Maximising business value through systematic carbon and energy reduction

Answers for the Environment

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> The benefits of a systematic approach

> Why are we doing carbon and energy management?

> How far and how fast are we travelling?

> A “three factors” model for successful carbon and energy management

> A checklist of success factors for maximising business value from energy and carbon reduction

Carbon management basics

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Drivers
> current, future, internal, external

- Direct customer demand
- Company values & mission
- Direct climate impacts (value chain)
- Cost of carbon emissions
- Cost of energy
- Regulation
- Market demand
- Investor demands
- Competition

Actions

- Measure current emissions
- Prioritising emission reduction actions
- Operational / management changes
- Investment decision criteria
- Special projects
- Internal comms
- Marketing and PR
- Product / service development
- Government relations / advocacy

Outcomes
> mitigate risk, create value

- Protect long-run shareholder value
- Minimise operational cost
- manage exposure to energy and carbon cost risk
- Create competitive advantage
- Discover growth and revenue opportunities
- Protect / develop brand value
- Enhance corporate reputation & values

Understanding targets and drivers

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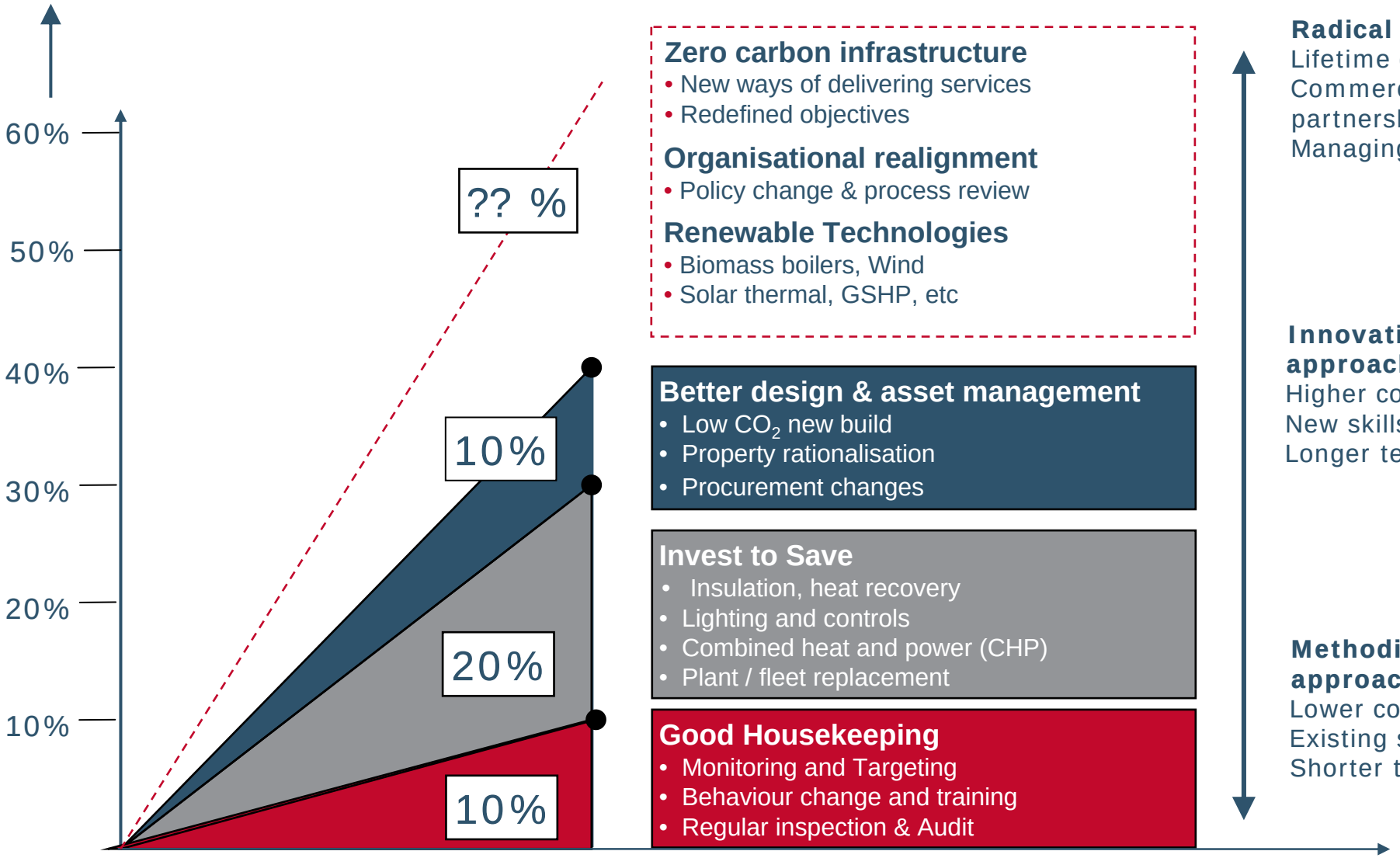
Simple impacts analysis enables:

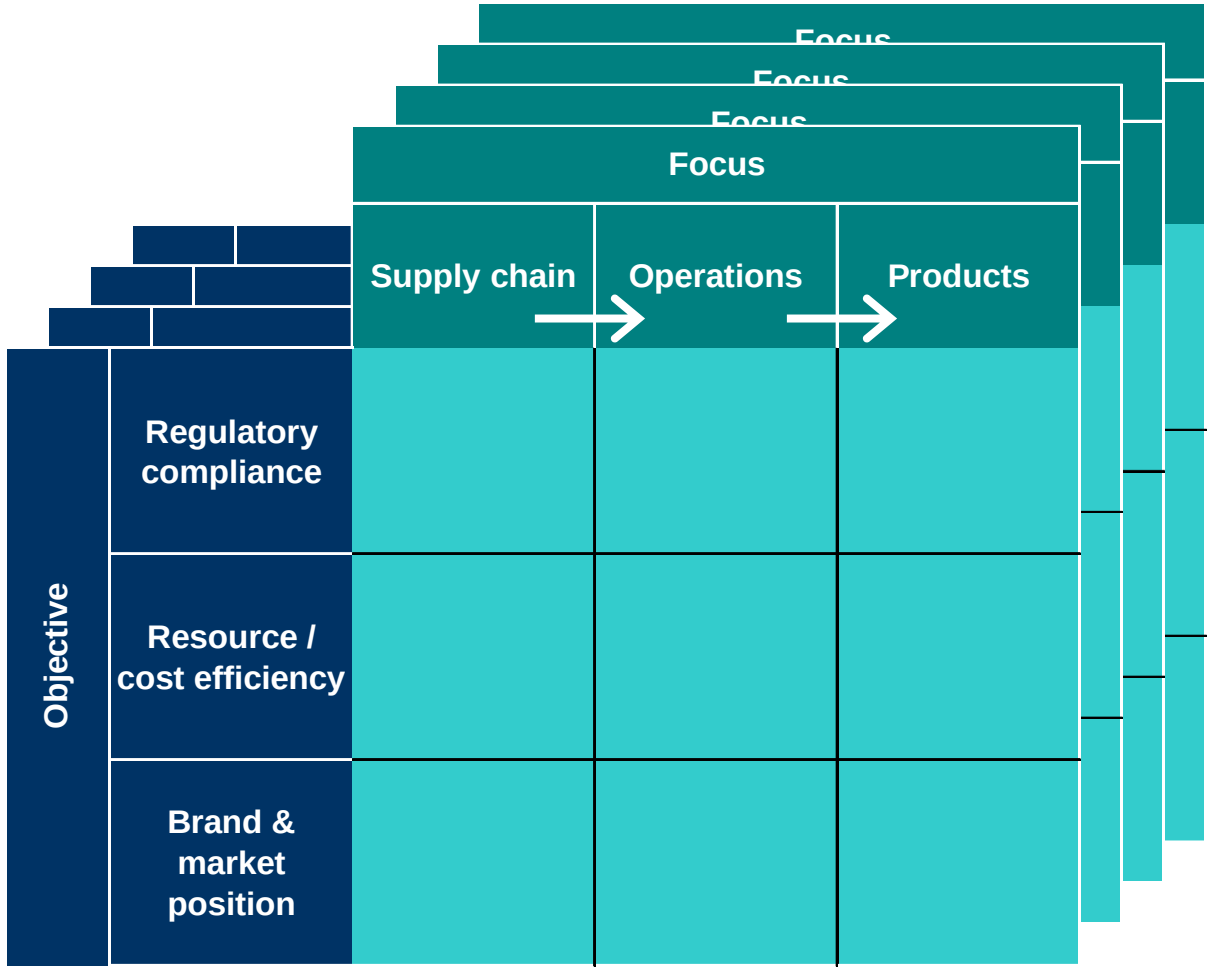
- Ranking of drivers according to business and stakeholder priorities / concerns
- Assessment of relative scale of impact of each driver
- Characterisation of degree of control over each driver
- Layering local, regional and global drivers and impacts
- Targeting planned response to maximise business benefits

		Source	
		Internal	**External**
Nature of targets / drivers	**Mandatory / regulatory**	**Public domain commitments to sustainability or carbon reduction, business plan targets**	**eg EUETS, CRC, CCA**
	Voluntary / discretionary	**Local performance improvement objectives not publicly disclosed**	**eg CDP disclosure, Competititor positions, Investor sentiment, industry agreements**

Decision making for future low carbon performance



Setting objectives: where and why…



Where should carbon reduction actions be focused?

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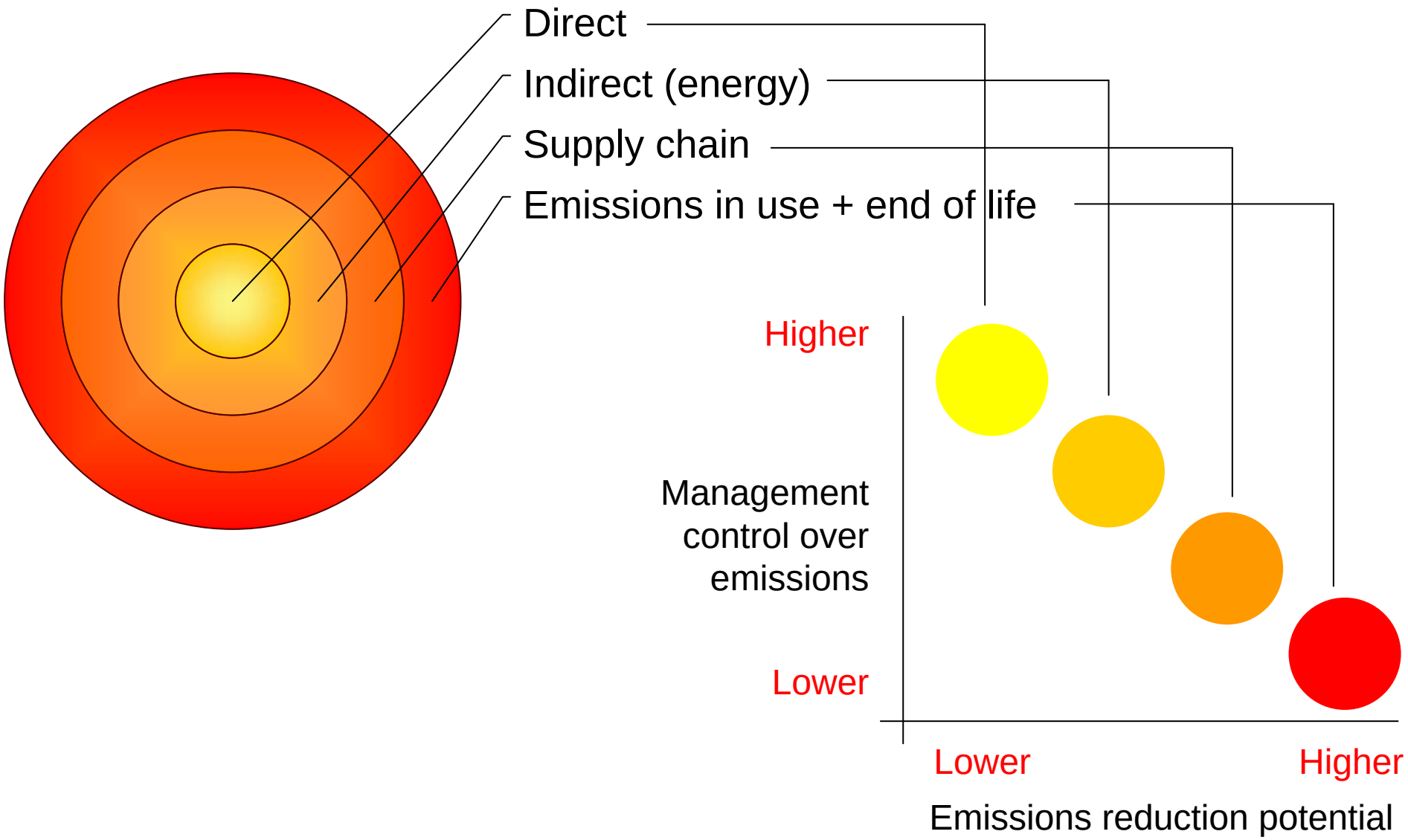

