

COVENTRY & WARWICKSHIRE GREEN BUSINESS PROGRAMME



Denise Osborne Marketing & Events Co-Ordinator Green Business Programme



COVENTRY & WARWICKSHIRE GREEN BUSINESS PROGRAMME

European Union

European Regional
Development Fund

What is it?

- A support funded programme for SMEs and organisations in Coventry and Warwickshire to help business become more energy/resource efficient and make the most low carbon opportunities

Who?

- All small to medium size businesses (SMEs) in Coventry and Warwickshire
 - Employ fewer than 250 employees
 - Have an annual turnover of not exceeding €50 million and/or an annual balance sheet not exceeding €43million
 - Have at least 50% of sales through business to business

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 [@cwgreenbusiness](https://twitter.com/cwgreenbusiness)  <http://bit.ly/greenbusinessprogLinkedin>

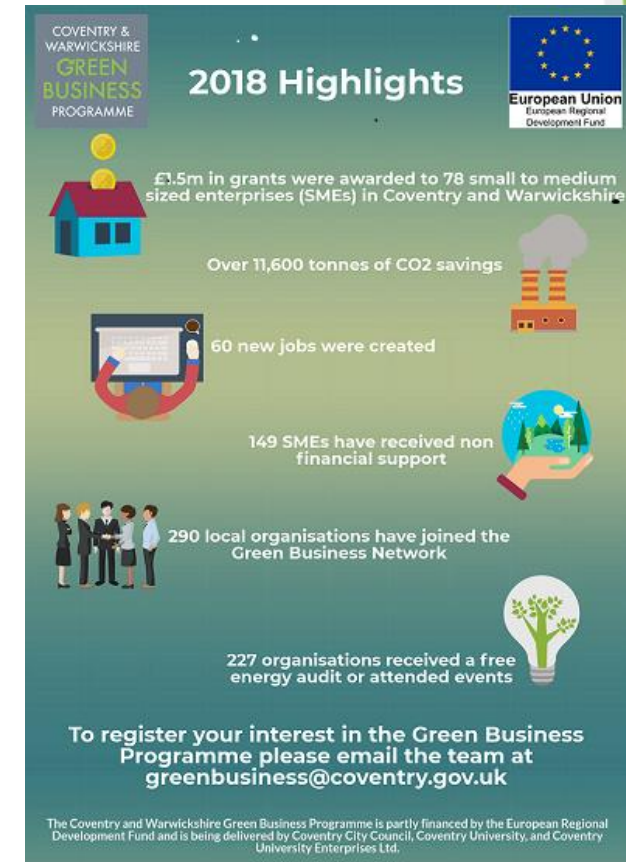


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Highlights of Phase 1 Programme (2016-2018)

- £1.5m in grants were awarded to 73 small to medium sized enterprises (SMEs)
- There have been over 11,600 tonnes of CO2 savings
- 60 new jobs were created
- 88 SMEs received non financial support
- 300 local organisations joined the Green Business Network



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New Programme – launched in January (2019-2021)

- Energy and resource efficiency grants - £1k-£50k (with 40% intervention)
- Free energy and resource efficiency audits to help identify energy, water and waste savings
- Continued free membership to the Green Business Network with new benefits
- Access to other specialist support to enable growth and innovation
- Free events, workshops and 1:1 support



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Energy/Resource Efficiency Audits

Identify potential energy/resource efficiency measures

- Audit looks at: Building fabric, energy bills, heating, lighting, equipment, process, water, waste, behavioural
- Includes estimated capital costs, energy savings & payback periods – used to provide a business case
- Energy/resource efficiency report



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- Energy/resource efficiency grants
 - Capital grants to improve energy/resource efficiency (Min £1K up to £50k)
 - Grants of 40%
 - Must save approx. 5 tonnes+ of CO₂ per year.
- What can be supported?
 - Measures that save carbon
 - Typical measures include lighting - LED, heating, energy efficient equipment, transformers, power factor correction, renewable technologies, ventilation, refrigeration, recycling and waste - compactors, balers and crushers
- Eligibility:
 - >50% B2B
 - Match funding can't be via another public sector grant etc.



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Indigo Fitness

- UK's largest fitness equipment manufacturer
- £62,070 energy efficiency grant
 - New insulated roof. 30% energy saving
 - Sensor controlled LED lighting throughout. 70% energy savings
 - New heating system plus infrared heating with sensor controls
- Lighting – saving 22 tonnes of carbon per year
- Roof insulation saving 13 tonnes of carbon per year
- £6,000 a year saving on energy costs



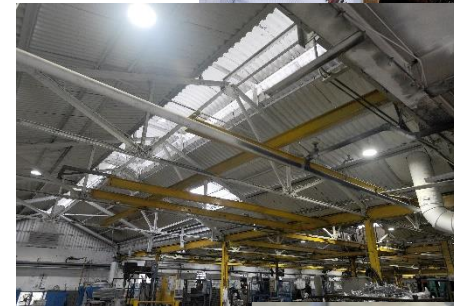
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Sarginsons

Aluminium Diecasting

- Were spending £370,000 per annum electricity and gas
- £26,000 energy efficiency grant
 - 2 recuperation gas furnaces
 - Variable speed air compressors and drying equipment
 - LED lighting throughout
 - Power Factor Correction
- Payback – 1.5 year
- 335 Tonnes CO2 saving/ annum
- Saving £50k per annum in energy bills



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Green Business Network

Membership is free and offers a range of benefits:

- Events and workshops
- Monthly newsletter – news, events new legislation, case studies
- Membership certificate
- Expert advice
- Enhance green credentials to secure new business
- Networking and supply chain opportunities (Inclusion in Green Business Directory)
- Currently have 575 other organisations you can network with
- Signposting to other grants
 - ▶ Business Support
 - ▶ Innovation
 - ▶ Skills 4 Growth

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Upcoming Events

30 July 2019

- Going green: the business benefits – Stratford Upon Avon

18 September 2019

- Renewable energy and battery storage – Leamington Spa

29 October 2019

- The future of energy – Coventry (in partnership with Coventry University)

14 November 2019

- Coventry & Warwickshire Business Festival Event (in partnership with CW Growth Hub)

For more information visit <http://bit.ly/cwgreenevents>

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Coventry University Enterprises – Delivery Partner

Funds for services and consultancy

Revenue Grants up to £10k (40% intervention) to support the development of low carbon products and services, supporting activities including:

- Intellectual Property Protection
- Supporting new businesses to progress their innovations
- Licensing
- Prototype design and manufacture
- Product Testing
- Accreditations and Certifications

Examples of grants awarded:

- Prototype design and manufacture for hydrogen fuel cell vehicle
- Software application development for an App to enable carbon reduction by promoting car sharing



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Coventry University Enterprises – Delivery Partner

Funds capital expenditure

Capital Grants up to £20k (40% intervention), supporting activities including:

- Test equipment to support development or manufacture of Low Carbon products
- Equipment to manufacture new Low Carbon products
- Equipment to support introduction of new Green services including recycling and
- waste processing

Free expert 1-to-1 advice and workshops on a range of sustainable building techniques and technologies

- Passivhaus design and principals
- Sustainable refurbishment and energy efficiency strategies
- Building Information Modelling (BIM)

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Coventry
University
Enterprises Limited



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➤ Coventry's Climate Change Strategy

- UK Government announced last week its net-zero commitment by 2050
- Coventry's current strategy published in 2012 set a target to reduce carbon dioxide emissions by 27.5% by the year 2020. Coventry achieved this in 2014 (6 years early)
- Working on our new Climate Change Strategy for Coventry involving the universities, businesses, community organisations and residents

▶ Current projects to reduce emissions

- ▶ Heatline
- ▶ Funding of £1.2m to deliver 39 rapid EV chargers in the City
- ▶ Go Electric Taxi Scheme
- ▶ 10 fully electric buses in collaboration with National Express
- ▶ Autonomous driving testing in Coventry and Warwickshire
- ▶ Very Light Rail

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Ways to save energy and money

18th June 2019

Green Business Programme

James Bridges
Sustainability Consultant
Coventry City Council



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Contents

1. **Strategic context: understanding your energy costs**
2. **Data analysis and action planning**
3. **Project implementation**
4. **Aftercare: monitoring progress, reporting and corrective action**
5. **Key considerations**



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1. Strategic context: understanding your energy costs



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Drivers of strategic energy management

- Energy security (greater pressure on national grid and fossil fuels)
- Energy prices increases
- Carbon taxes and legislation
- Customer and supply chain pressures



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What is energy management?

Energy management is the means of monitoring, controlling and reducing your organisation's energy consumption . . .



