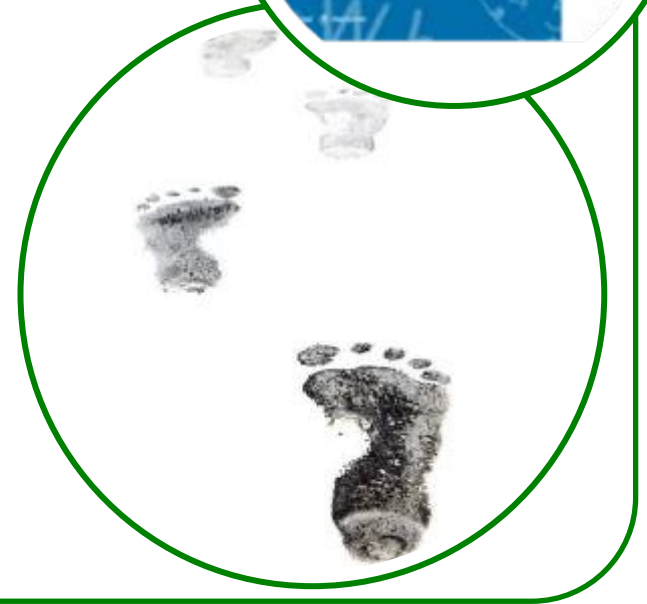


# CRC Energy Efficiency Scheme: Strategy for Survival!



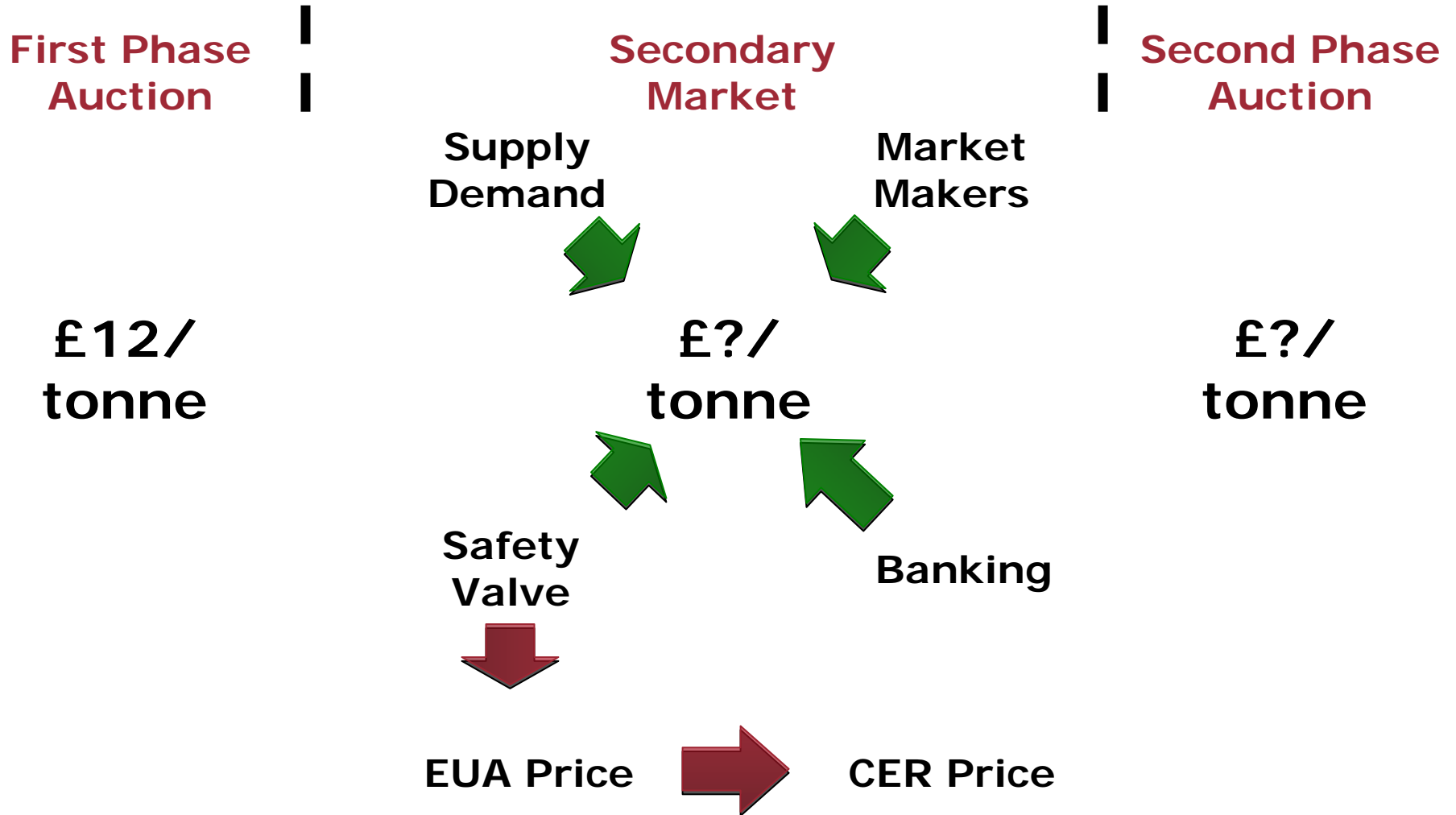
**Emma Hutchinson**  
**6<sup>th</sup> May 2010**