Example: dairy industry supply chain

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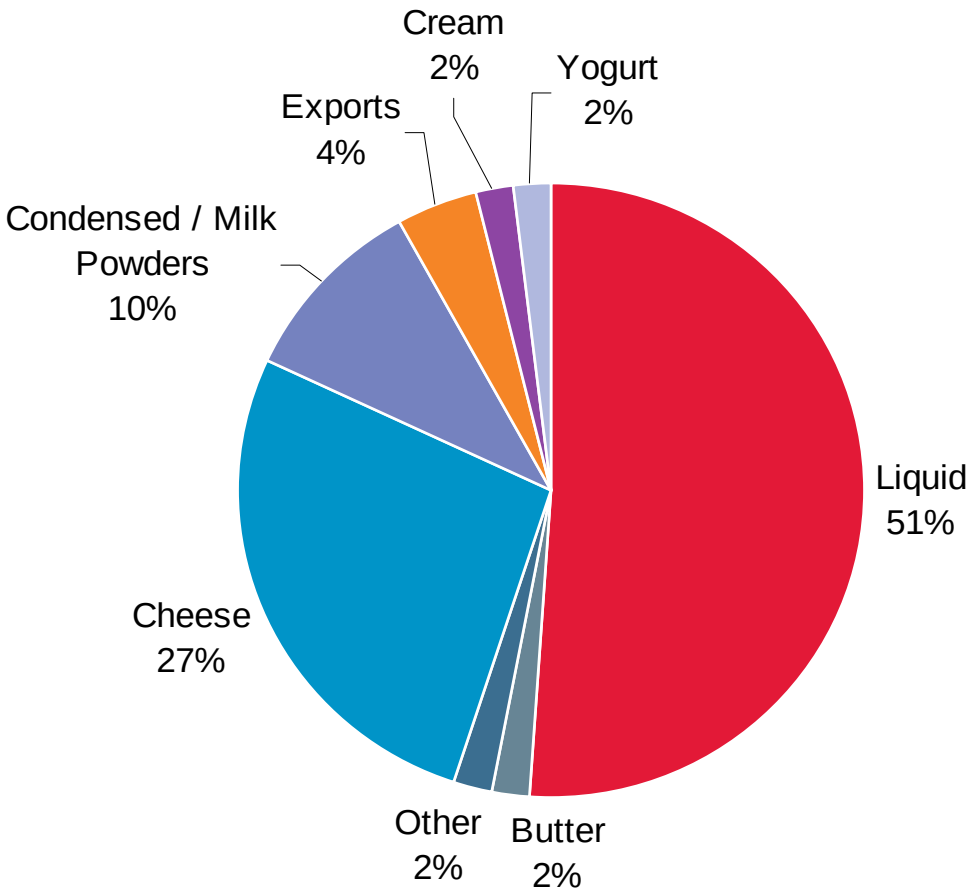
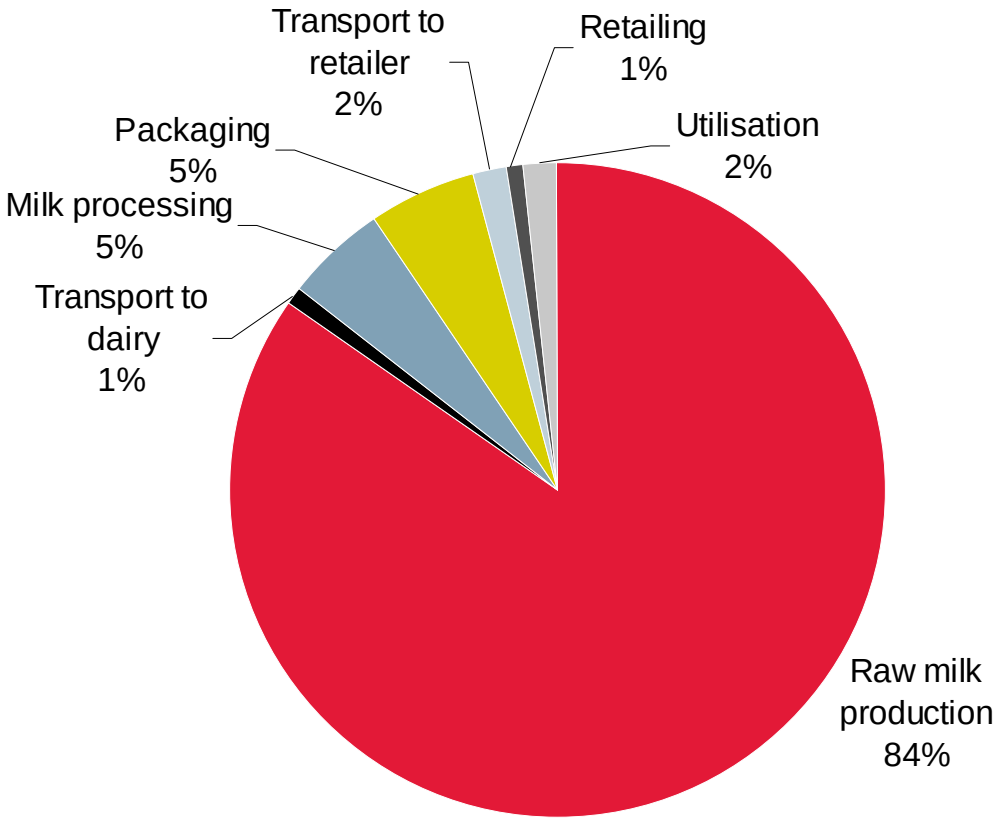
UK dairy products by volume





Breakdown of energy use / carbon emissions

Example: scope development for vehicle manufacturer

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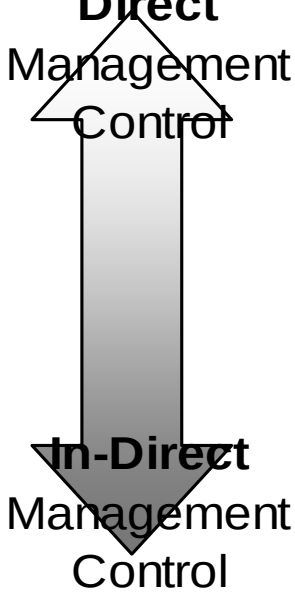

Direct Emissions

created onsite by normal operation of primary functions of the business

- Gas use
- Transportation
- VOC emissions
- Other green house gases
- On site contractor energy use

In-Direct Emissions

created indirectly offsite in normal operation of primary functions of the business

- Electricity use
- Waste
  - Recycling
  - Water use
- Staff commuting
- End user vehicle emissions - Market demand
- Supplier energy & material use

A ‘three factors’ model of carbon improvement

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1

technical solutions and actions

Availability of cost-effective, fit-for-purpose, reliable technical solutions

Technology solutions

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Spotify

Energy technology solutions in manufacturing

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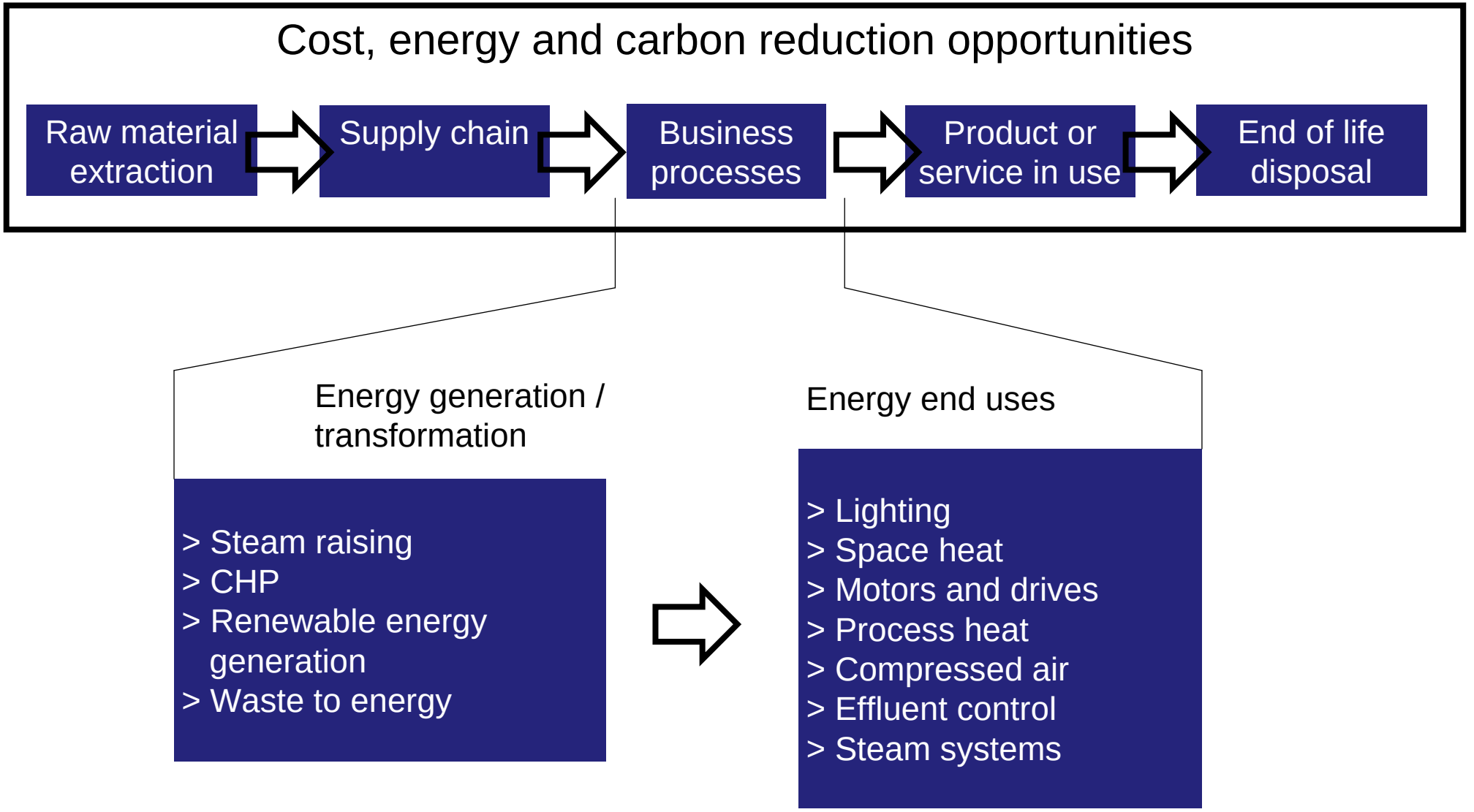

Technology solutions – dairy sector examples

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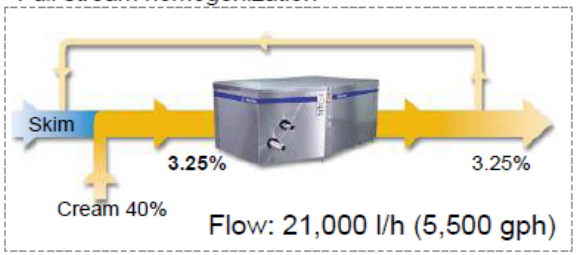
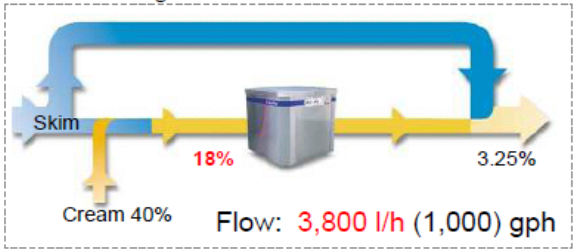
Ultrasonic homogenisation