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The 5 steps of energy management

1. **Metering** energy consumption (know your cost and kWhs)
2. **Analyse data** and energy saving opportunities

3. **Taking action** - installing energy efficient technologies, training etc

4. **Tracking progress** by further metering/monitoring
5. **Reporting** on progress and corrective acting if improvement required



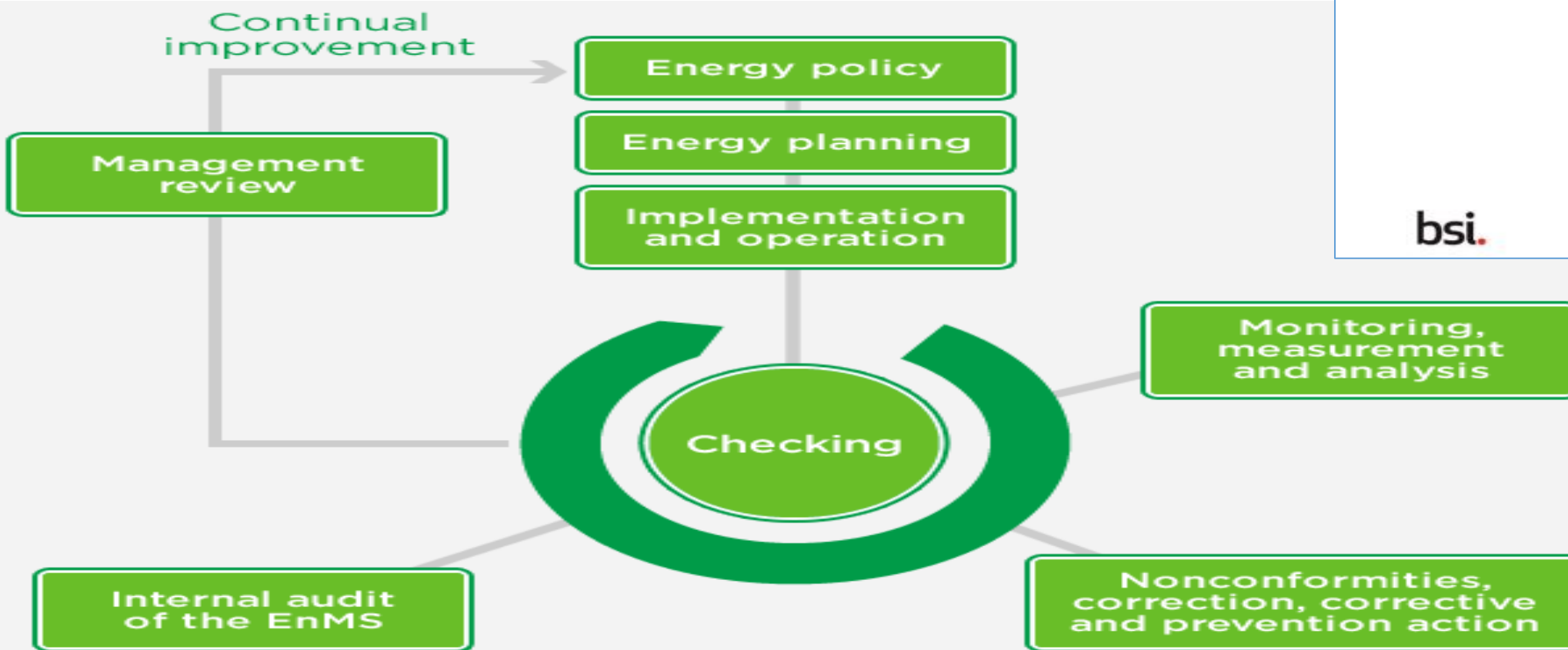
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Energy management systems - Requirements
with guidance for use (ISO 50001:2018)

bsi.

ISO 50001 Energy Management System



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Data collection (Step 1)

- Potential to identify cheaper tariff rates – switch supplier up to 30% savings? Contract renewal?
- Check you are not paying for electric or gas meters you do not have!
- Check paying for accurate readings and not estimates
- Check gas units is correct for paying (cubic meters or cubic feet)
- Check taxes and other charges are fair and accurate
- Half hourly meters and smart-meters – check additional charges can be upto 70% of actual bill
- Do you know the cost of energy on your bills (hidden costs) and how this will change going forward? (increased energy costs/taxes to discourage consumption)



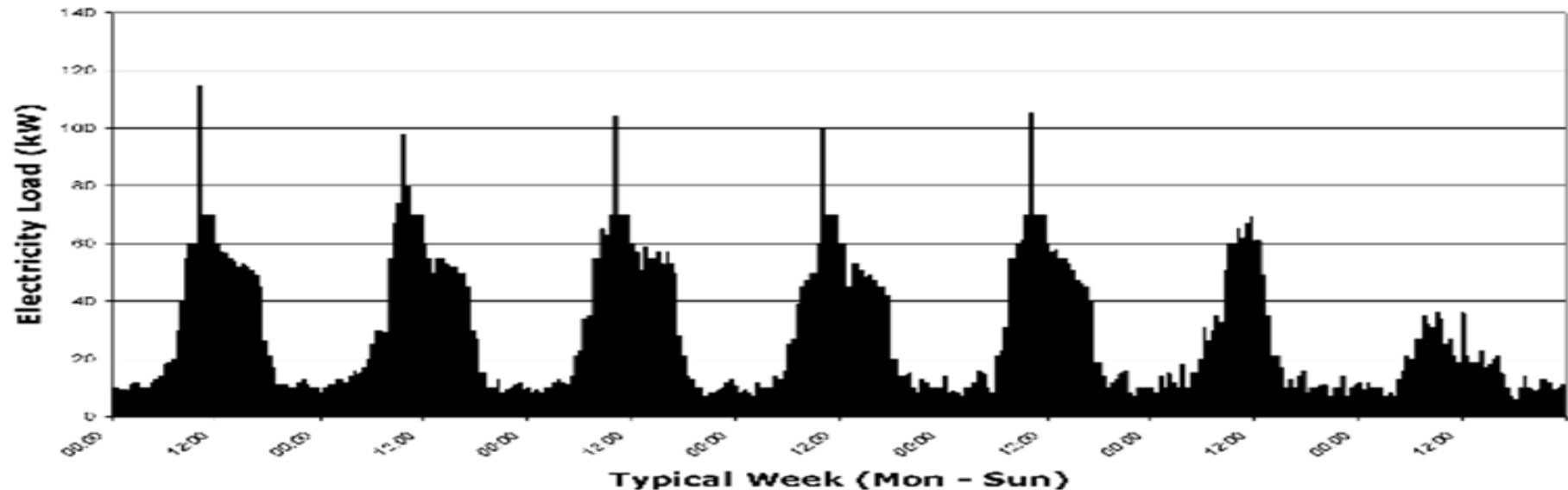
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You can't manage what you can't measure

Knowing where you are using energy is the first step in identifying where you can save it

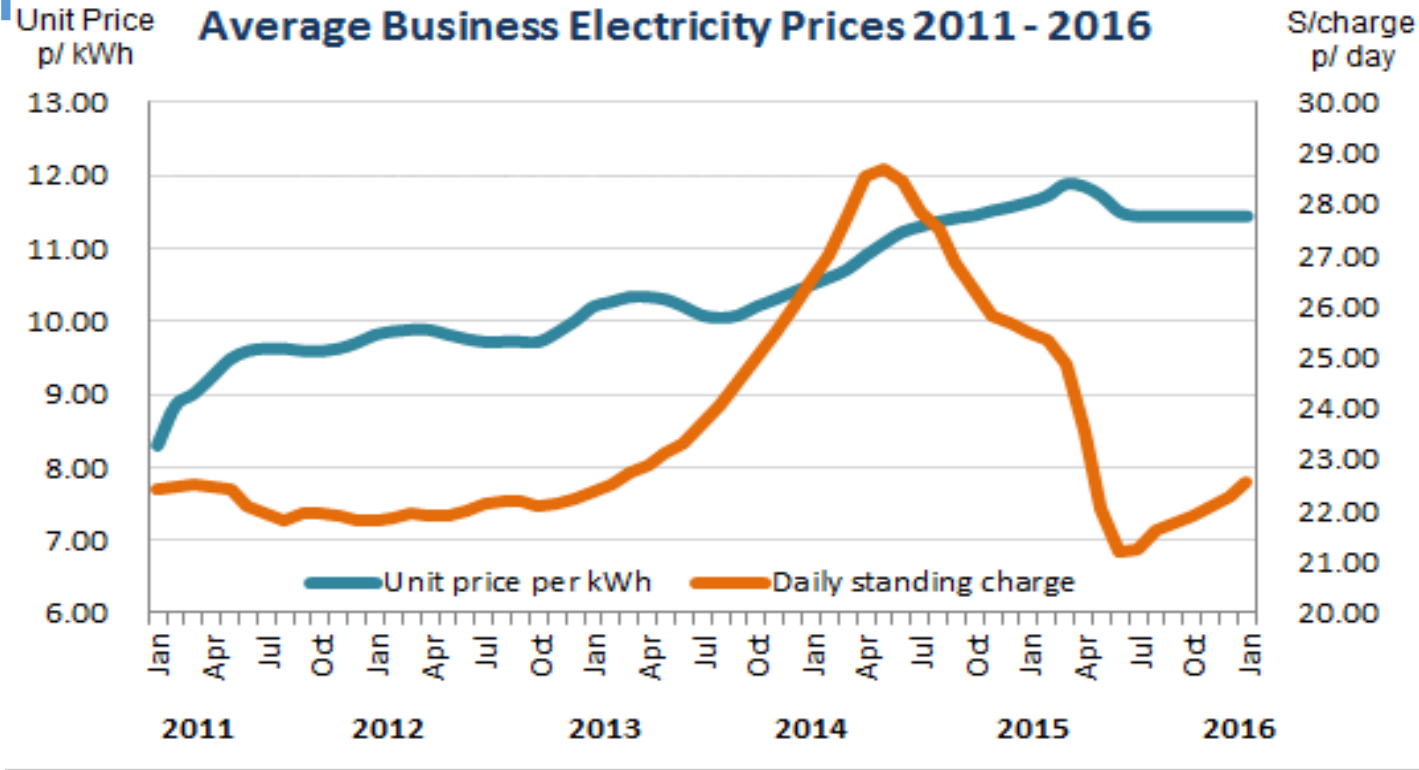
Don't waste money needlessly

- ▶ Take meter readings at the end and at the beginning of the day
- ▶ At the weekend take meter readings at the end of Friday and first thing on Monday
- ▶ Identify what is being left on. Introduce a switch off policy and make someone responsible.



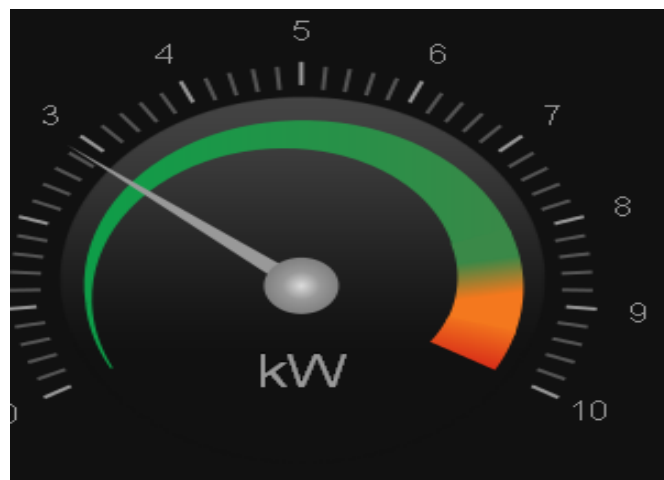
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↑ 35% average increase 2011 to 2019 . . .