# Surviving the CRC

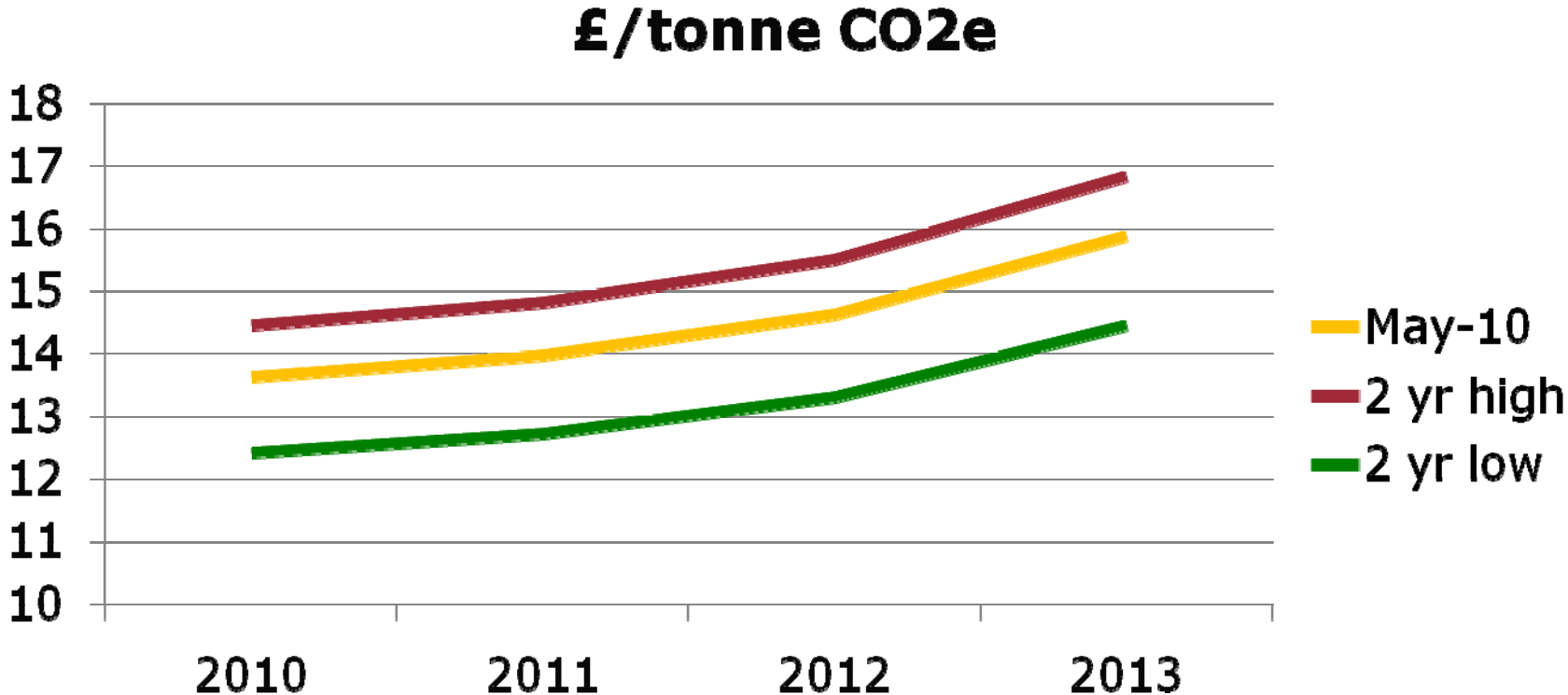
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- Understanding carbon pricing
- Early action metrics
- Deciding how much to buy at auction
- Forecasting
- Reduction planning