Alternative methods of homogenisation

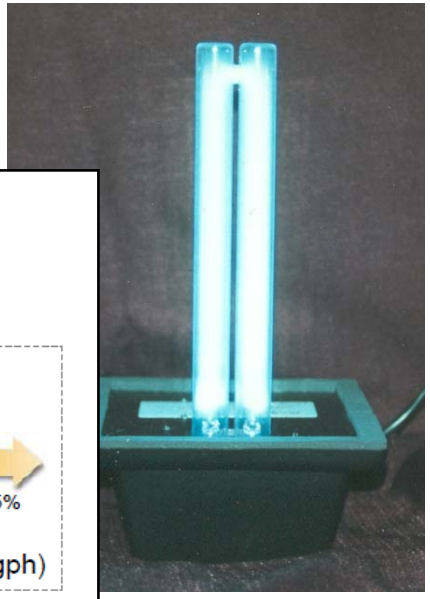
Full stream homogenization



Partial homogenization

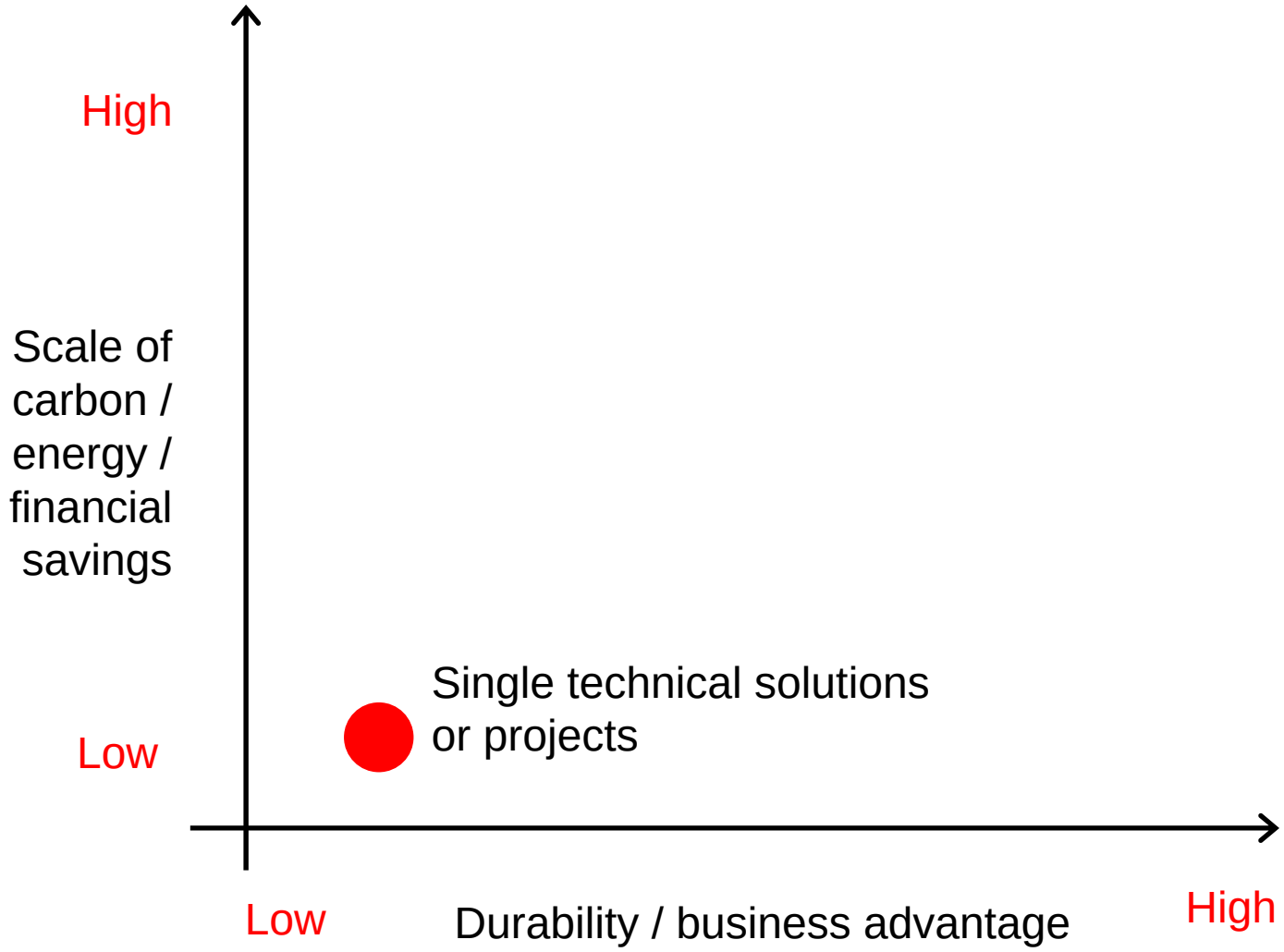


UV pasteurisation



Airtight centrifugal separation of cream and whey

Maximising business value from energy saving



A ‘three factors’ model of carbon improvement

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1

technical solutions and actions

Availability of cost-effective, fit-for-purpose, reliable technical solutions

Rational selection of projects and solutions based on impact and effectiveness

Data, systems and analysis

2

Processes to drive rational measures

- aM&T Carbon Desktop
- 16001 / CTS
- Appoint Energy Champion(s)
- Stabilise / Loss Avoidance Measures

A data framework and business process

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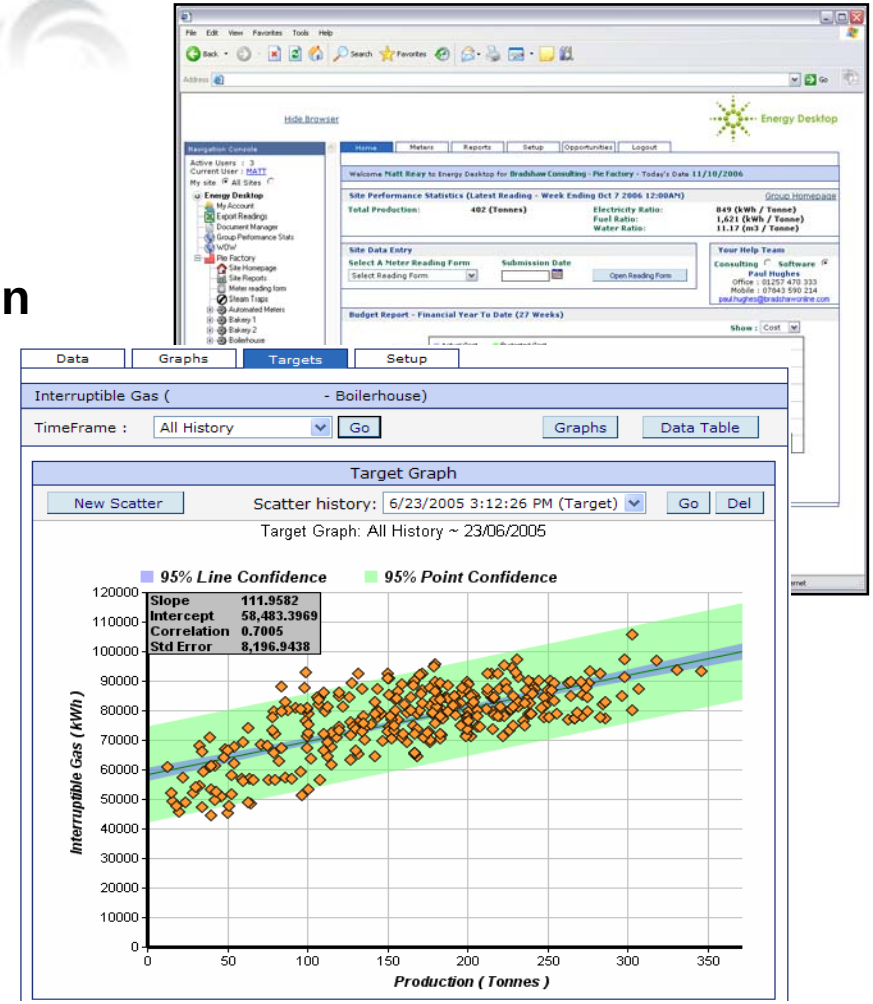
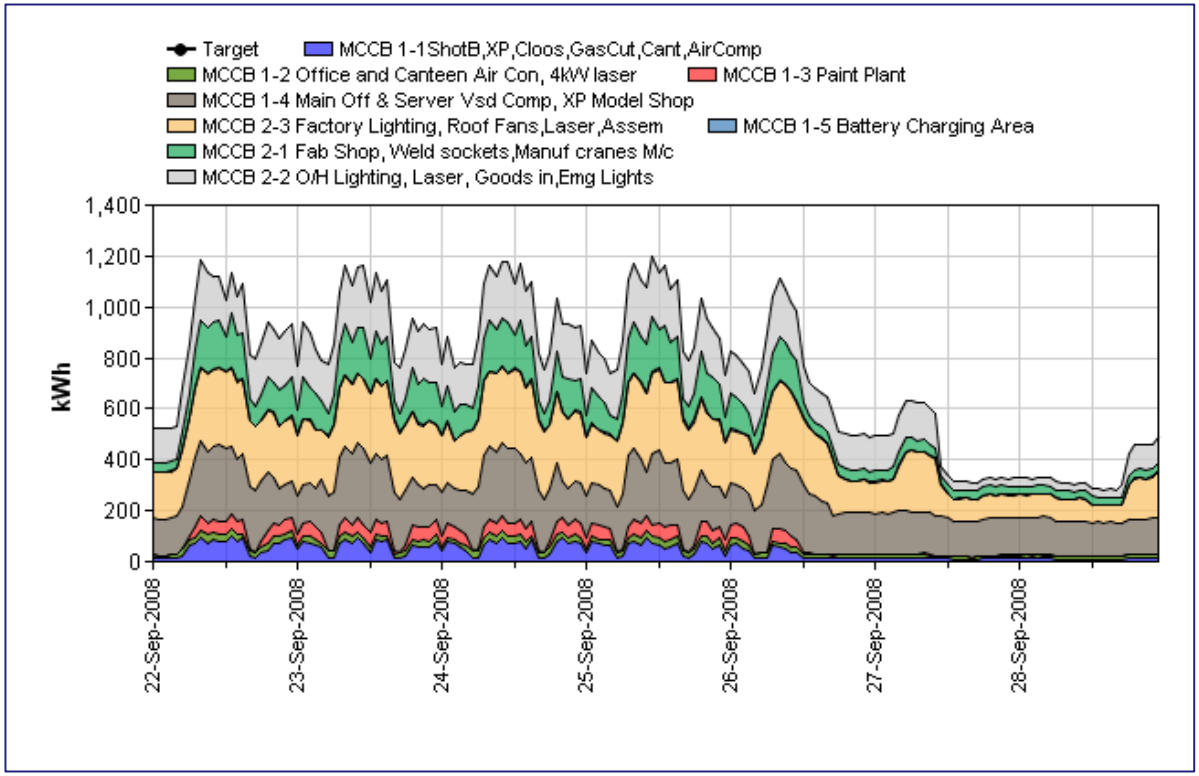
carbondesktop



Automatic Monitoring & Targeting (aM&T)

Custom Report Extract:



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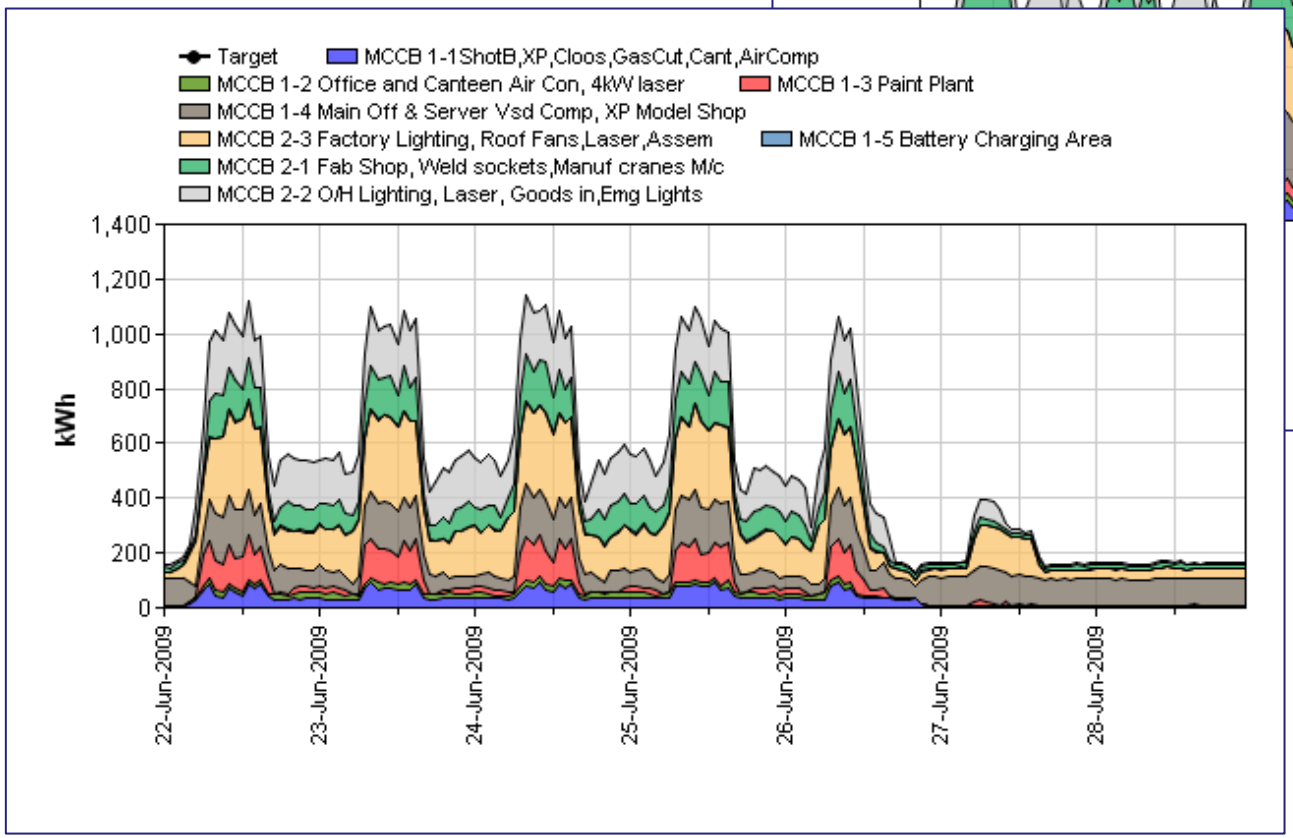