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2. Data analysis and action planning



1. Basic Information

Date of energy audit:	
Department/Building/Area covered:	
Persons conducting audit:	
Normal occupancy hours of building:	
Cleaning times:	

2. Lighting

Are any tungsten lights present? Can they be replaced with compact fluorescents (energy saving bulbs)? Look particularly in store rooms, uplighters, desk lamps etc.	
If there are several light switches, can they be labeled to make it more obvious which switches relate to which appliances?	
Can lights be switched off to make use of daylight? (e.g. lights parallel to windows or in corridors)	
If space is intermittently occupied (e.g. store rooms, toilets, kitchen areas, copying rooms, corridors) is there scope for automatic lighting controls?	
Are any external lights on during daylight hours?	

3. Heating

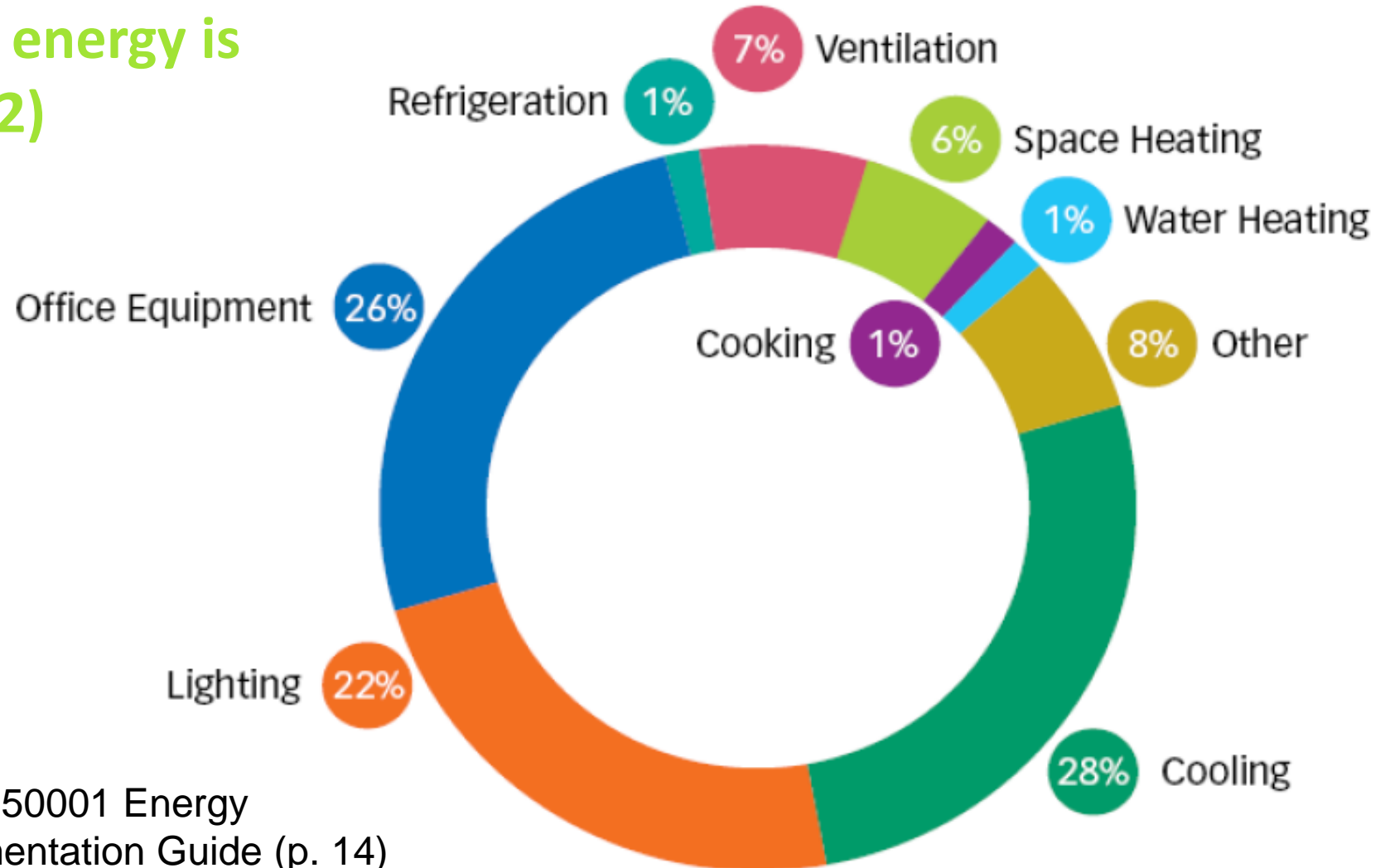
What is the actual temperature in the space?	
Does the temperature vary much during the day?	
Do occupants complain it is too hot or too cold?	
If there are Thermostatic Radiator Valves (TRVs), are they set correctly? Do they actually work or are they broken?	
Are radiators effective and giving consistent heat? They may need bleeding of air or maintenance to remove dust and sediment.	
If there is a room thermostat, is it correctly set?	
If the room tends to overheat, is there any bare pipework that could be insulated?	
Are radiators blocked by boxes and furniture restricting air circulation?	
Are portable electric heaters in use? If so, why is the heating system not adequate?	
If there are permanent electric heaters with individual temperature and time control, are they set correctly?	
Are external doors and windows closed when heating is on?	
Are any window panes cracked or broken?	

Inventory for estimated annual electricity consumption and costs

Equipment type	Watts or kW	No of equipment	Total kWs	Hours equipment running per week	Total kWhs per week <i>(total kWs x hours)</i>	£Total cost per week <i>(Total kWhs x pence per kwh)</i>
Lighting T8 fluorescent tubes	50 watts each	200 tubes	10 (10000 watts)	40	400	£48.00
High bay warehouse lights	400 watts each	200 lamps	80 (80000 watts)	40	3200	£384.00
Air conditioning units	3 kWs each	5	15	40	600	£72.00
Computers	50 watts each	30	1.5 (1500 watts)	40	60	£7.20
Injection moulding machine	10 kWs	2	20	40	800	£96.00
Air compressor	10 kWs	3	30	40	1200	£144.00
Drying oven	10 kWs	1	10	40	400	£48.00
Laser cutter	20 kWs	1	20	40	800	£96.00
Totals:	Per week:				7460	£895.20
	Per annum (50 weeks)				373000	£44,760.00

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Do you know where your energy is costing you money (Step 2)

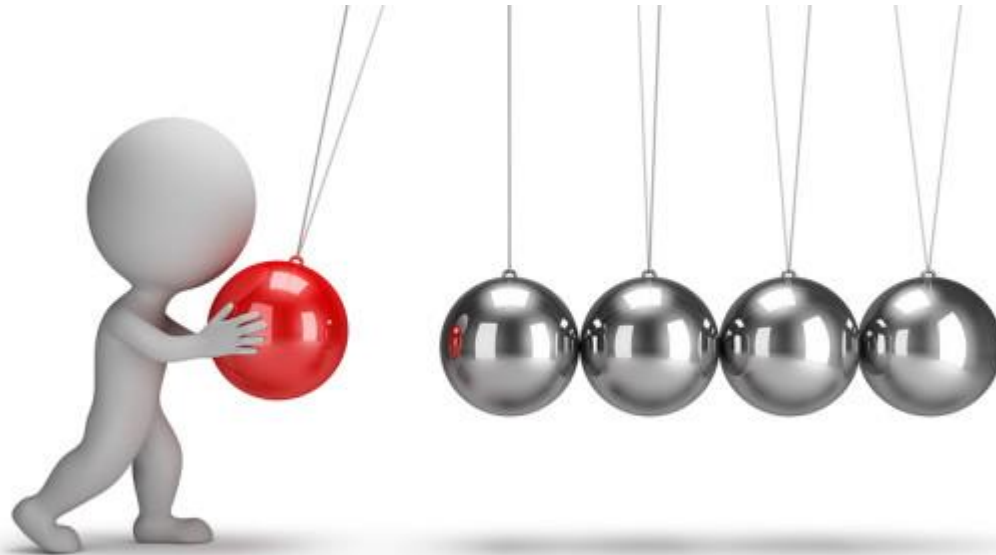


Source: TUV UK Ltd (July 2014), ISO 50001 Energy Management Systems (EnMS) Implementation Guide (p. 14)

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3. Project implementation

Taking forward action (Step 3)



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Heating and cooling - No cost

- ▶ Match start/stop times to occupancy
- ▶ Don't heat the building if its not in use (nights, weekends, bank holidays, summer and Christmas holidays)
- ▶ Thermostatic radiator valves - are they set too high in corridors etc?
- ▶ Thermostats are set correctly and are in the right location (19 for offices)

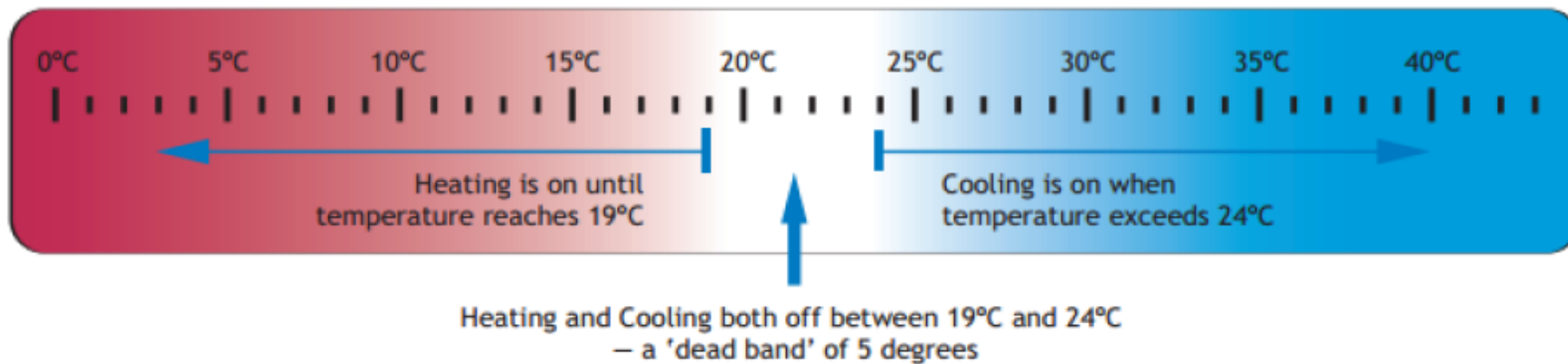


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Set heating and cooling correctly

Introduce a dead band to get rid of dual heating and cooling

- ▶ Vital to prevent heating “fighting” cooling



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Heating and cooling – Behavioural change

- ▶ Wear sensible clothing for the time of year – buildings are heated to make them comfortable
- ▶ Where people sit can make a big difference to how warm they feel
- ▶ Radiators are free from obstructions – don't block these with cupboards or filing cabinets

Dress for the weather

Don't expect offices to be heated to t-shirt conditions during winter – wear sufficient layers to keep warm instead of relying on a portable heater.