# Influences



# EU ETS Carbon



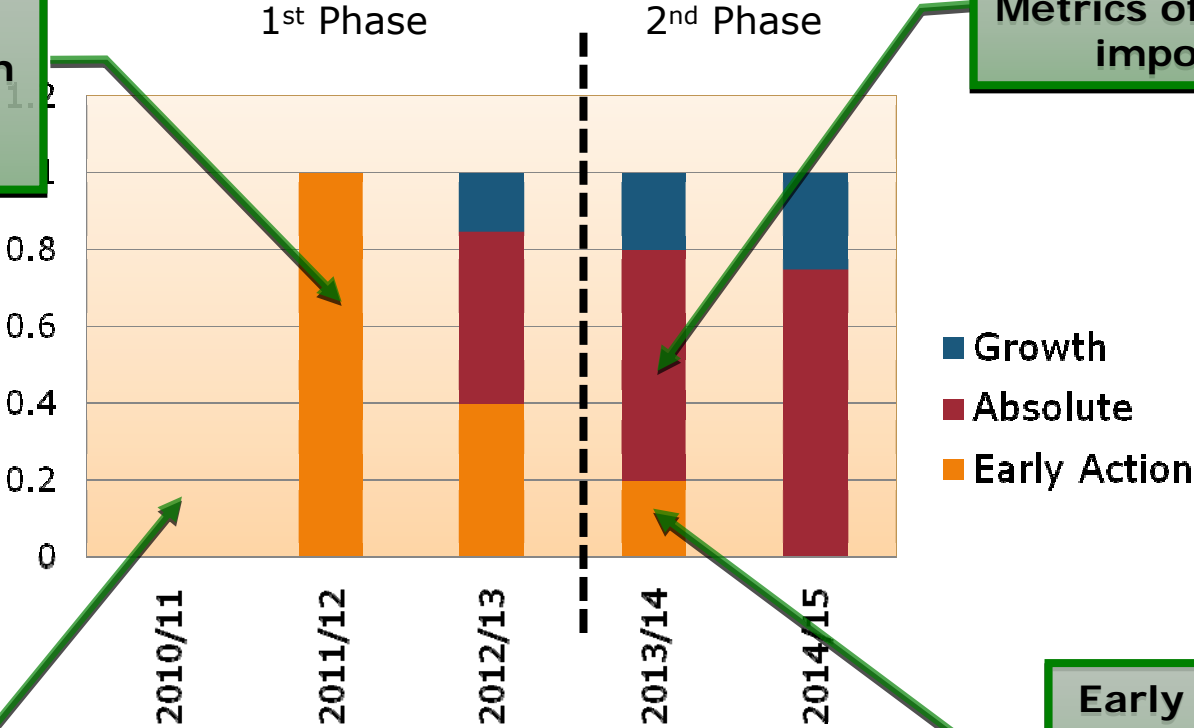
EU Projected carbon price for Phase 3 of EUETS €40/tonne

Source: EUA Prices from ECX as at 5<sup>th</sup> May 2010 converted at spot exchange rate