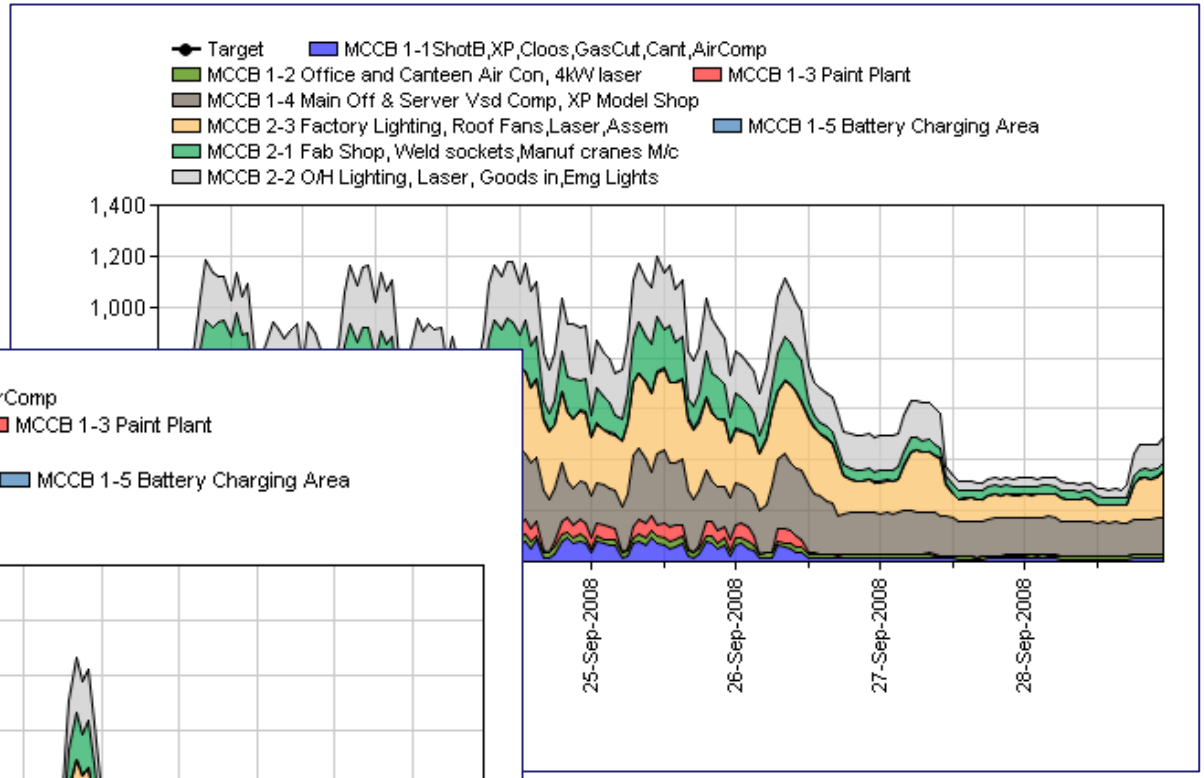

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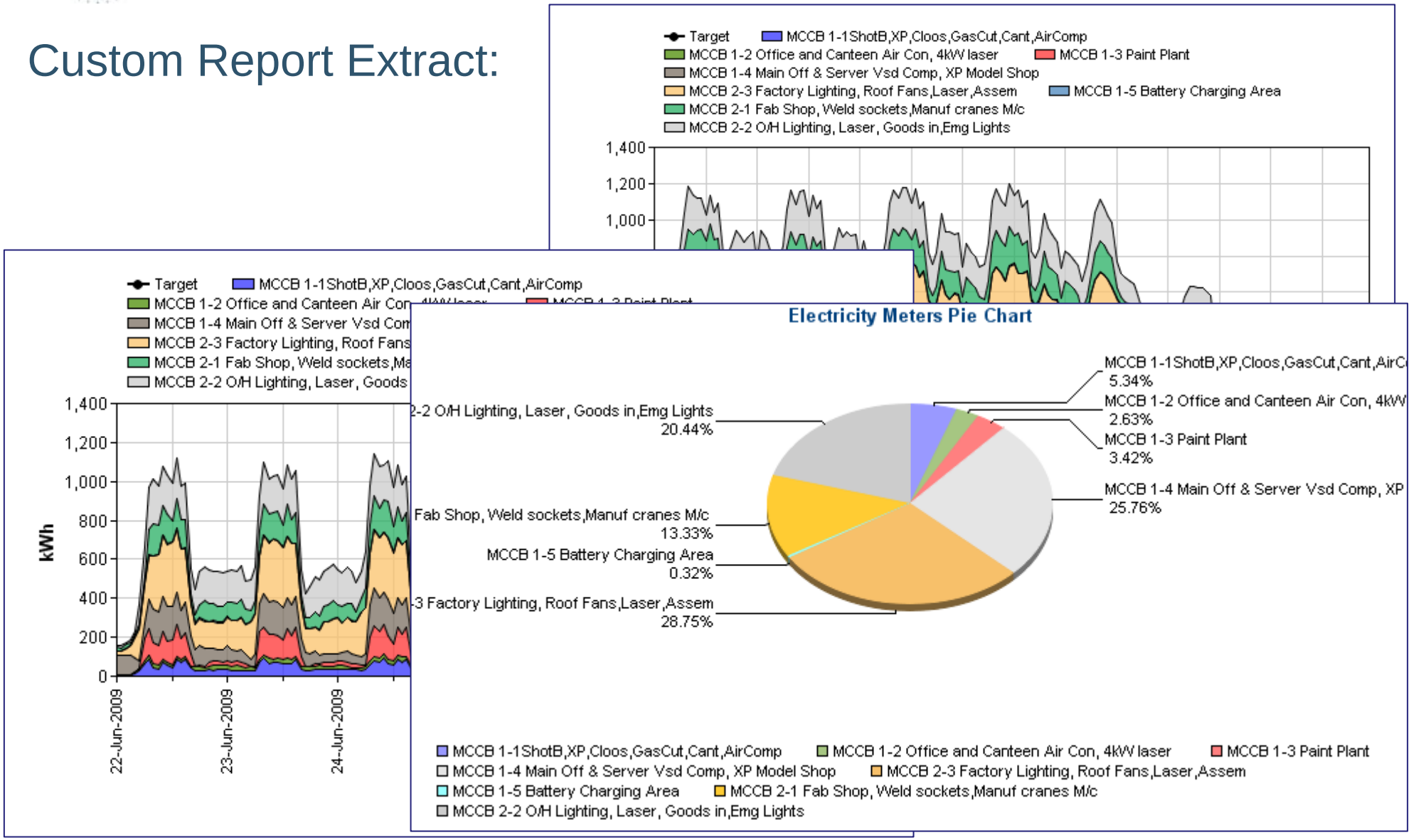

An organisation-specific abatement cost curve

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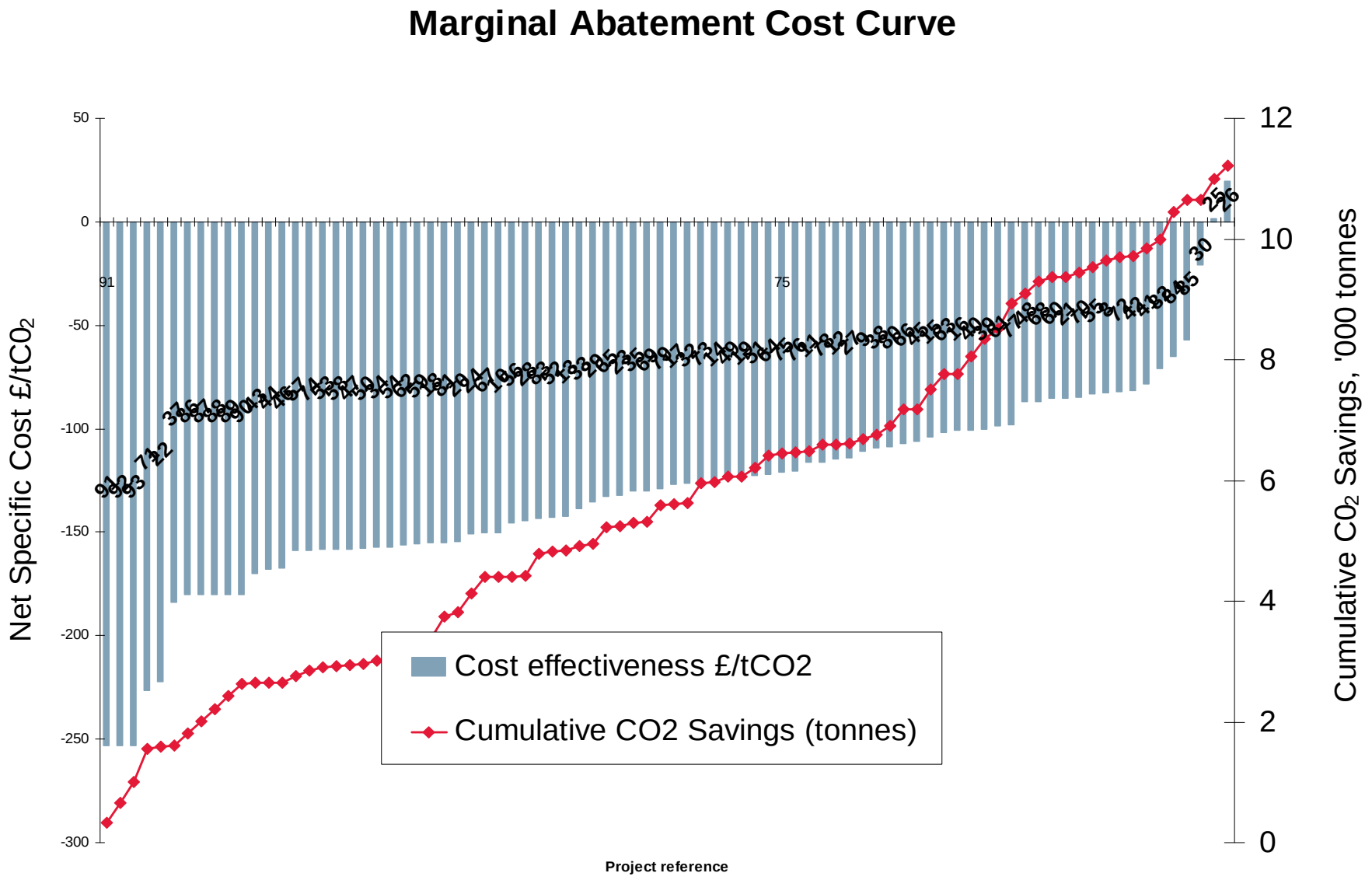
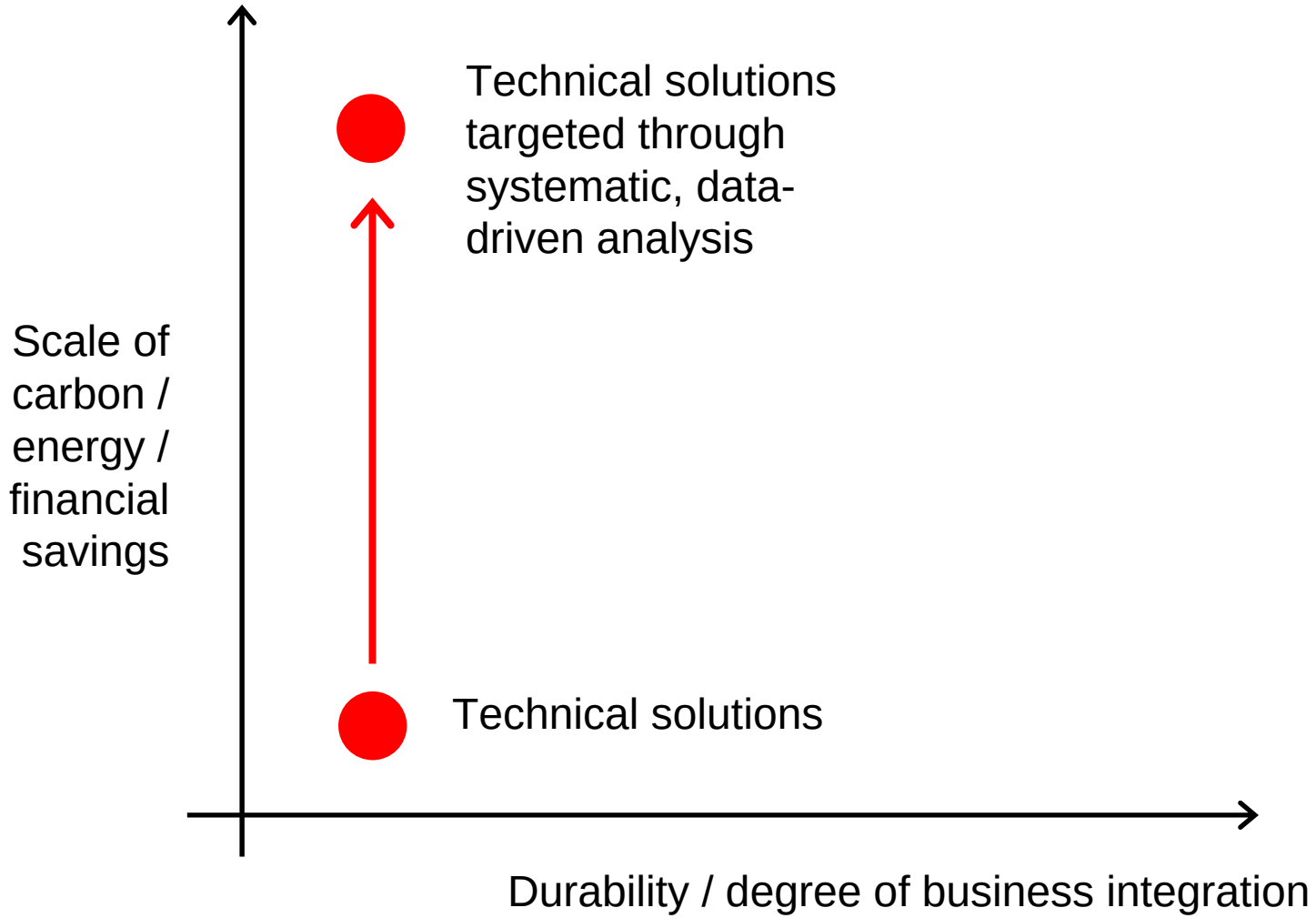
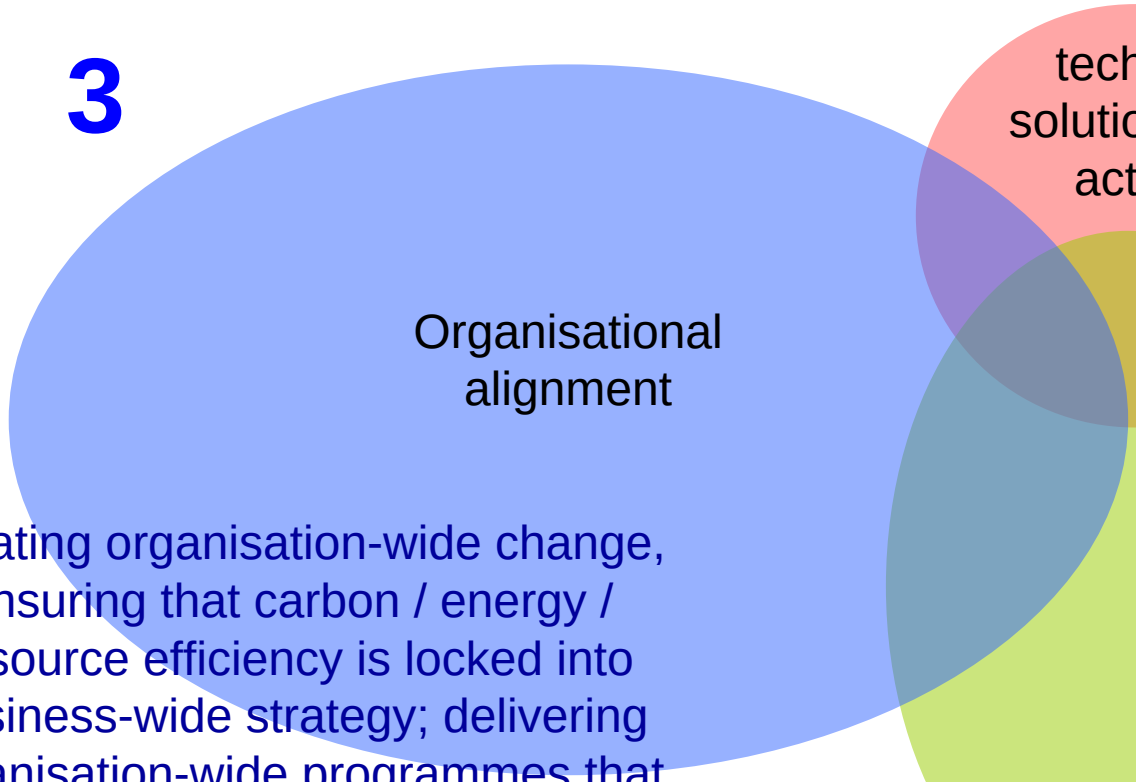