Similarly in summer, wear cool thin clothing and open windows instead of switching the air conditioning on.



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Heating and cooling – Low cost

Desktop fans/standing fans (e.g. 50 watts each). These can give the feel of a cooling effect and can be 10% of costs of an air conditioning system (which has an average range of between 1000 watts – 3000 watts). (If practical and comfortable to do so)

Seven day programmable thermostat timer for air conditioning: heating and cooling.

Ensures heating/cooling is switched-off overnight and at weekends.



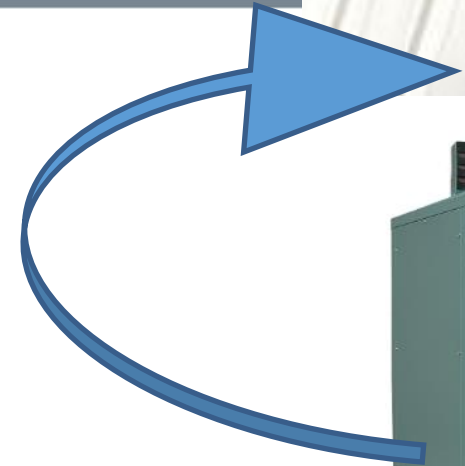
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Heating and cooling – Low cost

Thermal destratification fans. These bring rising warm air back to the ground where staff are working. Savings can be around 25% on heating costs

Motor for manual shutter roller door. Become rapid fast shutter roller door (£1, 000)

Sensor door shut-off switch. Fit roller door with sensor, when door is open the 60 kW industrial heater switches-off (£500)

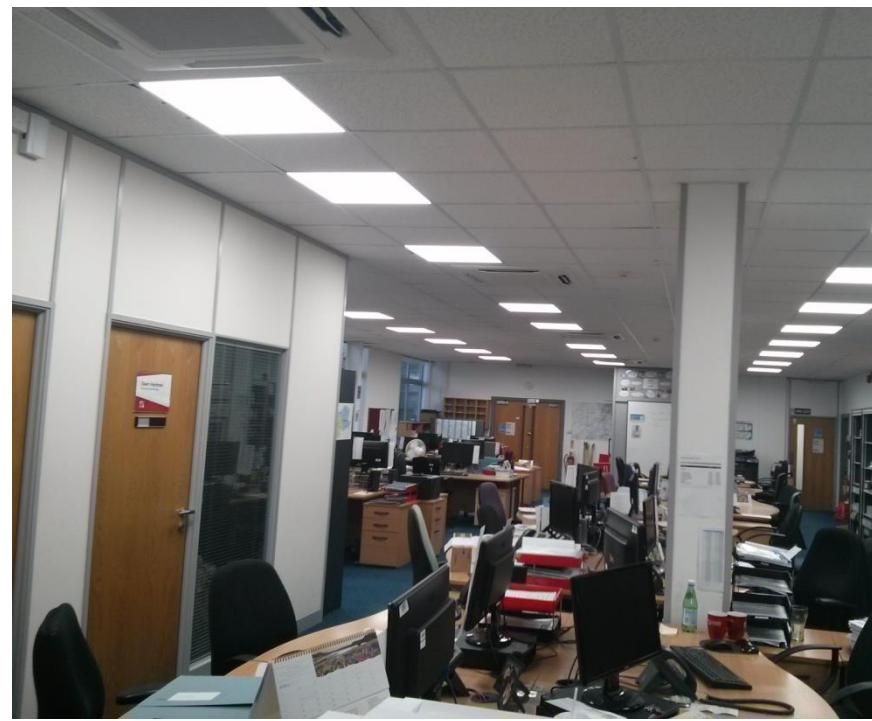
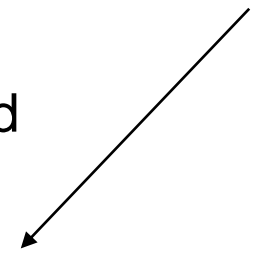


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Lighting savings.

Replace older T8 fluorescent strip lighting in all office areas. New lighting is around 70% more energy efficient.



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Warehouse LED lighting.

Replace old warehouse high bay sodium lights (e.g. 400 watt) with new LED high bay lights (e.g. 150 watts) = saving of at least 60%



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Processes for machinery

- New energy efficient motors
- Variable speed drives for machinery
- Modern controls – start-up/shut-down
- New equipment/machines

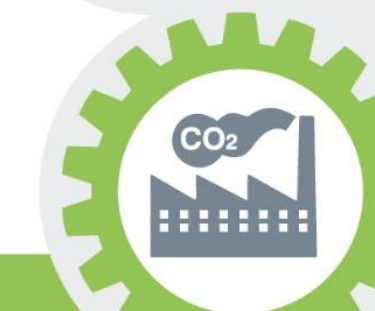
Many systems waste up to 30% of the compressed air through:

- Leaks - in most cases, reducing leaks is the most important energy-saving action you can take
- Poor maintenance - a well-maintained compressed air system needs less energy to deliver the required pressure



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Examples of measures eligible for grants



Client 1:

Replace 16 out-dated 400 watt high-bay lamps with 16 x 150 watt LED lamps (saving)

Replace 3 x 63 kW (189 kW) kerosene warm air blowers in warehouse with a kW wood waste burner



Warehouse



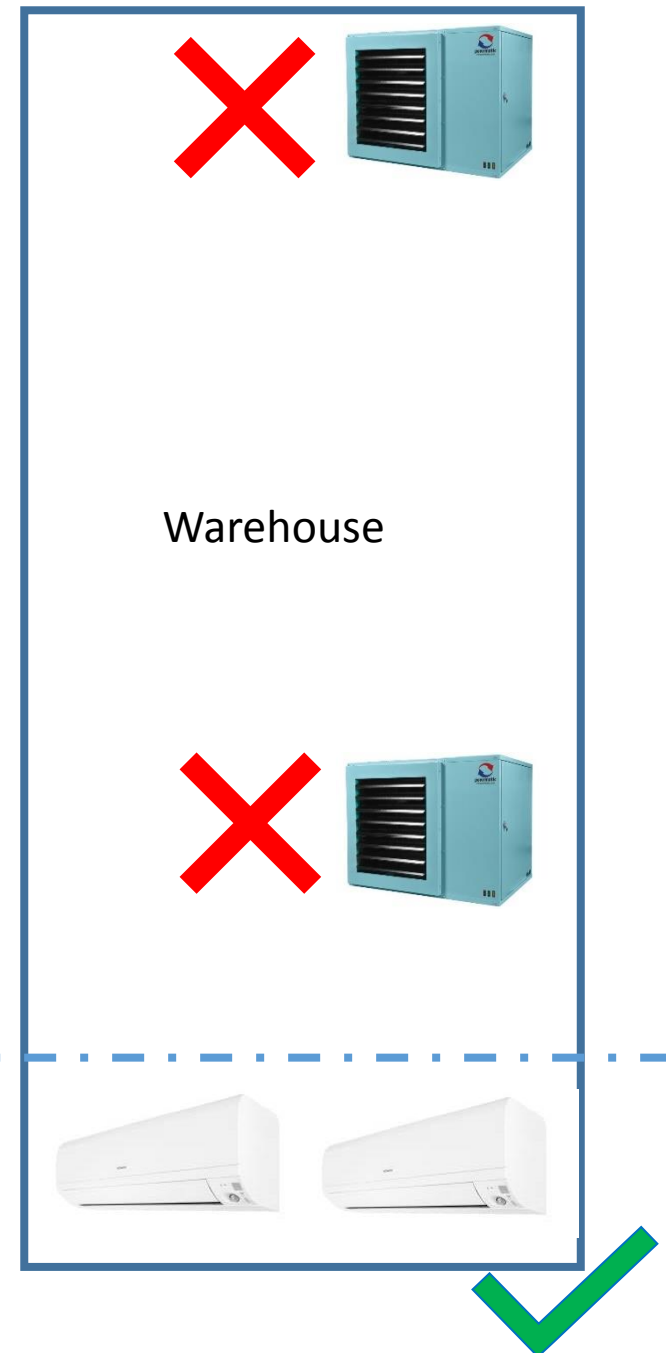
£Cost	Grant towards £cost	£Saving	Payback with grant support	Carbon saving (CO2)
£15, 000	£6, 000	£3, 600 (£2, 000 heating) (£1, 600 lighting)	2.5 years	14.5



Client 2:

Reduce area for space heating by 85% and install new heating system:
Decommission 2 x 60 kW heaters for warehouse, create new showroom (only 15% of the warehouse) and heat with 2 x 5 kW air conditioning units
Need new insulated partitioning walls