# Recycle Payments

2011/12  
recycle  
dependant on  
early action  
metrics

Absolute and Growth  
Metrics of increasing  
importance



No Auction  
in first  
year

Early Action Metric  
still influences  
recycle in 2<sup>nd</sup> Phase

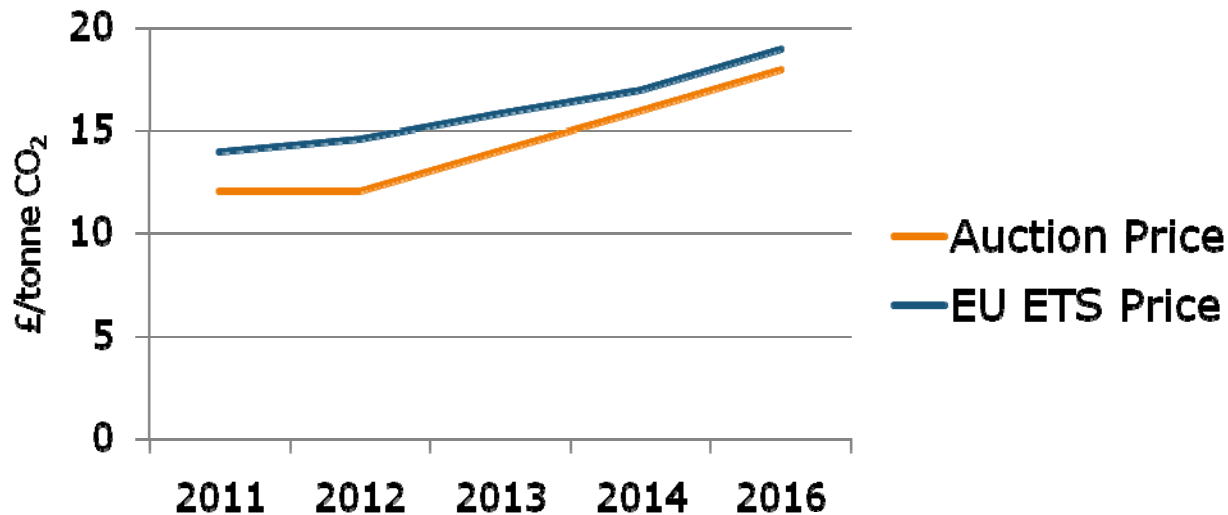
# Early Action Metrics

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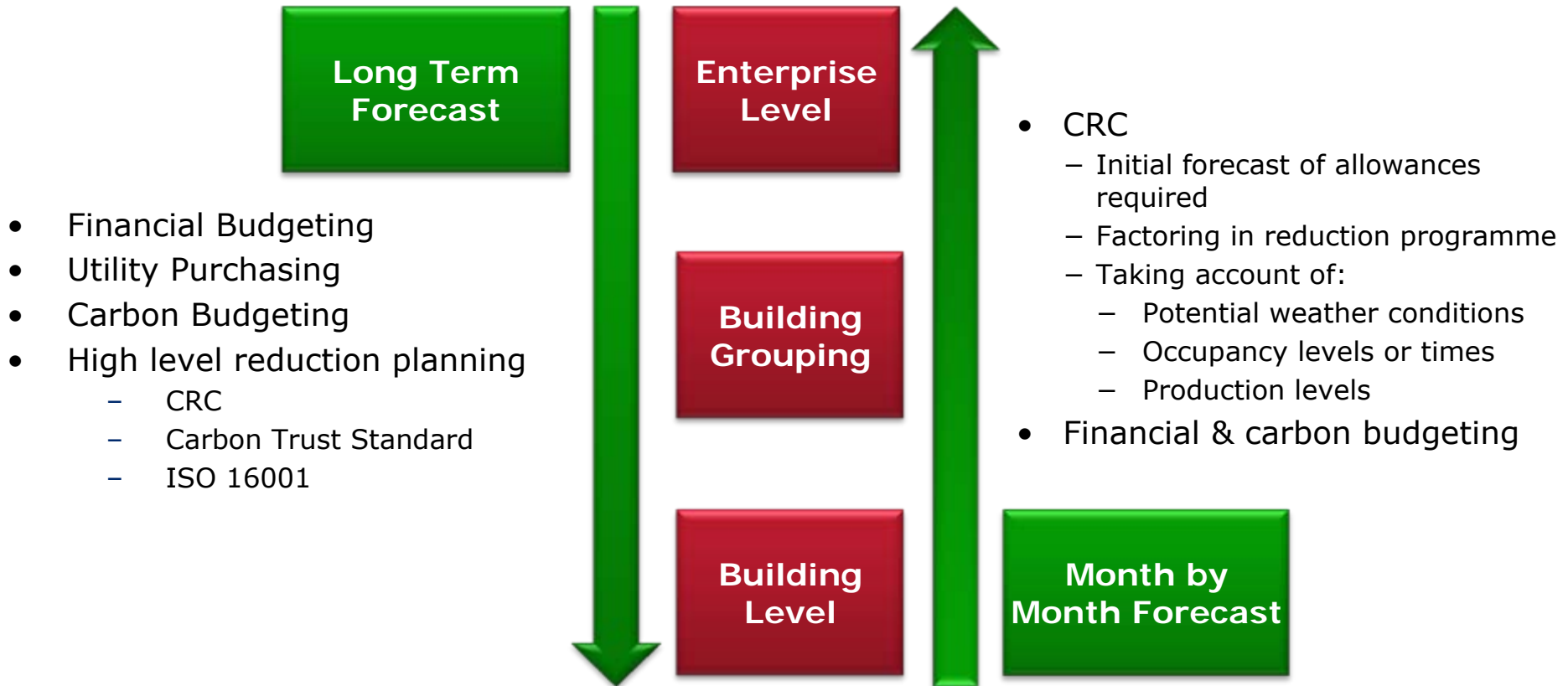
- AMR
  - Installation of automated meter readers on non half hourly read fiscal meters
  - Is based on consumption during year so if installed part way through the year will only receive part of the benefit
  - Demand is high so may take some time to implement
- Carbon Trust Standard
  - Demonstrate ongoing reduction in emissions and good carbon management practices
  - Needs to be in place by 31<sup>st</sup> March 2011 to obtain full early action metric benefit
  - Need to be prepared to achieve the standard

# How Much to Buy at Auction

- Forecast Demand
- Decide how much to buy:
  - Buy forecast amount at auction
  - Buy portion of required allowances at auction leave remainder to secondary market
  - Price in secondary market should be capped at EUA price (minimum £14/tonne CO<sub>2</sub>)