Maximising business value from energy saving



A ‘three factors’ model of carbon improvement



Analysis: carbon risks and value tool

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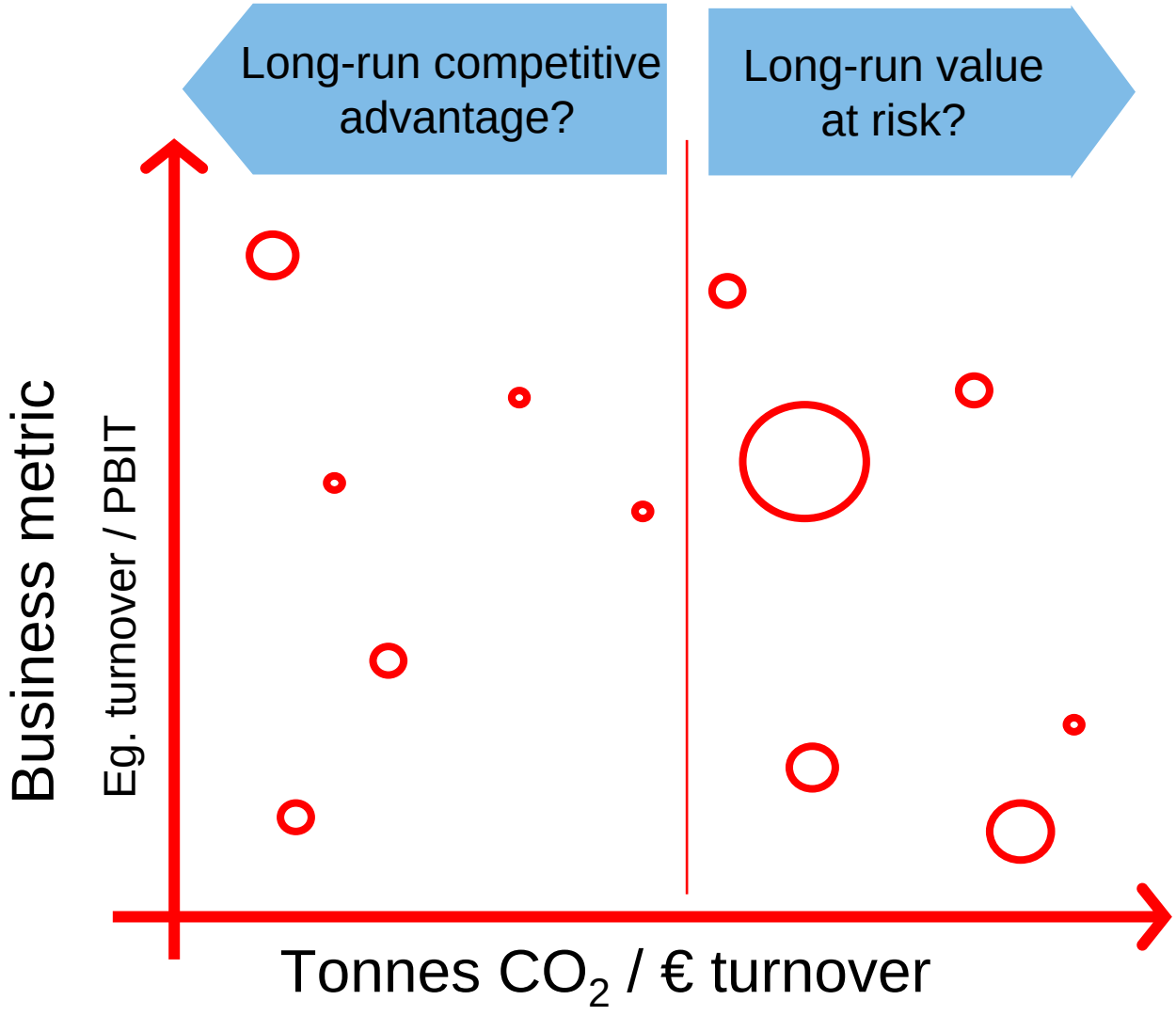
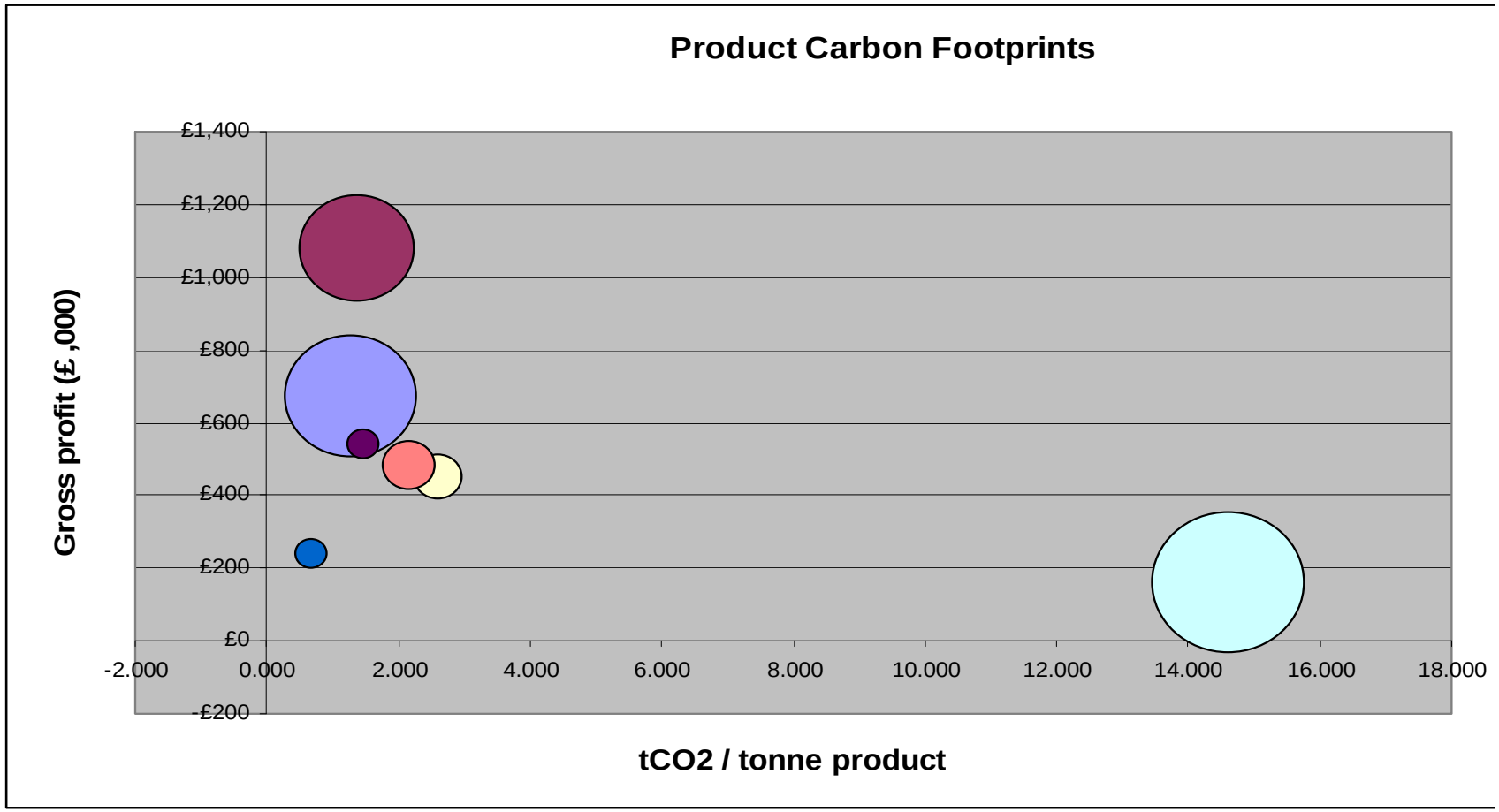
Analysis can be applied at local, regional or global level to:

- Business units
- Products
- Divisions
- Lines
- Components
- Suppliers



Carbon risk and value: example



Quantifying business impacts

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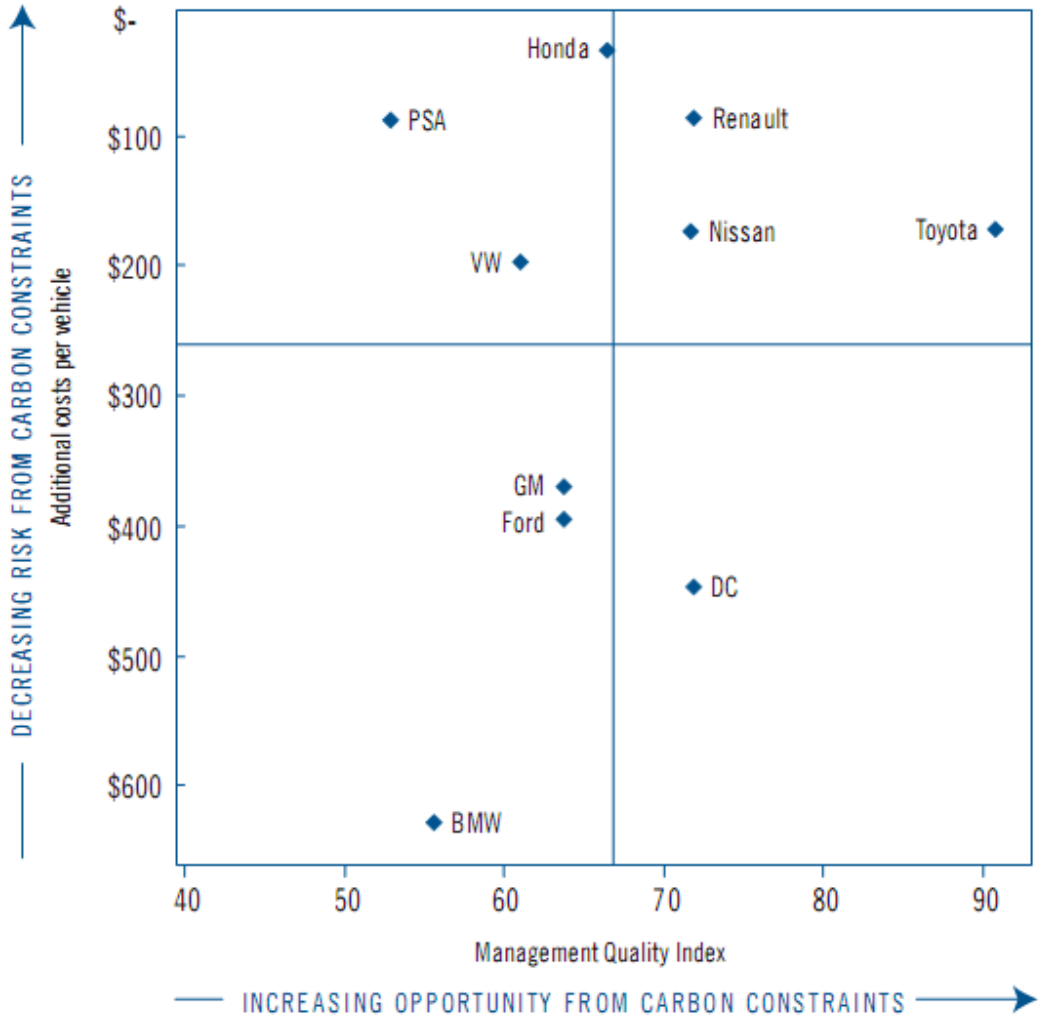
FIGURE A. QUANTIFICATION OF THE RISKS (Value Exposure) AND OPPORTUNITIES (Management Quality) OF CARBON CONSTRAINTS