Cost£	Grant towards £cost	£ saving	Payback with grant support	Carbon saving (CO2)
£43, 000 (£5k for 2 x air conditioning units but also new insulated internal walls!)	£17, 200	£4, 500	5.5 years	21



Client 3

- Install LED high bay lighting in 2 x warehouses and LED panels in offices (65% saving on lighting costs)
- Manufacturing: Replace 50 kW metal cleaning machine with 20 kW machine (60% saving on running costs)
- Extend space heating ducting from 330 kW heater in warehouse 2 into warehouse 1 and decommission heater 90 kW heater in warehouse 1 (27% saving on heating costs)

£Cost	Grant towards £cost (40%)	£Saving	Payback with grant support	Carbon saving (CO2)
£117, 000	£47, 000	£21, 000 (33% on energy bill)	3.34 years	62 tonnes



Warehouse 1



Warehouse 2
(Over-sized heater)



Machine replacement



Client 4:

Heat recovery: Currently exploring capturing waste heat from industrial catering ovens in kitchen and redirect heat to upstairs offices

(Replaces 50 kW hot blower heater in warehouse and 50 kW commercial gas boiler that heats offices and is over sized)

£Cost	Grant towards £cost (40%)	£Saving	Payback with grant support	Carbon saving (CO2)
£18, 000	£7, 200	£5, 000	1.5 years	35



50 kW heater in warehouse



50 kW boiler in offices

exodraft system overview

exodraft heat recovery makes good sense wherever hot flue gas or steam would otherwise exit through the chimney. Below is an example of an **exodraft** heat recovery system where heat from the flue gas is recovered and transferred to the storage tank.

Responsibility from start to finish

Every installation is of course unique but our consultants ensure that you will have a system that is specifically designed to exploit the energy in your processes.

At **exodraft** we deliver not just products but ready-made solutions. Therefore we always offer to be on site when new **exodraft** heat recovery installations are commissioned. This is your guarantee for a productive, safe and effective system.



exodraft chimney fans ensure optimum draught in the chimney (read more on page 7)

exodraft CHR-P/CHR-P-S heat recovery unit (read more on page 6)

The mixer valve ensures a uniform flow temperature to the buffer tank

The circulation pump ensures adequate pressure throughout the system

Storage tank, where recovered thermal energy is stored for later use

The EBC20 ensures that the chimney fan always produces the required negative pressure regardless of external factors like atmospheric pressure and internal pressure changes

EHC20 controls and monitors the bypass damper, mixer valve and pump. (Read more on page 8)

Bakery ovens and food cooking equipment

Heat treatment and hardening installations

Drying plants

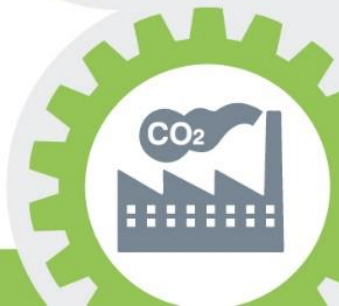
Industrial boilers

Process unit emitting flue gas, steam or process heat

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How do you prioritise energy saving projects?

- Timescales (would it take a few hours, weeks or months to implement)?
- £ Cost (no cost, low, medium, high)?
- £ Savings with a payback period (e.g. up to 2 or 5 years)?
- To target the most expensive running costs e.g. fuel (*electric or gas*), by theme (*e.g. lighting, heating, machinery*); or area of site (*e.g. offices, warehouse, factory*)?
- Improved Health & Safety benefits?
- Legislation requirements influencing change?
- Modernising equipment to replace broken machinery, reduce maintenance costs or because machinery is likely to break-down and be too costly to repair?



Examples of energy savings (Carbon Trust and Green Business Programme)

Technology	Typical Payback	Annual % savings
Upgrade to LED lighting	3-4 years	65%+
Solar PV	8 – 15 years	20%-50%
Upgrade Air Conditioning System	1-5 years	10-30%
Industrial warehouse/factory heaters	2-6 years	15-30%
Air compressor	2-5 years	20-25%
Install light motion sensors	2-10 years	10-25%
Upgrade boilers	5-10 years	15-20%
Upgrade motors/drives	2-3 years	15-20%
Upgrade windows	10-20 years	12%
Pipe insulation	3 years	10%
Fix draughts in windows/doors	0.5 years	10%
Install loft/roof insulation	2-4 years	7%
Install cavity wall insulation	3-6 years	5%
Install solid wall insulation	10-20 years	5%

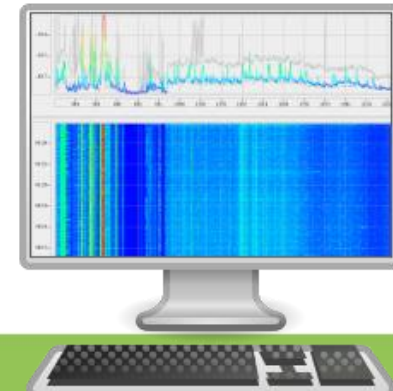
So what are your ideas?!

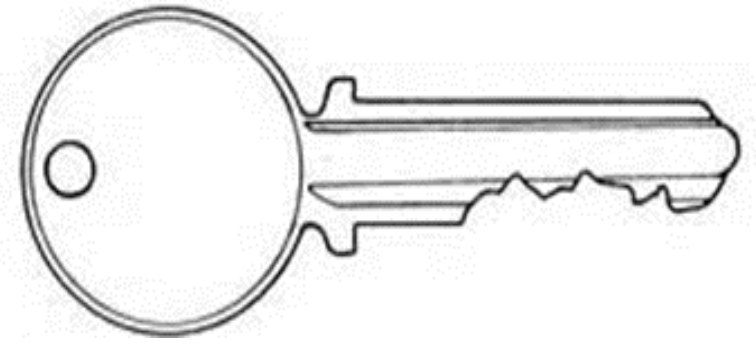
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4. Aftercare

Monitoring progress, reporting and corrective action (steps 4 and 5)

- Install monitoring systems and sub-metering to help measure success in financial, energy and carbon savings against your baseline, year-on-year
- If anticipated savings are not being realised, investigate





5. Key Considerations

- Number of policy drivers for businesses to address energy consumption including legislation, cost, customer expectations, energy security
- You can use the top tips in this presentation to think about where you can save energy and money
- Energy management: baseline data – assess saving opportunities – implement – monitor - report
- We provide more in-depth free no obligation energy audits to identify energy savings (steps 1 and 2)
- Grant support for energy savings (40% towards total project costs upto £50k grant) (step 3)
- Energy management makes business sense: less energy consumption = less costs/more profits = less environmental impact

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www.coventry.gov.uk/wastesolutions

Waste Solutions

Solutions for waste management provided by Coventry City Council

Coventry City Council offers a range of waste solutions to the public, commercial and industrial sectors in the Coventry district. Our trained advisers can discuss your needs and help design a package that is right for you.

Flexible

Our reliable, value for money and flexible service, operates Monday to Friday 7.00am - 11.00pm and 7am - 1.00pm Saturday.

We offer recycling initiatives which help your business reduce waste disposal costs and become virtually zero landfill. We even complete all of the necessary paperwork.

Waste we recycle:

- Cardboard and paper
- Glass bottles and jars
- Steel & aluminium tins and cans
- Plastic containers & film
- Green waste
- Wood
- Rubble and concrete
- Electronic equipment


Recycling and reducing landfill

We are one of the only commercial waste operators in the area that can enable your company to become virtually zero landfill. We offer recycling schemes that send all recyclable material to specialist treatment facilities. All other general waste that cannot be recycled is sent to our own waste to energy plant where it will be incinerated and converted to energy.



To speak to an adviser please call or email us
024 7683 2215 | wasteservices@coventry.gov.uk

Top 10 Tips to Save your Business Money

1. Talk to your waste contractor or council about recycling collections
2. Ask before issuing bags, disposable cutlery, or paper serviettes
3. Stock loose items where possible, avoid over-packaged products
4. Purchase good-quality durable equipment
5.  Coventry City Council
6. Use reusable mugs and glasses, not disposable
7. Reuse incoming packaging and boxes for outgoing deliveries
8. Use rechargeable batteries and refillable printer cartridges
9. Reuse envelopes and convert scrap paper into note books

Moving towards a Circular Economy

Internal segregation

Get Staff on board with what you trying to achieve

Match your internal recycling with your bins externally

Label bins up clearly

More than likely your waste will to one of the following locations

Don't over complicate

it:

- Energy From Waste Plant (EFW)
- Transfer Station
- Mixed Recycling Facility



Ideas



Creating An Eco Garden



Shine a Light Support Service

Supporting families with children with cancer

Registered Charity No: 1171090



We are in need of all of the following items, if you could help us to source any of them we would be very grateful for your help:

Decking Boards

Gravel Boards

Sleepers

2x2 wood

3x2 wood

Post crete

Weather shield paint (light grey colour)

Pallets

Liner (to stop weed growth)

Off cuts of wood

Screws and nails.

Old doors

Old wooden photo frames

Parts of bikes

Sinks – mud kitchen!

Legislation updates

Committee calls for landfill ban on biodegradable waste

The Committee on Climate Change (CCC) has called for a ban on all biodegradable waste sent to landfill by 2025, if the UK is to reach 'net zero emissions' by 2050.