# Forecasting: Long Term vs Short Term



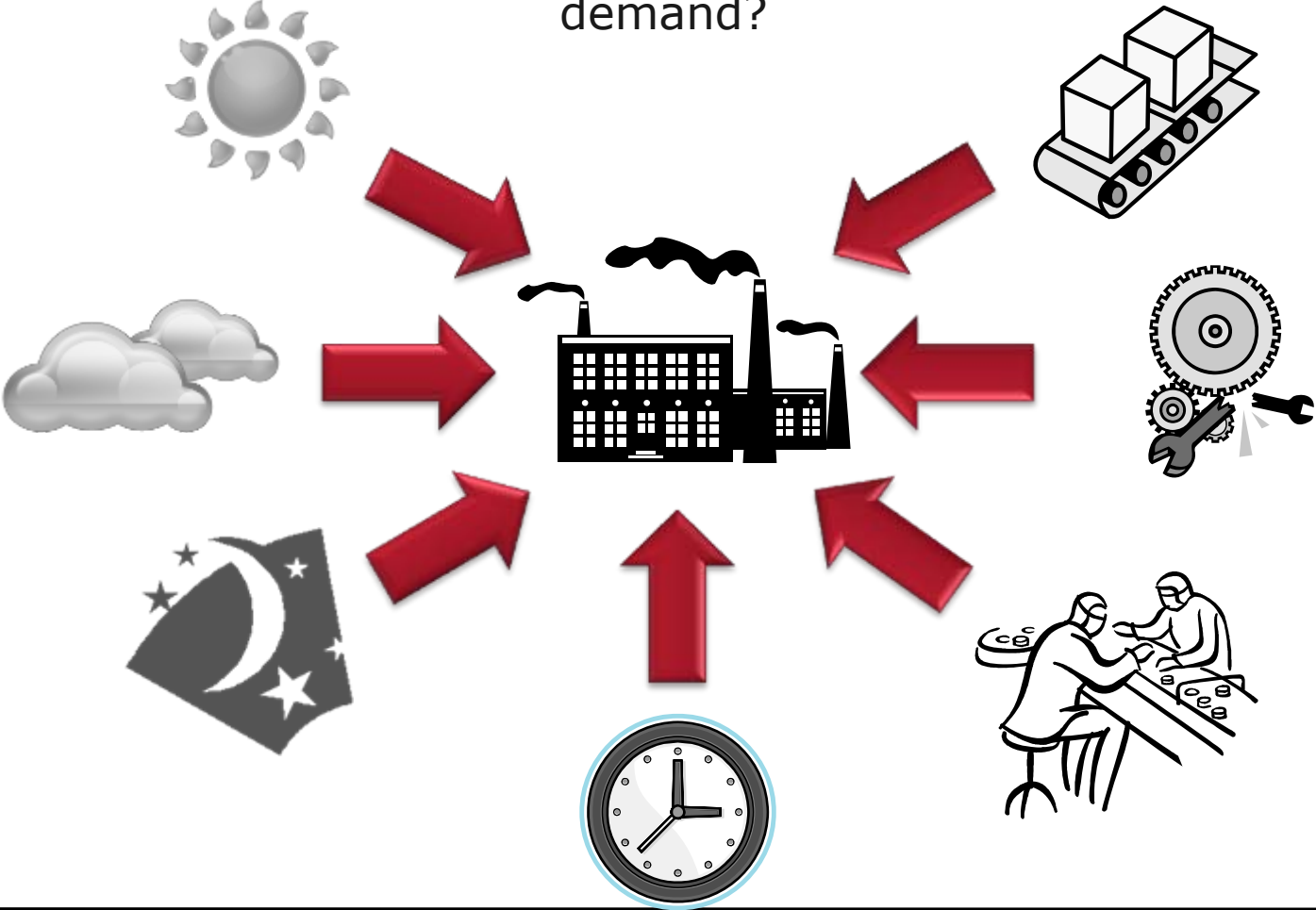
# How to Forecast

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- Starting from an accurate base
  - Metering and data recording
- Determining drivers
  - The factors that influence the energy demand of each building or site
- Determine building groupings
- Forecasting techniques
  - Analysis of the impact of the drivers on demand

# Forecasting: Drivers

What factors influence demand?



# Forecasting Techniques

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- Historical and Trend Analysis
- Benchmarking by building use or type
- Normalisation using degree days and other factors
- Specific Energy Consumption i.e. kWh per m<sup>2</sup>, kWh per occupant etc
- Regression Analysis – correlation factor analysis
- Cusum Analysis