Quantifying business impacts

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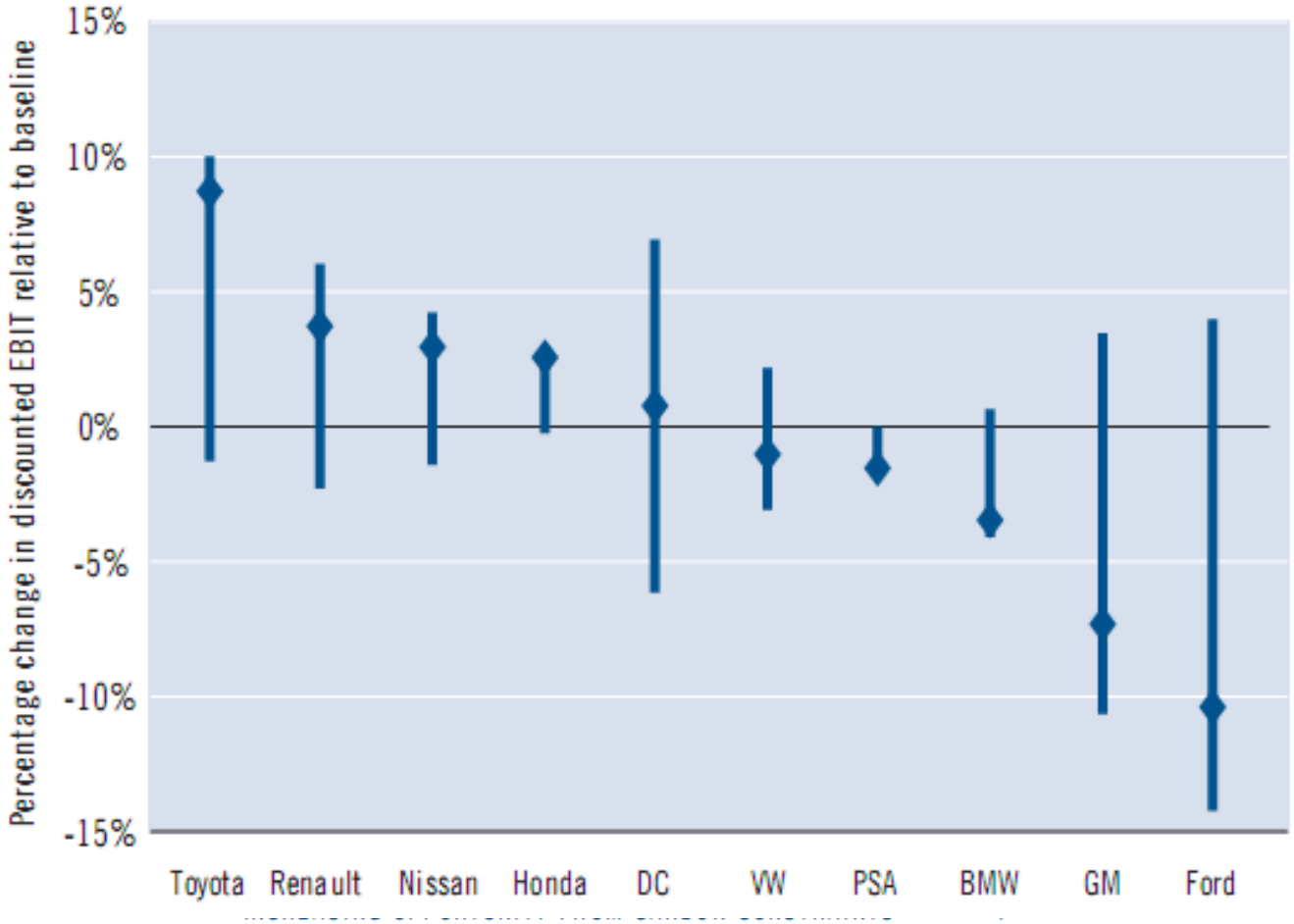
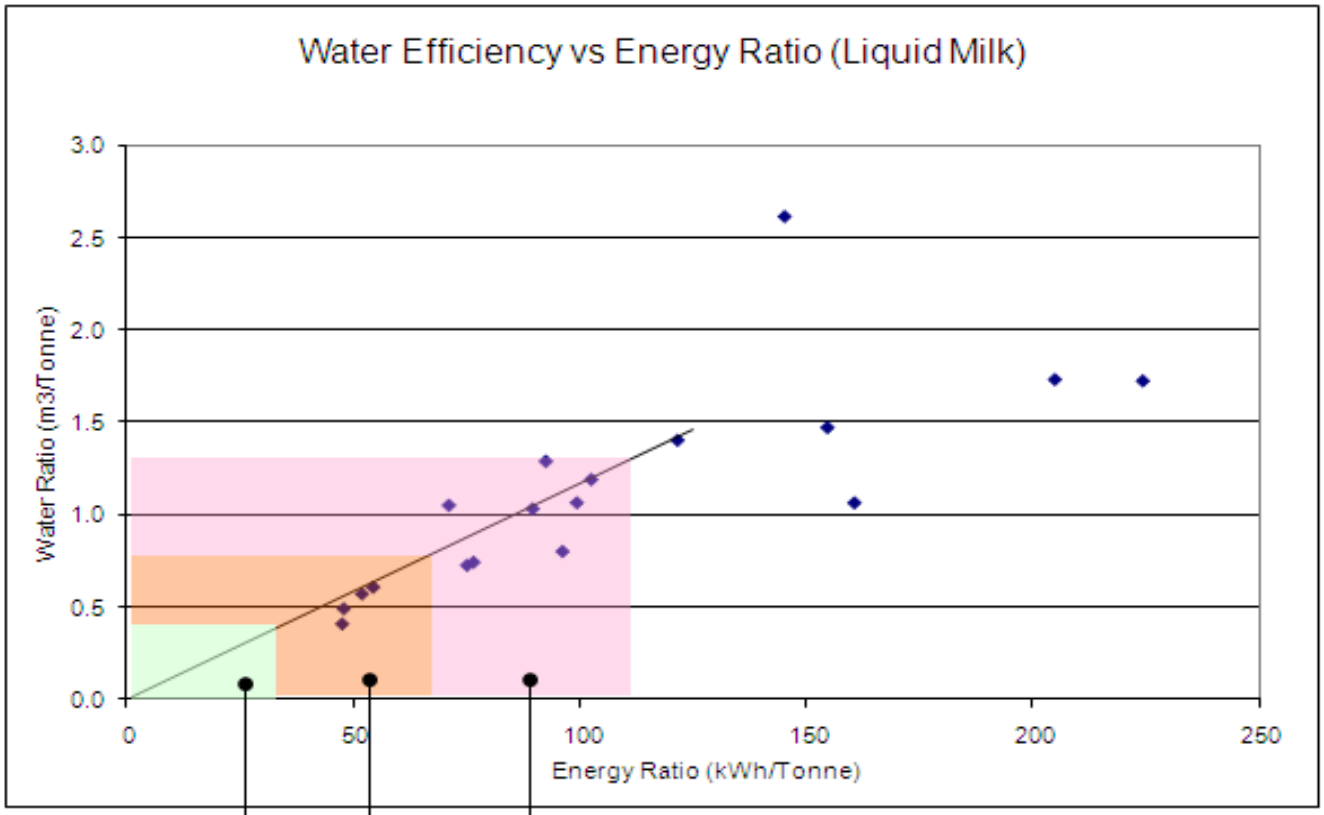
FIGURE 6. POTENTIAL IMPACT OF CARBON CONSTRAINTS FOR DISCOUNTED EBIT (2003–2015) BASED ON VALUE EXPOSURE AND MANAGEMENT QUALITY ASSESSMENTS



Organisation-wide + industry-wide analysis

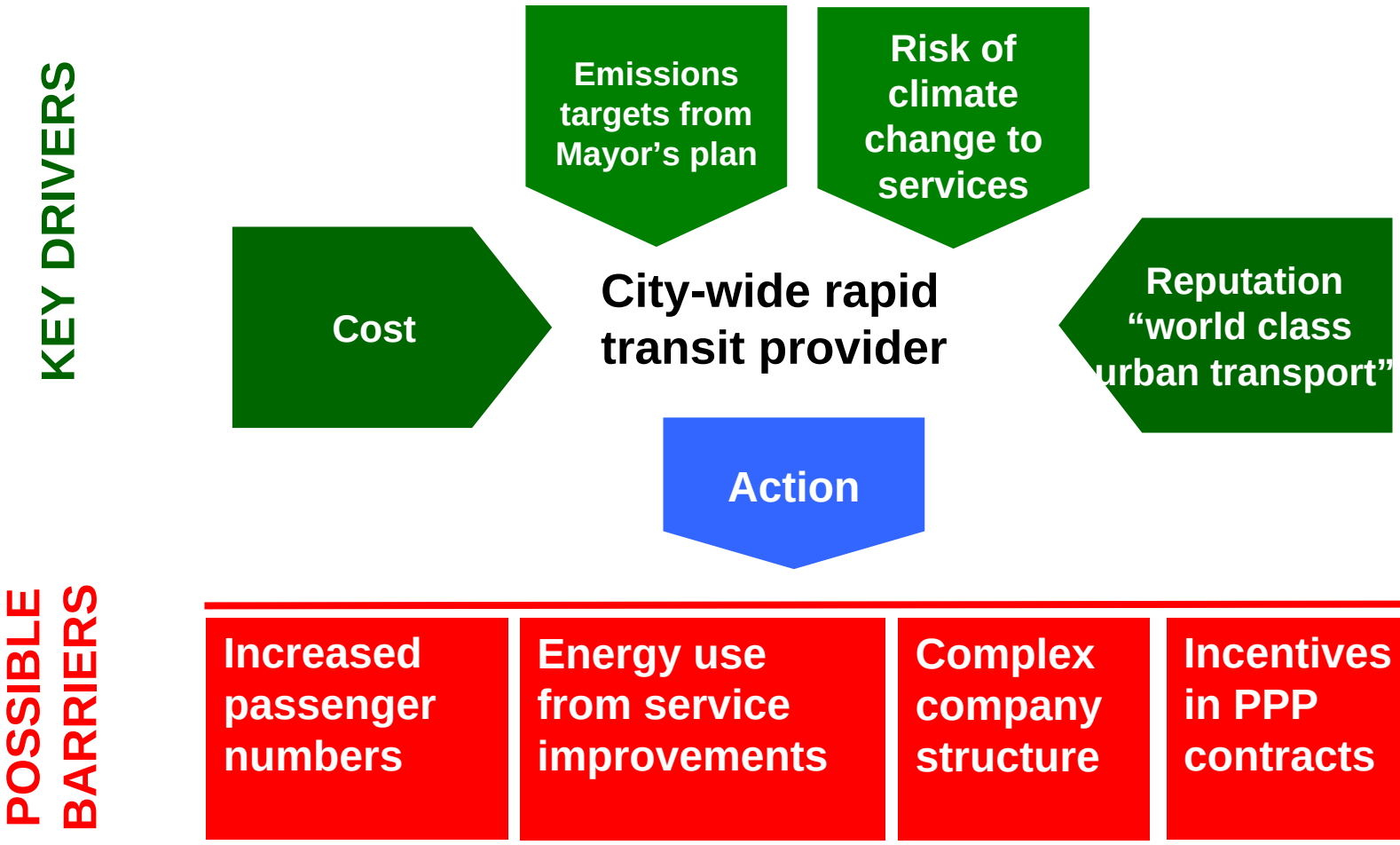


Zone 1 (Average Performance - obtained from AdHoc energy campaigns)

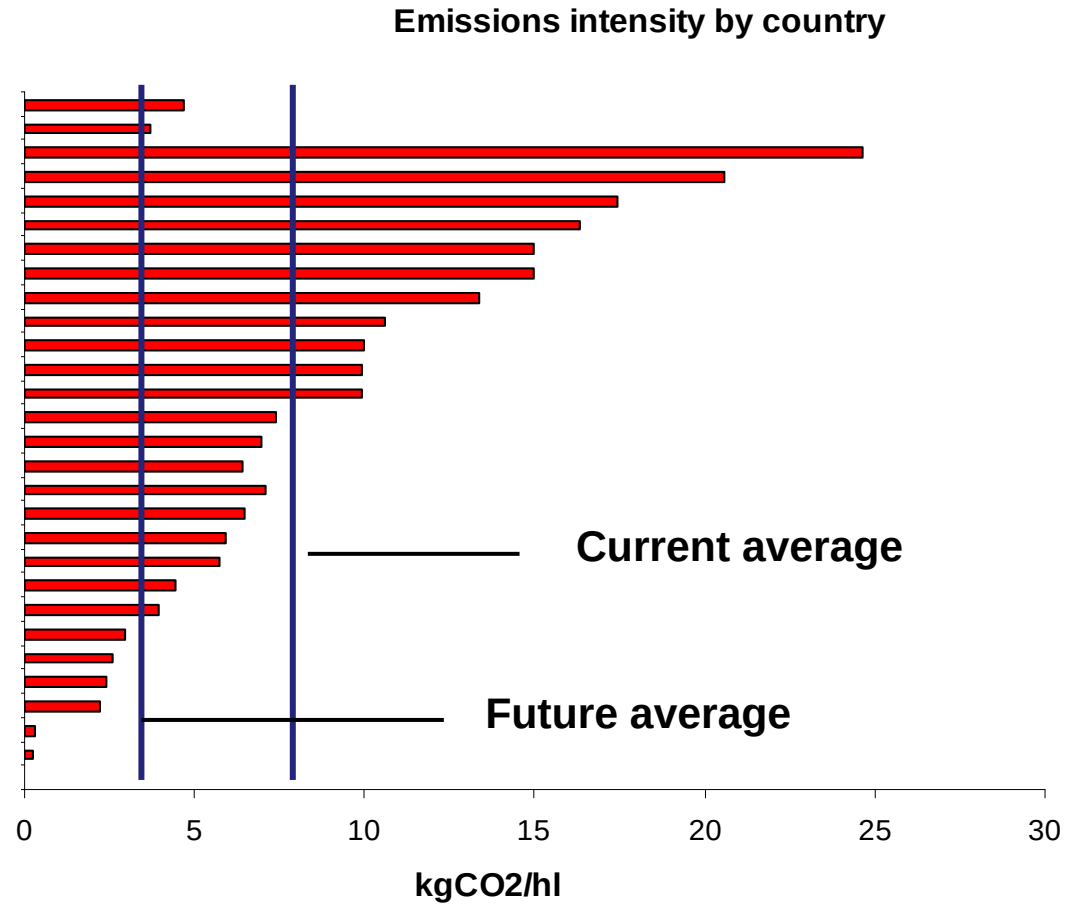
Zone 2 (Good Practice - obtained from methodical metering and energy management practices)

Zone 3 (Beyond Best Practice - obtained from implementing BAT (IEEA Goal Zone))