The CCC released its long-awaited report this morning (May 02) outlining what several sectors need to do in order to reach the 2050 target.



www.coventry.gov.uk/wastesolutions





CIWM

Empowering Professionalism
in Resource Management

Taking control of your organisations energy and waste to save money 18 June 2019



MARTIN BROCKLEHURST ---- Two Decades working for change – My Experience



<https://www.gov.uk/government/publications/non-packaging-plastics-quality-protocol/non-packaging-plastics-quality-protocol>



House of Commons
Environmental Audit Committee

Growing a circular economy: Ending the throwaway society

Third Report of Session 2014–15



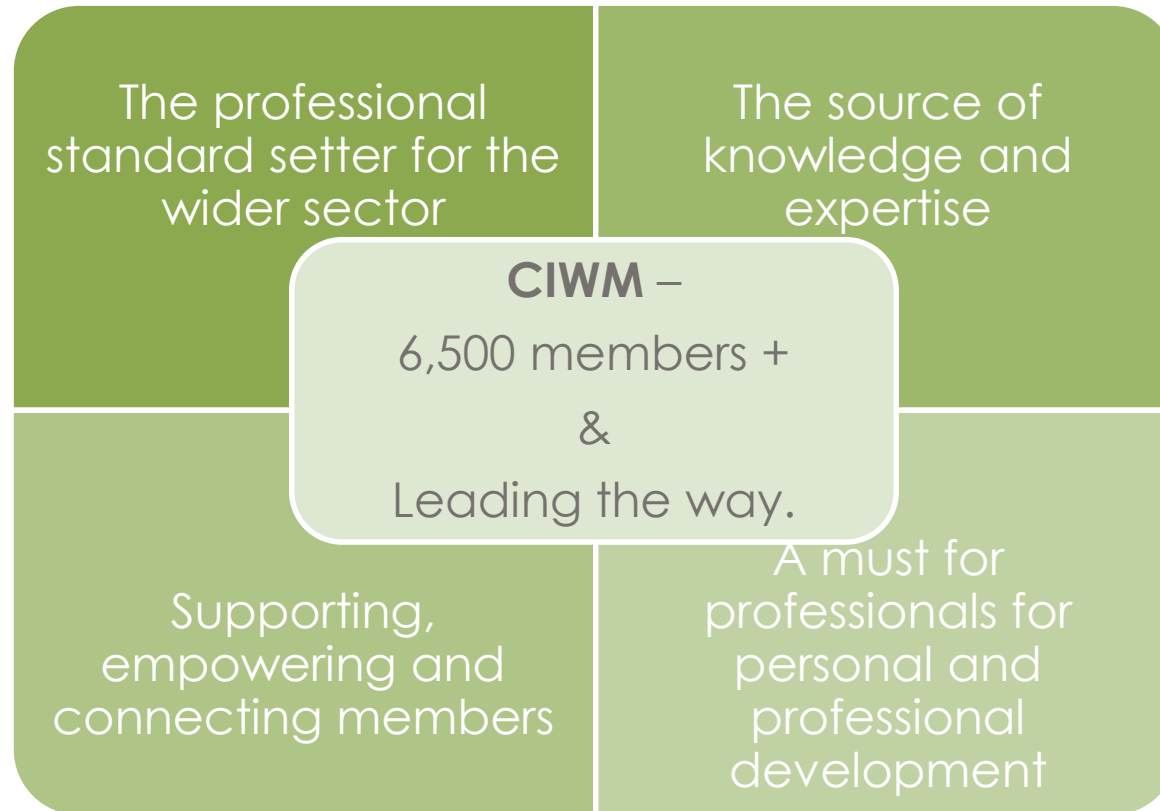
BS 8001 - a new standard for the Circular Economy

CEN & ISO Standards

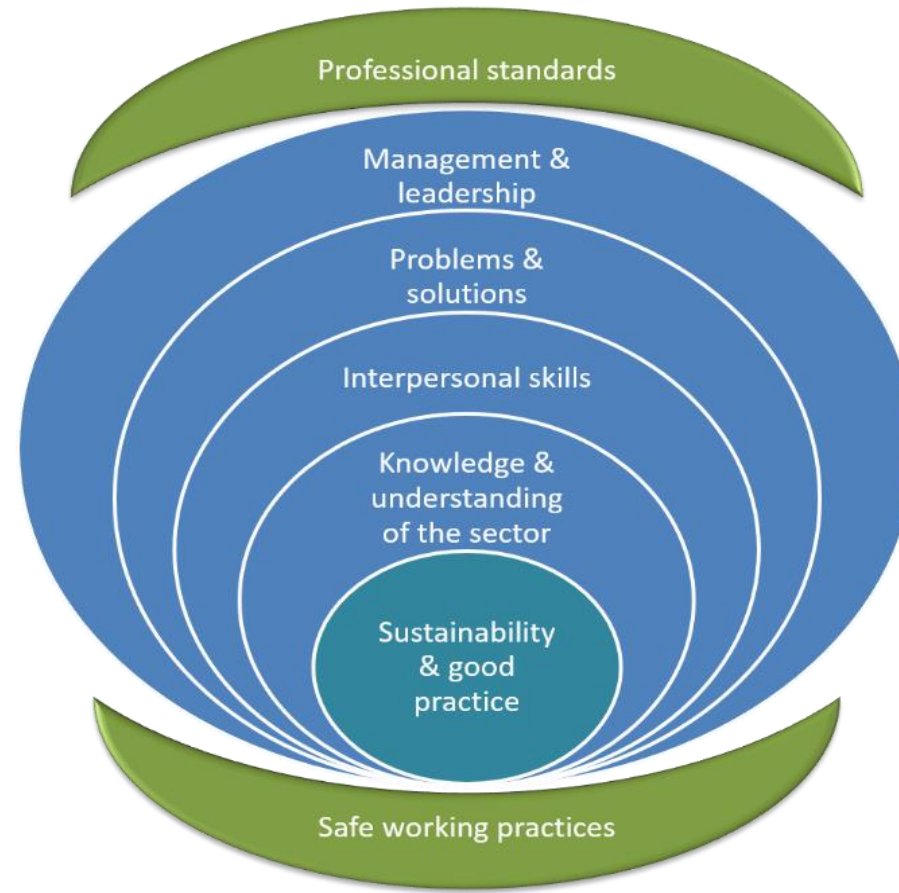


Resources Task Force

OUR Vision 2021



PROFESSIONAL STANDARDS



Empowering you to grow

As Individuals

Individual member recruitment



EMPOWERING YOU TO GROW

Join CIWM today to access the tools you need to get ahead.



EMPOWERING YOU TO GROW



[FIND OUT MORE](#)

As a Business

Affiliated Organisation recruitment



EMPOWERING YOUR ORGANISATION TO GROW

Help your business to thrive by becoming a CIWM Affiliated Organisation today.



EMPOWERING YOUR ORGANISATION TO GROW

Help your business to thrive by becoming a CIWM Affiliated Organisation today.



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CIWM Solutions

What can we help you to achieve?



CAREERS

LEARNING AND DEVELOPMENT

Whether you're looking for individual courses, bespoke in-company packages, or e-learning options, we provide engaging, high-quality training to support you and your team.

TECHNICAL SUPPORT

Request information and advice from our expert technical team and access our online knowledge centre where you will find valuable resources on a broad range of subjects.

JOB SEARCH

Find the perfect job in environmental, resources or waste management with CIWMjobs.co.uk. Choose from hundreds of roles and make yourself visible to potential employers.

FRAMEWORK OF PROFESSIONAL STANDARDS

This newly-created framework will assist you in identifying the right professional development tools for you and ensure that you are equipped with everything you need to progress in your career.

MEMBERSHIP

Enhance your professionalism, demonstrate your experience level and showcase your commitment to the sector with CIWM's individual membership.

NETWORKING

EVENTS

Hear from a host of influential speakers, join topical debates and network with hundreds of like-minded professionals at our industry-leading conferences and events.

REGIONAL MEETINGS

Engage with CIWM on a local level by attending meetings, events, webinars, site visits and social gatherings, such as golf days and seasonal lunches, in your area throughout the year.

SPECIAL INTEREST GROUPS

Work together with your peers in the sector to share knowledge and further research in a specific subject area via our Special Interest Groups.

SOCIAL MEDIA

Participate in the latest debates, ask questions and start discussions with thousands of industry peers via the CIWM LinkedIn and Twitter accounts.

KNOWLEDGE

TECHNICAL SUPPORT

Request information and advice from our expert technical team and access our online knowledge centre where you will find valuable resources on a broad range of subjects.

LEARNING AND DEVELOPMENT

CIWM has over 30 years' experience in developing and delivering sustainability, resource and waste management training courses for organisations and individuals across the UK and overseas.

EVENTS AND WEBINARS

Discover the latest thinking, share innovative ideas and network with like-minded professionals in the sector via CIWM's high-profile events and webinars.

SPECIAL INTEREST GROUPS

Our Special Interest Groups are dedicated to furthering research, sharing knowledge and representing members in a range of specific subject areas.

REGIONAL CENTRES

Engage with CIWM on a local level and make the most of learning opportunities in your area by attending meetings, events, webinars and site visits throughout the year.

SITE VISITS

Gain valuable insight into different processes and approaches by attending CIWM's popular site visits at locations across the UK and Ireland.

NEWSLETTERS

Receive the latest news, insights and opinions about the most topical issues in the sector, straight to your inbox via our weekly newsletters.

KNOWLEDGE CENTRE

Look out for this brand-new online resource, featuring searchable content on the sector's most pressing issues and essential topics.

CIRCULAR AND CIRCULAR ONLINE

With a new-look magazine and website, we're modernising how we share features, insights and best-practice advice with our members.

CONSULTATION RESPONSES

Help shape the future of the resources and waste management sector and ensure your voice is heard by contributing to consultation responses.

MARKETING

SPONSORSHIP AND EXHIBITION

Reach thousands of sustainability, resource and waste professionals by sponsoring or exhibiting at one of our high-profile events.

ADVERTISING OPPORTUNITIES

Our multi-platform media portfolio offers a range of cost-effective solutions for marketing products and services to your customers.

RECRUITMENT

Promote your vacancy through CIWMjobs.co.uk to get maximum exposure and instant access to hundreds of active job seekers.

MEMBERSHIP

INDIVIDUAL MEMBERSHIP

Whether you'd like to expand your knowledge, boost your career or make new contacts in the sector, CIWM's membership will support you every step of the way.

NETWORK PARTNERS

Becoming a CIWM Network Partner makes a powerful statement about your organisation's commitment to excellence and can inspire your members to strive for the same level of dedication.