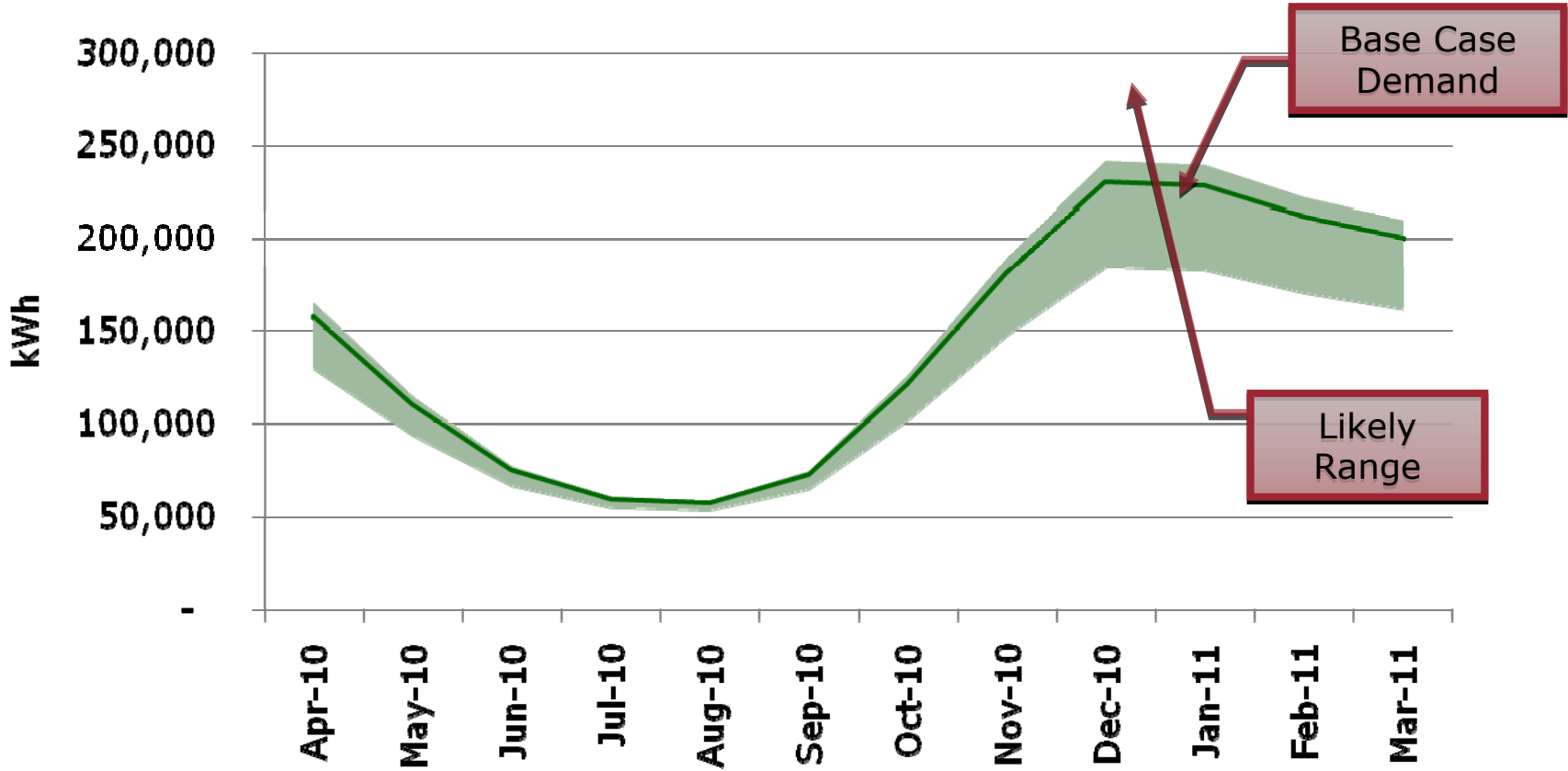
# Creating Forecast Scenarios

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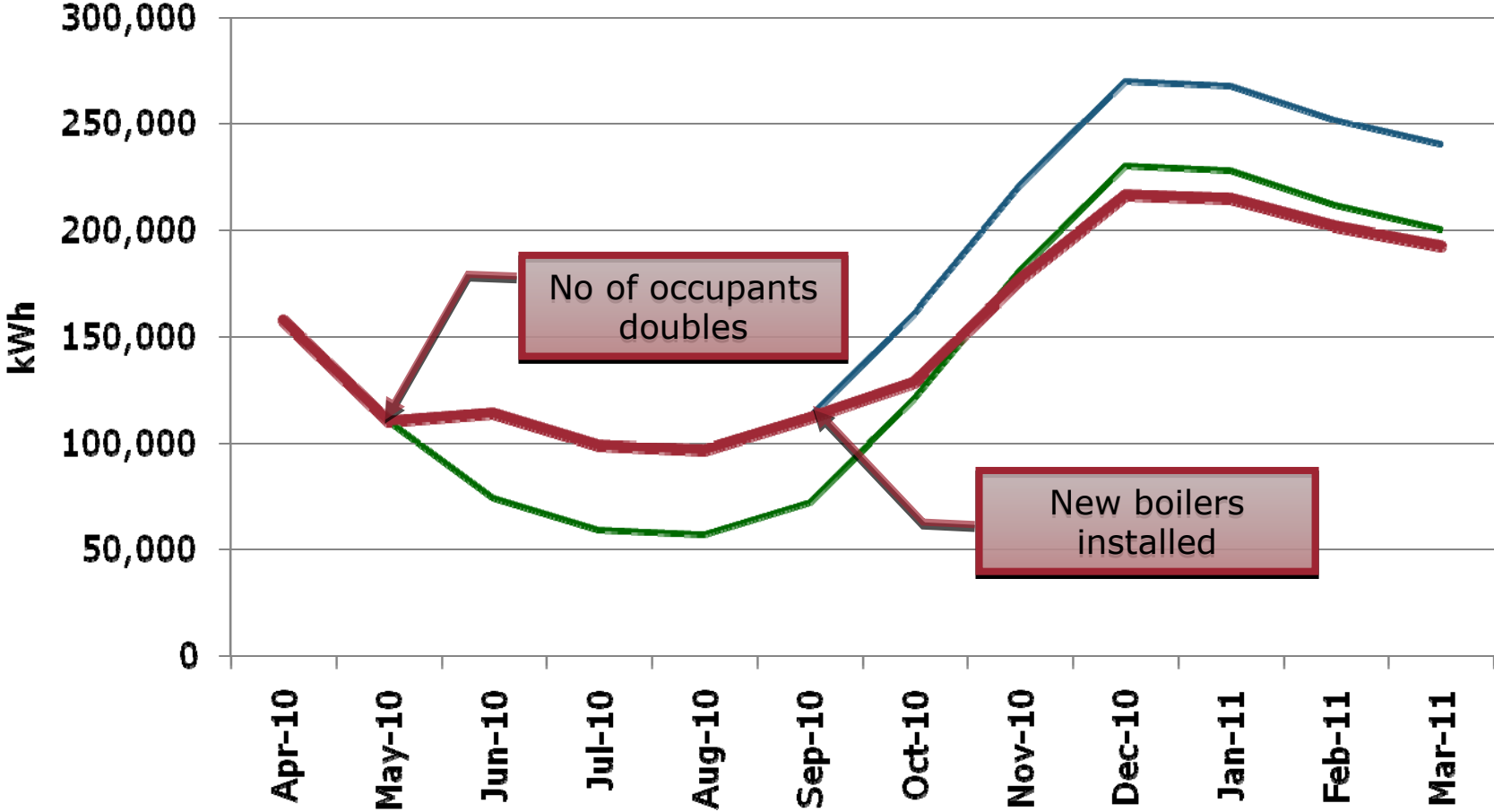
- Estimation of demand split by driver
- Minimum, maximum and most likely forecast for each driver
- Build in reduction plan