Organisation-wide view



Global food and drink sector company



Organisation-wide strategy options

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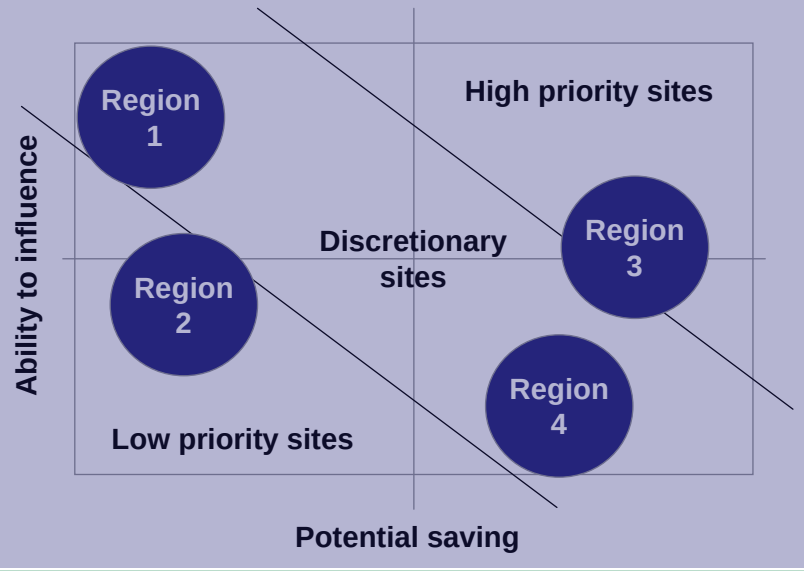
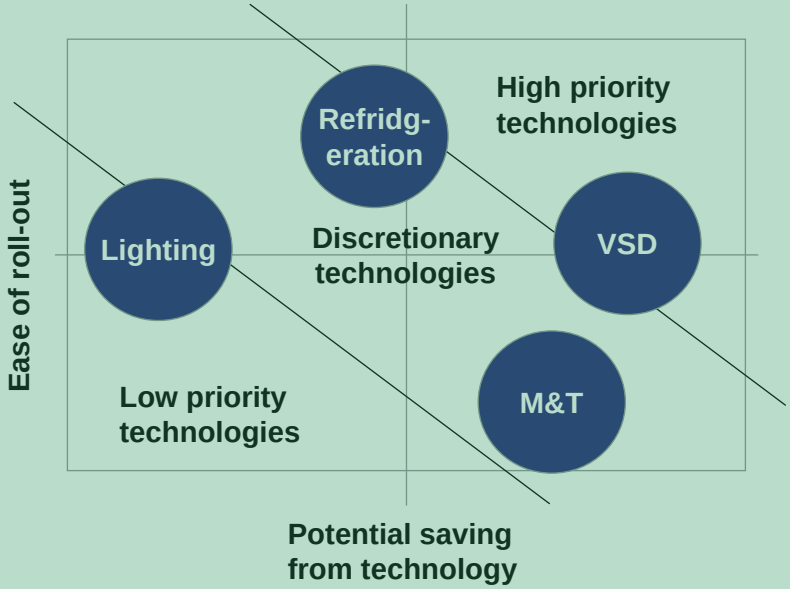
Strategy 1: Focus on sites.

Approach: Attack sites that need to improve *and* can be improved

- Categorise sites
- Set targets / benchmarks for sites in each category to achieve
- Design a different delivery approach for each category





Strategy 2: Focus on technology wins.

Approach: Attack technologies with the best potential for impact

- Categorise global technology classes
- Design global intervention programme based on ability to support technologies
- Create delivery partnerships in each region / country

Choices for policy makers

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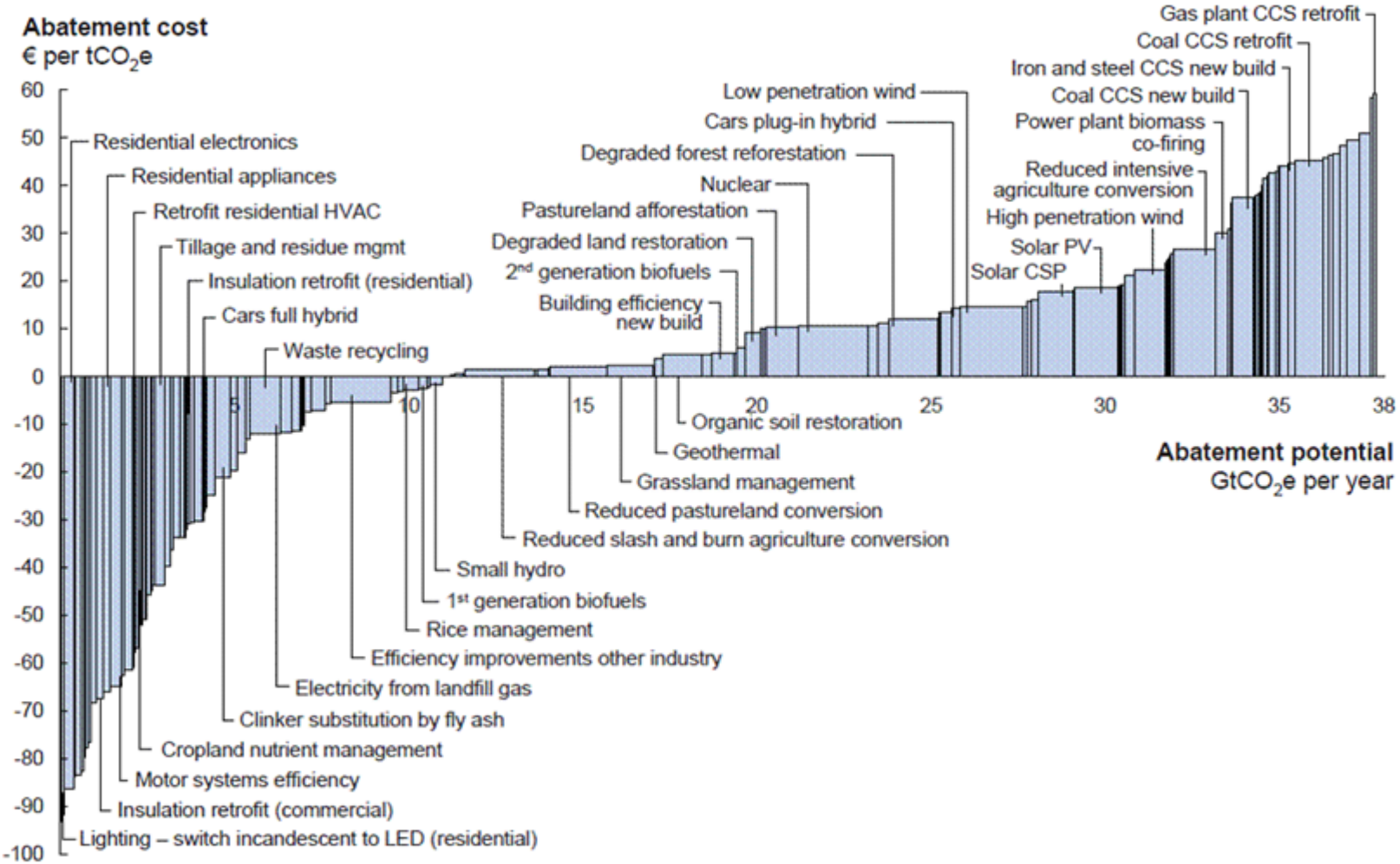
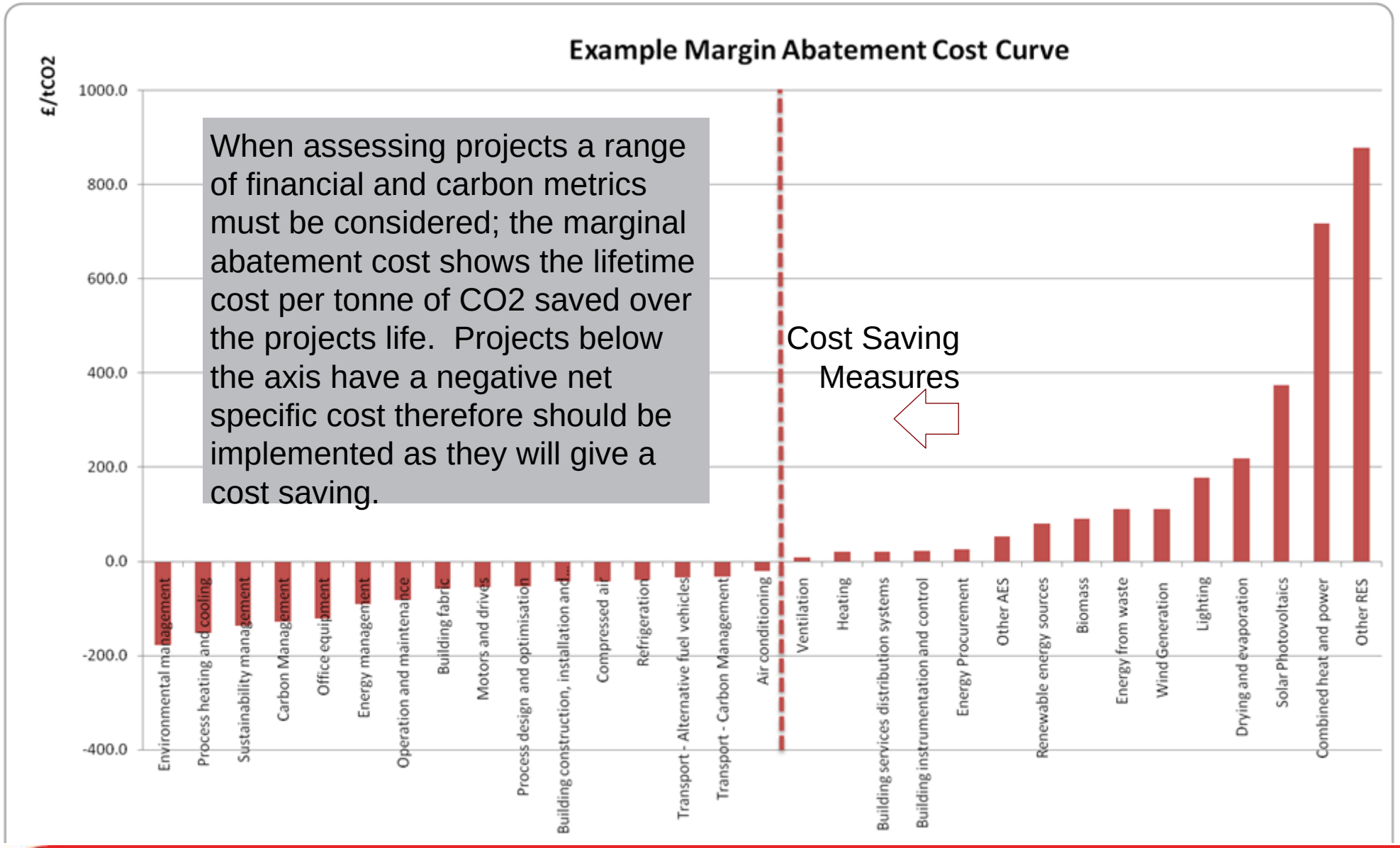
Global GHG abatement cost curve beyond business-as-usual – 2030



Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €60 per tCO_2e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play.
Source: Global GHG Abatement Cost Curve v2.0

Source: McKinsey Global Abatement Cost Curve (2009)

Marginal Abatement Cost Curve (MACC)



Sterilisation through Ionising Radiation

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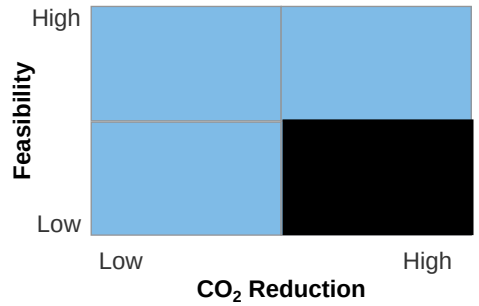
Opportunity description