AFFILIATED ORGANISATIONS

Access expert technical advice, unparalleled networking opportunities and exclusive discounts on training courses, events and advertising as a CIWM Affiliated Organisation.

BUSINESS PARTNERS

Enjoy the many benefits of being a CIWM Affiliated Organisation, as well as a range of exclusive discounts and advertising opportunities tailored to help you raise the profile of your business.



JOIN CIWM AS AN INDIVIDUAL



Affiliate Member

Affiliate Membership

Affiliate membership is available to anyone with an interest in wastes management and is the quickest and easiest way to access the many benefits CIWM has to offer.

These benefits include a host of invaluable knowledge and information, unrivalled networking opportunities and savings on popular sector events, conferences and training.

From Affiliate membership, you can progress to one of our professional membership grades and boost your career.



[Join Now](#)

Benefits of Affiliate Membership

- Access to knowledge & information
- Bi-monthly Circular magazine
- Networking opportunities
- Savings on events, conferences and training
- Weekly e-newsletters
- Invitations to regional events and site visits
- Access to website members area

Is Affiliate membership right for me?

Affiliate membership is perfect for you if you want to quickly and easily join CIWM and access many of the **benefits**. Affiliate membership is available to anyone with an interest in wastes management.

Many of our current members joined as Affiliate members prior to moving on to a professional grade of membership.

A stepping-stone to a professional grade

As you progress your career you have the option of transferring to one of our **professional membership grades**. You can do this at any time, providing you meet the criteria for that grade.

Professional grades of membership offer designatory letters after your name and entry is based on your skills, experience and qualifications.



We're  here to help

Contact our membership team

Tel: 01604 620426

e: membership@ciwm.co.uk



Benefits of Membership

Contact the sales team

Ginny Hunter, sales team manager
Tel: 01604 823346
e: ginny.hunter@ciwm.co.uk



As a Business Partner, not only are you an Affiliated Organisation pledging to follow the Affiliated Organisation Code of Conduct, you are demonstrating to customers and regulators that you are serious about achieving and upholding the highest levels of professionalism and compliance. You also have access to a bespoke marketing package and specialist coverage from the CIWM publications team.

[FIND OUT MORE](#)

Some of the benefits include

- Print advertising – half or full-page adverts in the CIWM Journal or MVO Magazine.
- Digital advertising – advertising on both the [CIWM Journal Online](#) and the [CIWM Newsletter](#).
- Editorial coverage – monthly invitation to submit press releases for business partner news, opportunities to contribute to features and opinion pieces across CIWM media platforms.

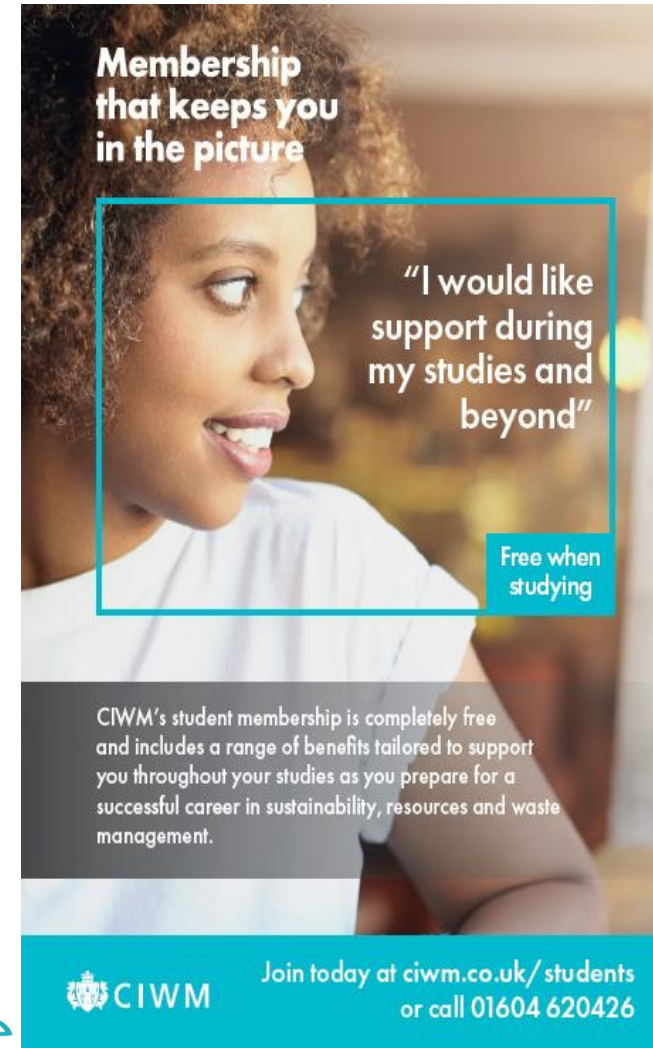


Becoming a CIWM Affiliated Organisation makes a powerful statement about your company's commitment to excellence in sustainable resource management. By pledging to follow the Affiliated Organisation Code of Conduct you are demonstrating to customers and regulators that you are serious about achieving and upholding the highest levels of professionalism and compliance.

[FIND OUT MORE](#)

Some of the benefits include

- Nominate two individual Affiliate members – aiding to their personal development in the sector.
- Your own dedicated CIWM account manager and account co-ordinator.
- CIWM Affiliated Organisation Code of Conduct – this document demonstrates to customers, staff and suppliers, that you are committed to excellence in sustainable resource management.
- Engagement and collaboration between CIWM and your company.




Membership that keeps you in the picture

“I would like support during my studies and beyond”

Free when studying

CIWM's student membership is completely free and includes a range of benefits tailored to support you throughout your studies as you prepare for a successful career in sustainability, resources and waste management.

 Join today at ciwm.co.uk/students or call 01604 620426

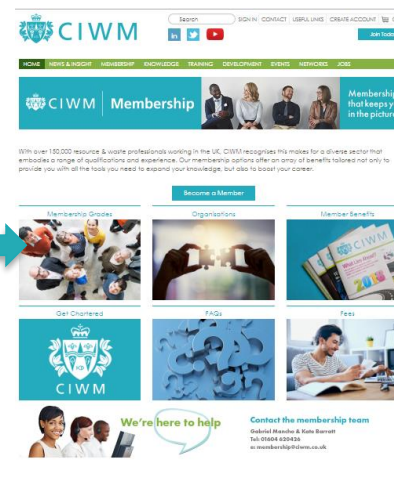


Website a key delivery tool

Membership home page



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Governance CIWM structure Working Opportunities Privacy Policy
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Member benefits page



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CORE BUSINESS CHALLENGES NEXT 20 YEARS

- CLIMATE CHANGE
- THE PLASTICS CHALLENGE
- THE RESOURCES CHALLENGE
- THE 4TH INDUSTRIAL REVOLUTION



By 2050 we need

- 3X more resources
- 70% more of food

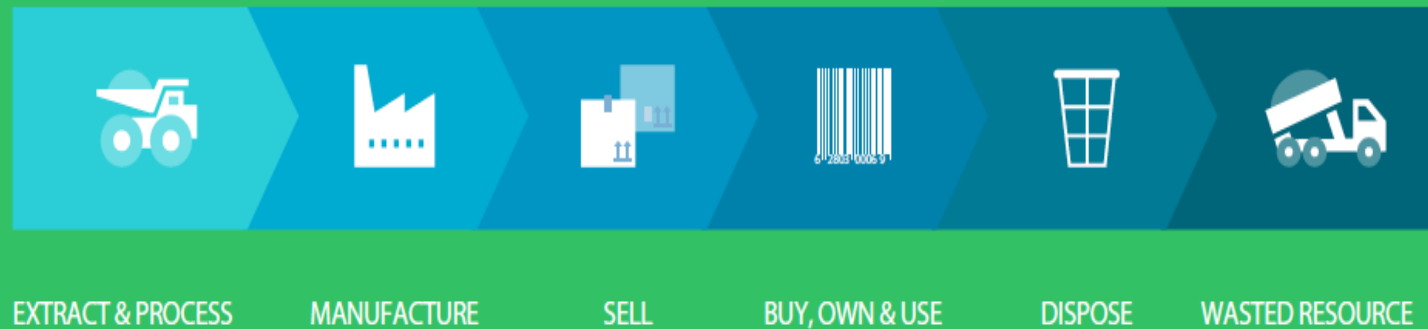
We will be

- 40% short of drinking water in 2030.



CURRENT BUSINESS MODEL IS NO LONGER FIT FOR PURPOSE

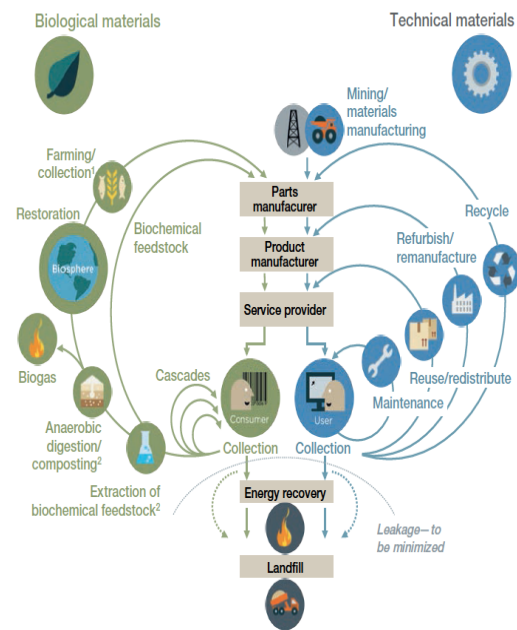
Fig. 1 | Linear economy





Secondary Raw Materials A Profit Opportunity for European manufacturing

Circular economy



¹ Hunting and fishing
² Can take both postharvest and postconsumer waste as an input
Source: Ellen MacArthur Foundation circular economy team drawing from Braungart & McDonough and Cradle to Cradle (C2C)