# Forecast Example

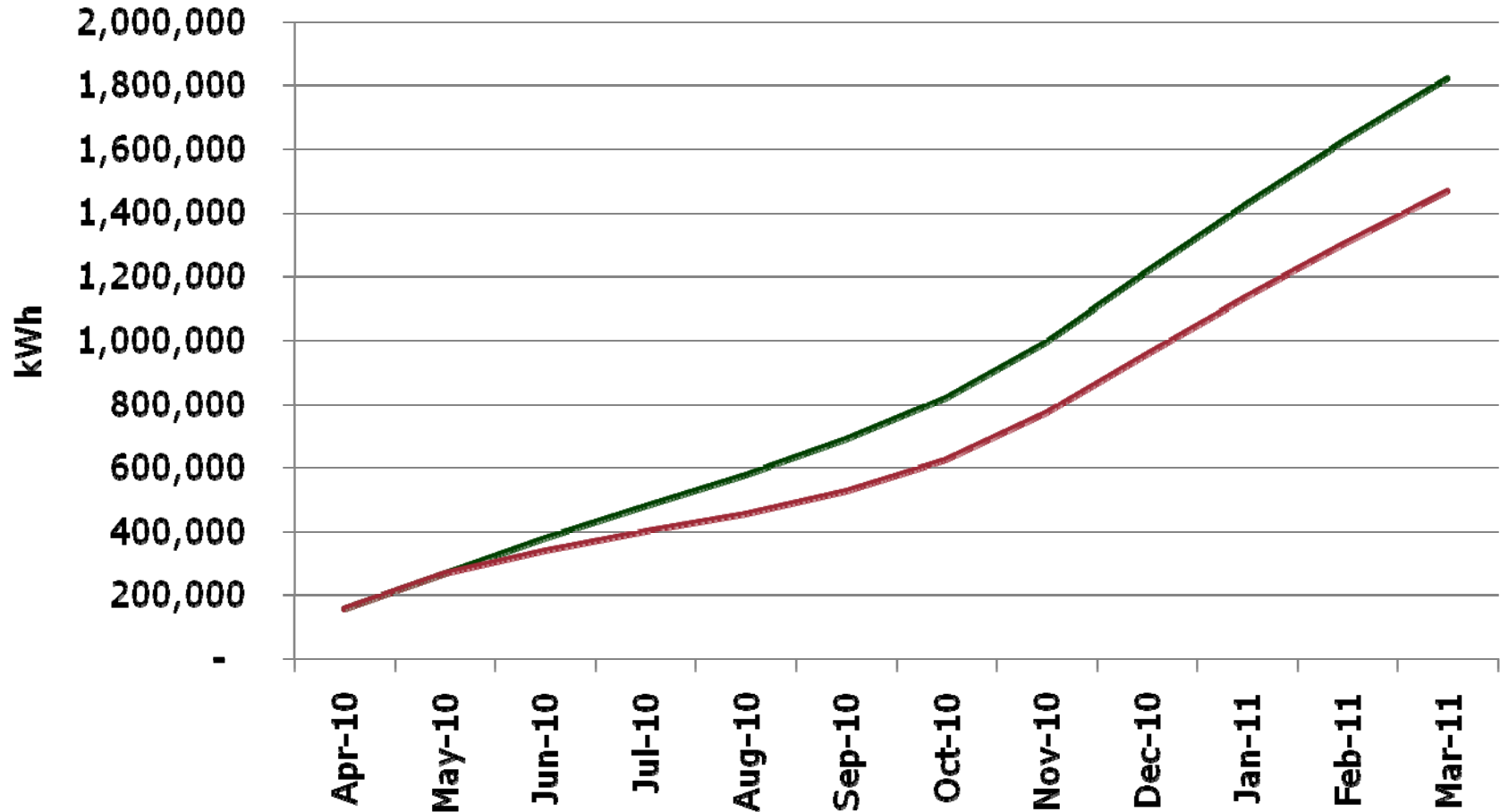
Max degree days 6% above 11 year average  
Min degree days 24% below 11 year average



# Forecasting: Factoring in Reductions



# Forecasting: Monitor Cumulative Demand



# Reduction Planning

- Put in place a carbon reduction plan that:
  - Demonstrates year on year savings
  - Is achievable
  - Has senior management buy in
  - Is properly budgeted for
- When calculating savings factor in the potential cost of the carbon allowances
- Use marginal abatement cost analysis to prioritise your projects
- Review projects after implementation to determine success
- Continuous improvement cycle



# Marginal Abatement Costs

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- Prioritisation of projects by carbon and cost saving
- Evaluates the amount of CO2 saved as set against the cost per tonne of CO2 saved
- Calculation is simple:
  - Work out the PV of potential projects by evaluating the cost savings over the life of the measure
  - Work out the PV of the carbon savings over the life of the measure
  - Divide one by the other to give the marginal abatement cost