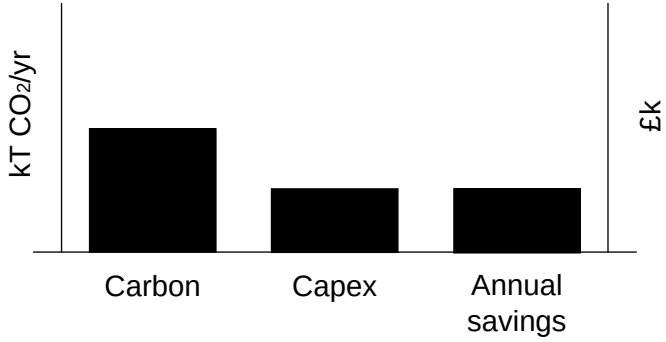
Barriers

Next steps for opportunity development

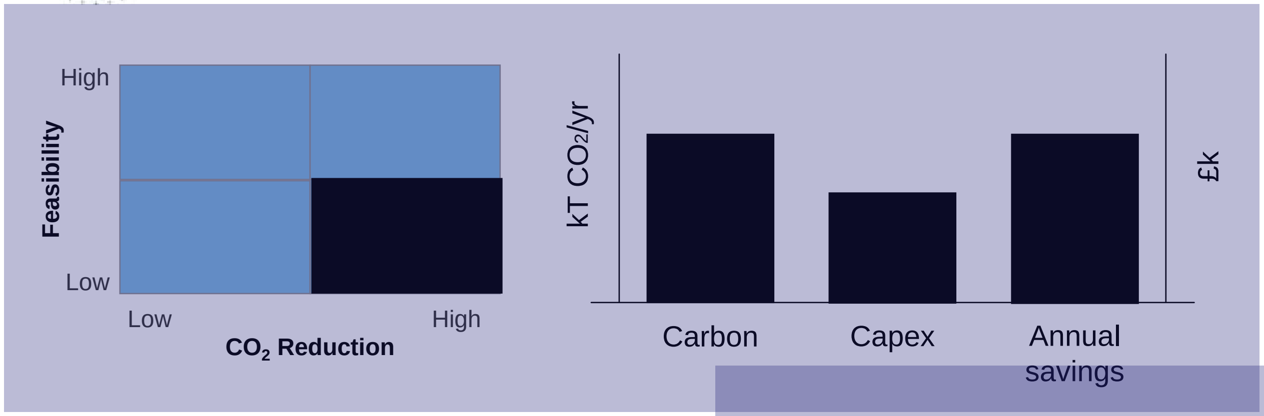
Definition of KPIs

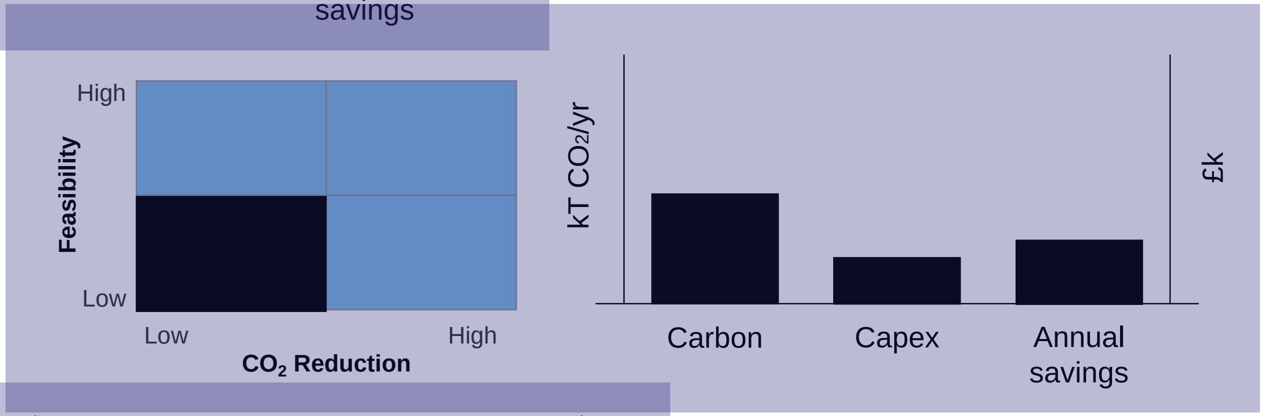
Site / business applicability

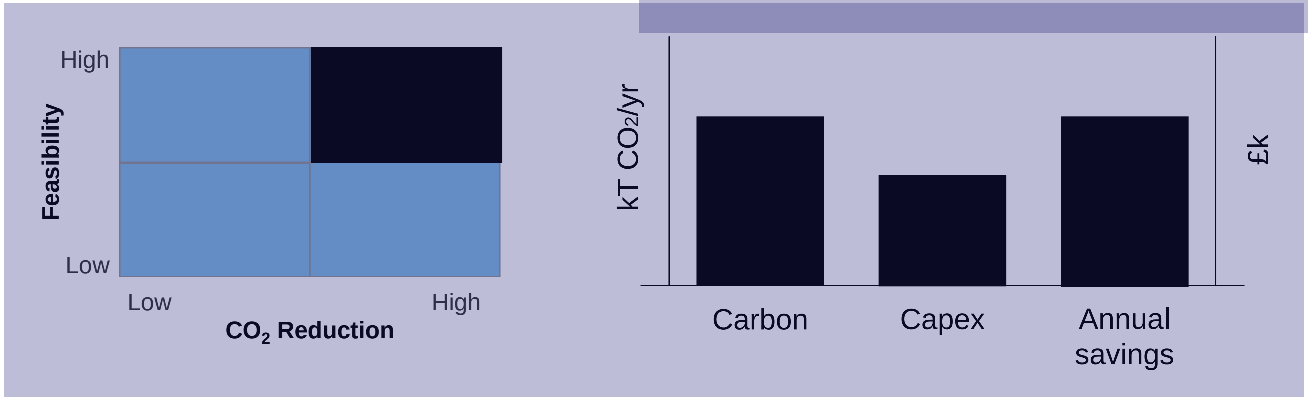




Industry-specific technology assessments







Opportunity Classification

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Wave 1

Best Practice

Immediate Action
- **No / low cost**
- **Proven application within the industry**
- **No / low barriers to implementation within the industry**

Wave 2

On the Horizon

Controlled Progress
- **Medium capex / payback**

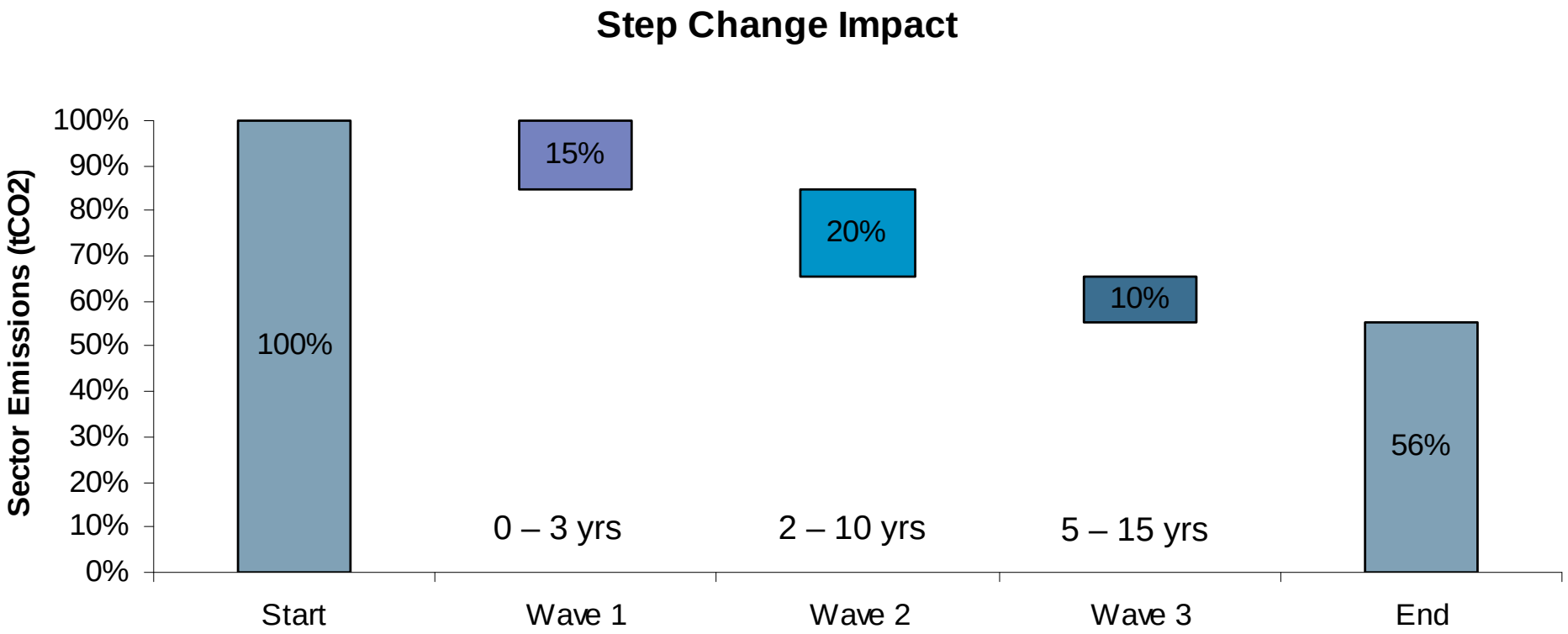
Pilot projects
- **Minor barriers**
- **Few proven applications**

Wave 3

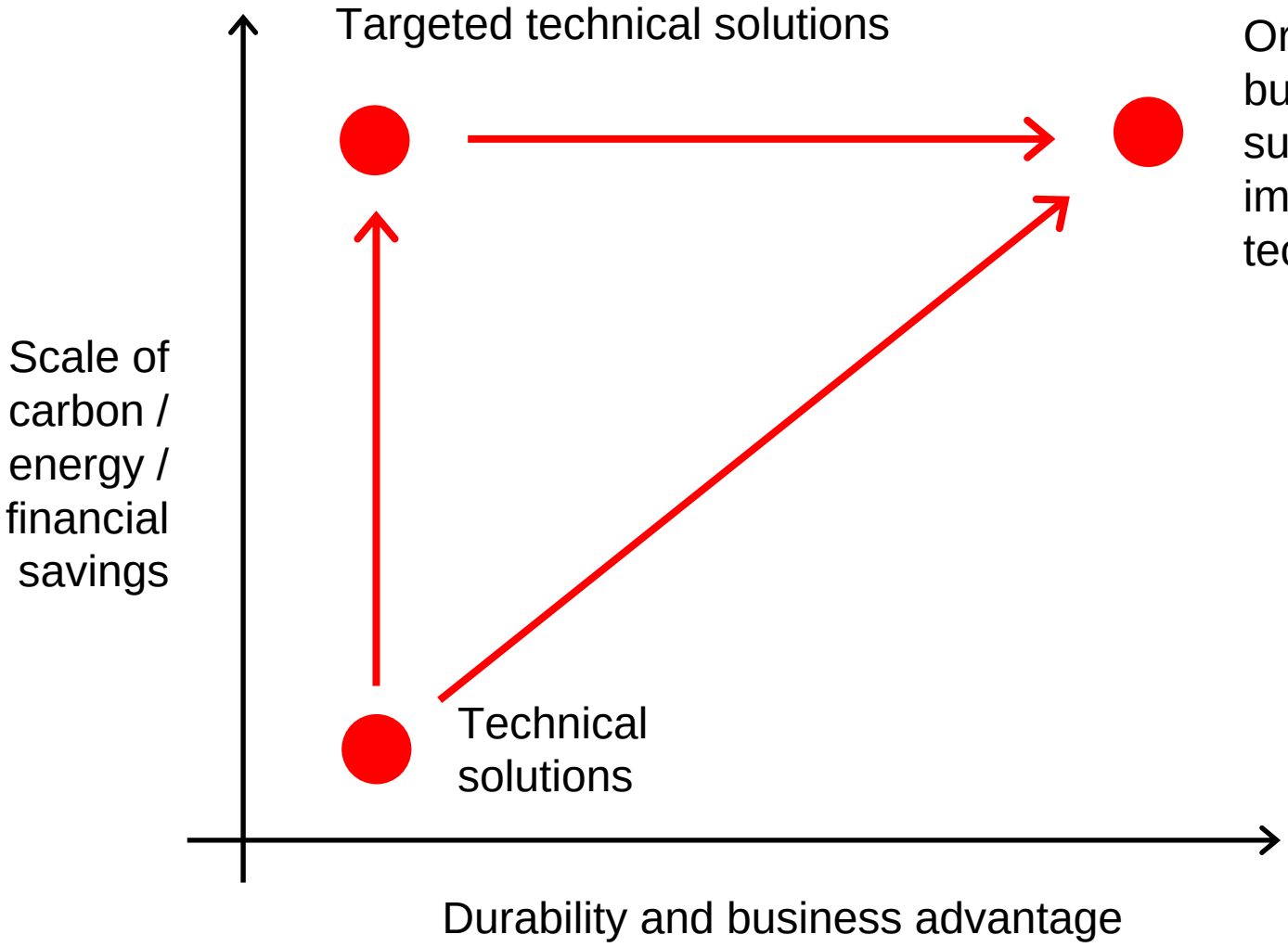
Blue Sky

Further assessment
- **High capex**
- **High barriers**
- **Unproven application**

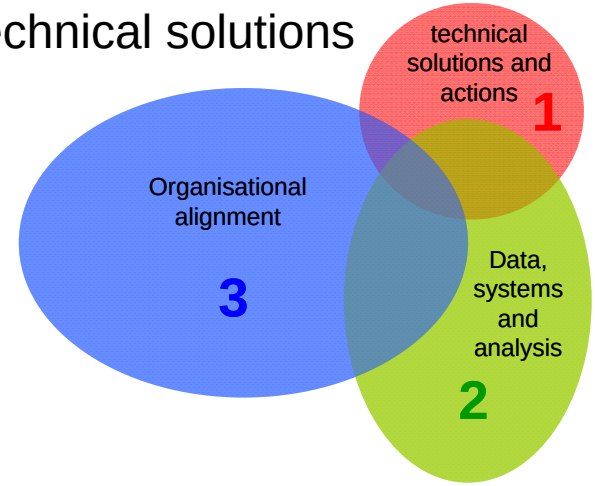
Impact & deployment timeline



Maximising business value from energy saving



Organisation-wide, business-integrated, sustained programme for implementing targeted technical solutions



Capacity building

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The building blocks of organisational realignment to deliver long term energy and emissions reductions

Leadership

- Visible leadership and prioritisation of low carbon objectives from CE
- Leadership cascaded to all management levels
- Sustained sponsorship of change

Policy and strategy

- Embedding carbon in organisational strategy and planning
- Embedding carbon in policy at all levels and all functions

Culture

- Positivity, determination
- Continuous improvement
- Entrepreneurism, commerciality, innovation
- Team playing, shared responsibility, good communication

Capacity building

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Knowledge

- Investment in knowledge base a business objective
- Reflective of growing regulatory complexity and business risk
- Carbon valuation, trading and accounting
- Organisational carbon management
- Technical and behavioral energy and emission reduction opportunities

Skills

- Quantification, project management, business planning
- Change management and communications

Resources

- Resource allocation sustained by business benefits
- Defense of priorities against competing pressures

Systems

- Energy and carbon data platform providing consistency and sufficient granularity
- Organisational emissions assessment
- Benchmarking, projections, scenario analysis
- Financial analysis on whole life cost and long run risk

Capacity building

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Partnership

- Actively seek local and regional partnerships
- Taking leadership to create economies of scale
- Sharing or procuring carbon expertise
- Learning from others

Decision making

- Strategic basis; long-term thinking
- Paradigm shift in viewing the future

Carbon Management success check list

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Leadership

- Committed visible pro-active support from sponsor group
- Maintain focus on long-run business objectives
- Target setting & measuring
- Walking the talk

Structure

- People identified: roles, responsibilities, resources
- Realistic timescales
- Robust assessment and feedback system
  - Invest to save
  - Quick wins on track
- Benefits measurement

Strategy

- Develop coherent, specific and visible strategy focus
- Alignment with other strategic priorities throughout the Company

Communications

- Work on personal and team values
- Buy-in at all levels – ‘CEO to cleaners’
- ‘Common thread’ uniting many business processes

Thank you

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