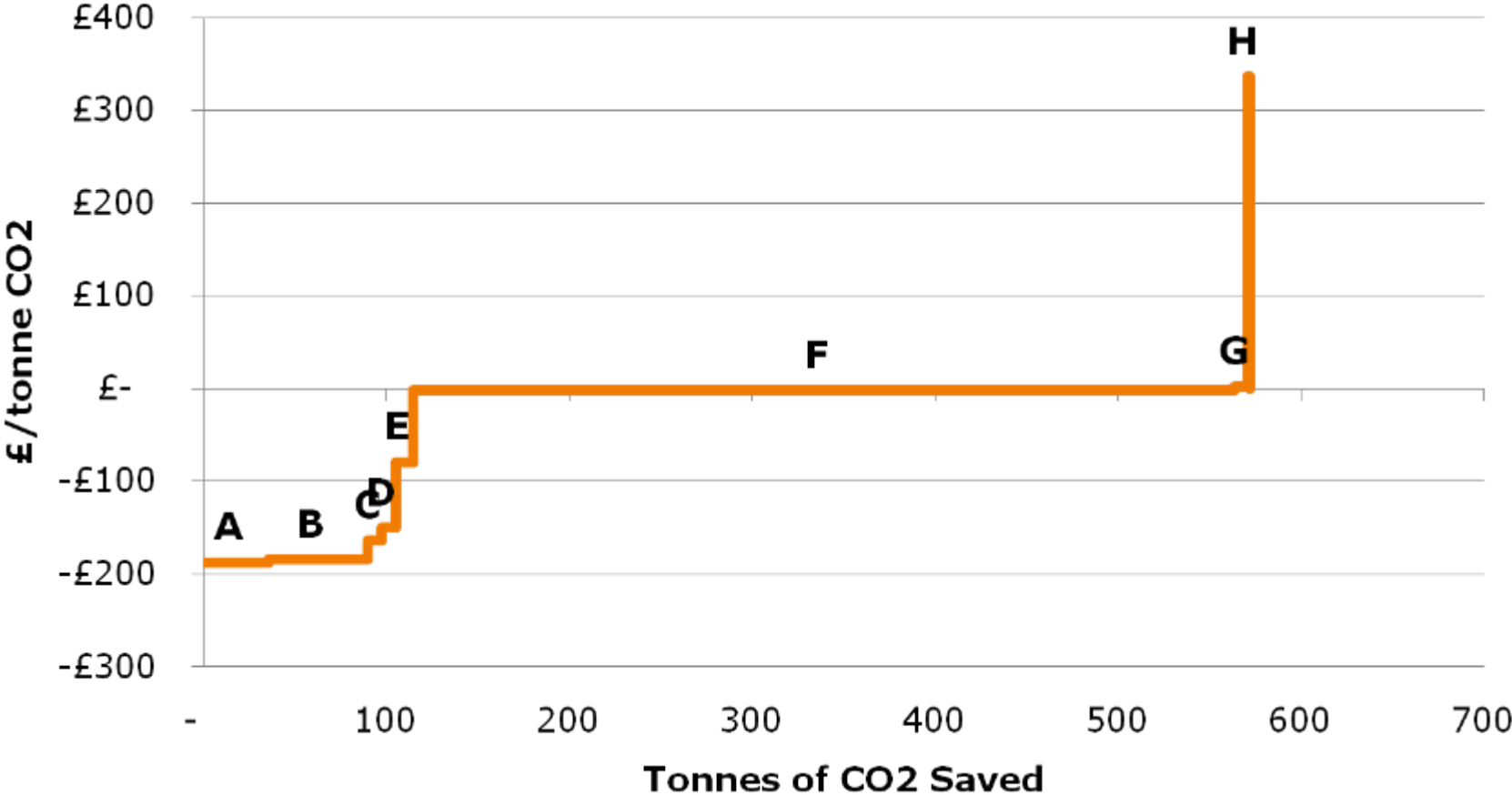
# Project Plan

Project	Description	Annual Saving			Payback
		£	tCO2e	kWh	
A	Energy Management and Awareness	6,929	36.0	100,124	0.1
B	Metering, Monitoring and Targeting	10,393	53.9	150,185	0.3
C	Heating Control Improvements	1,641	7.5	41,015	1.5
D	Installation of new DHW system	1,685	7.7	42,114	2.4
E	Variable Speed Drives	2,058	9.5	51,338	4.9
F	Biomass	24,414	449.2	0	7.4
G	Solar Gain Reduction	1,296	7.1	12,961	7.7
H	Solar Thermal	216	1.0	5,400	23.1

# Marginal Abatement Cost Calculation

Project	Description	NPV Savings	NPV CO <sub>2</sub>	£/tonne CO <sub>2</sub>
A	Energy Management and Awareness	-16,730	89	-187
B	Metering, Monitoring and Targeting	-60,859	331	-184
C	Heating Control Improvements	-7,581	46	-163
D	Installation of new DHW system	-8,813	59	-150
E	Variable Speed Drives	-5,651	72	-78
F	Biomass	-5,693	3,417	-2
G	Solar Gain Reduction	142	54	3
H	Solar Thermal	3,039	9	337

# Marginal Abatement Curve



# Minimising Risk

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- Understand your demand
- Put in place a reduction plan that delivers year on year savings
- If the plan is successfully implemented this should put your organisation in the top half of the league table
- Most importantly reducing energy usage will save you money on your energy purchases – this is likely to be significantly more than any money you make from the CRC scheme

# Further Information

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