FULL COMPLIANCE WITH EU WASTE POLICY

EU would gain €42 billion extra annual turnover

EU would create 400,000 new jobs

THE CIRCULAR ECONOMY – McKinsey & Company Estimates

Ellen McArthur Foundation Study Transitional Scenario

Net material cost saving opportunity of \$340-380 billion pa at EU level

Advanced Scenario

Net material cost saving opportunity of \$520-630 billion pa at EU level

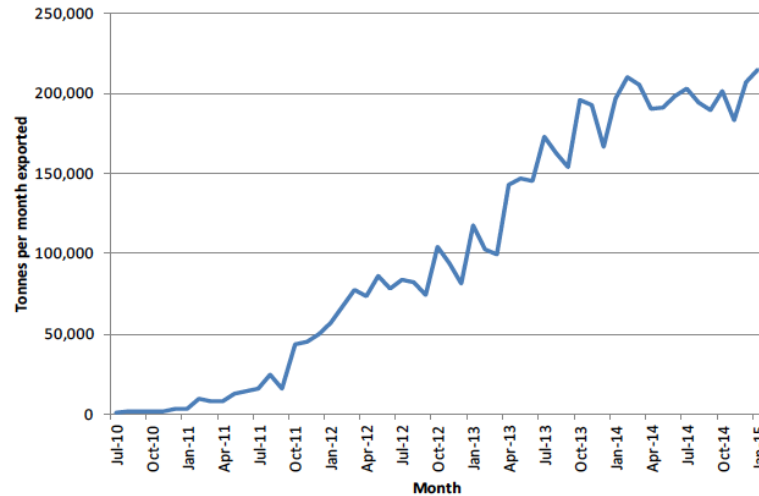
Largest benefits – Automotive sector – Machinery & Equipment – electrical machinery

Overall a recurrent 3-3.9% of 2010 EU GDP



EXPORTS A LOST OPPORTUNITY

Quantity of RDF exported from England, July 2010 to January 2015



Notes: Data for the months before November 2014 are for England and Wales.
Data after that point are for England only.

Refuse Derived Fuel

2016 - 3.2 Million Tonnes exported

Cost £280 million

Destination – Netherlands, Denmark

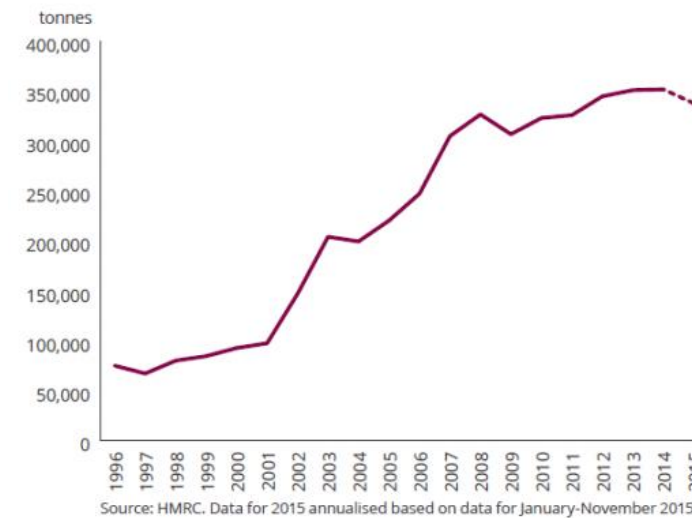
Sweden, Baltic States etc

Source Environment Agency / DEFRA

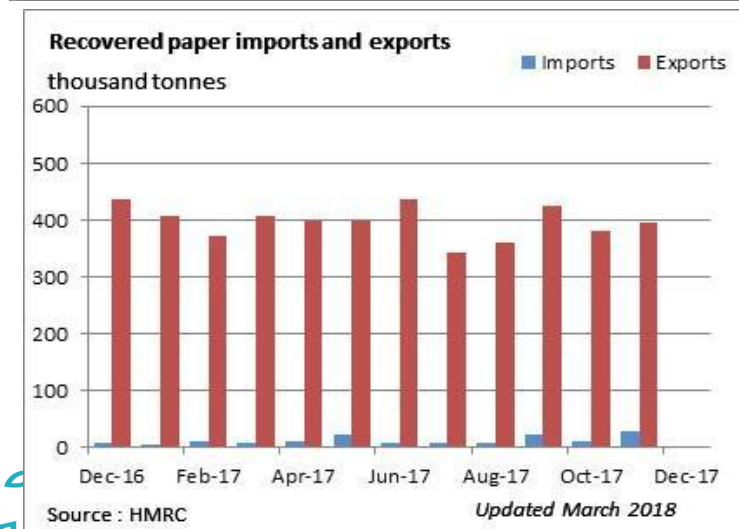
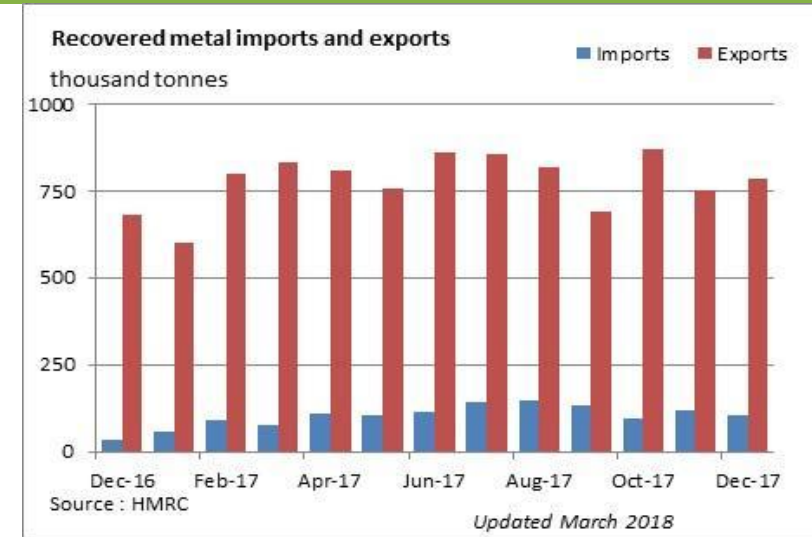
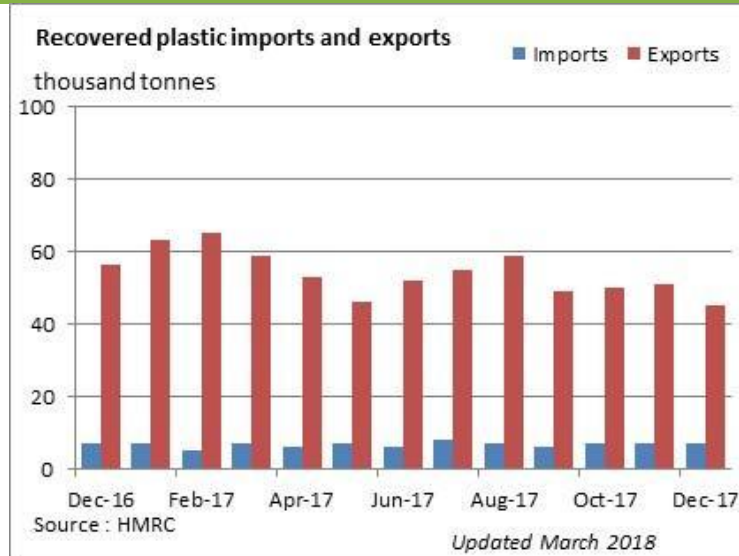
EU Largest Exporter of waste & scrap

- United Kingdom
- 14.8m tonnes 2016 (Net Exports)
- £3.1 billion worth
- 400% increase since 2000
- Metals 65% (value)
- Textiles 18% (value)
- Paper 11% (value)

Graph 4: UK exports of used textiles



EXPORTED WASTE A LOST OPPORTUNITY



EU Largest Exporter of waste & scrap

- United Kingdom
- 14.8m tonnes 2016 (Net Exports)
- £3.1 billion worth
- 400% increase since 2000
- Metals 65% (value)
- Textiles 18% (value)
- Paper 11% (value)

The Global Waste & RESOURCE MANAGEMENT Industry

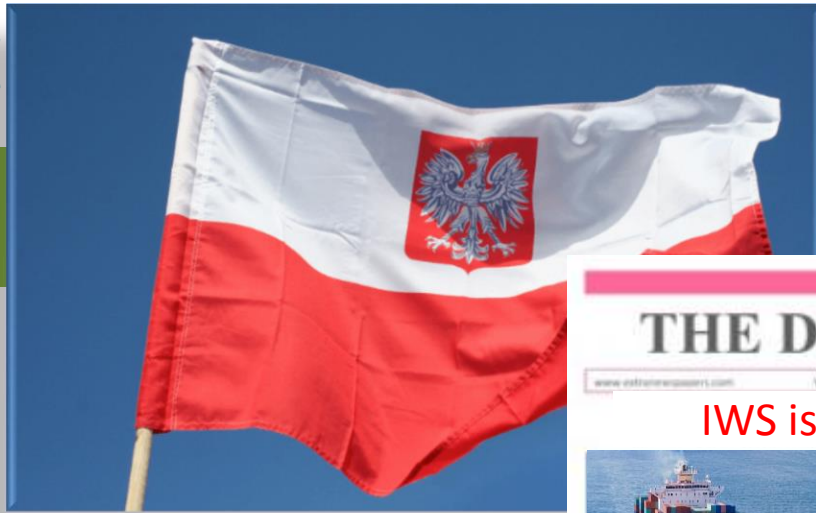
Description

Total waste generated	4 billion tonnes
Municipal waste	1.6-2.0 billion tonnes
Percentage landfill	70%
Percentage thermal & waste to energy	11%
Recycling & MBT	16%
Global Population with no waste services	52% (3.5 billion)
Global Value of industry	\$433 billion
Growth in Food waste 2005-2025	44%
Impact of food waste on climate change gases	Grow from 8-10%

Source ISWA Global Waste Industry







THE DAILY NEWS
www.extra-newspaper.com YOUR DAILY FAVORITE NEWSPAPER Size: 1000

IWS is Top Priority



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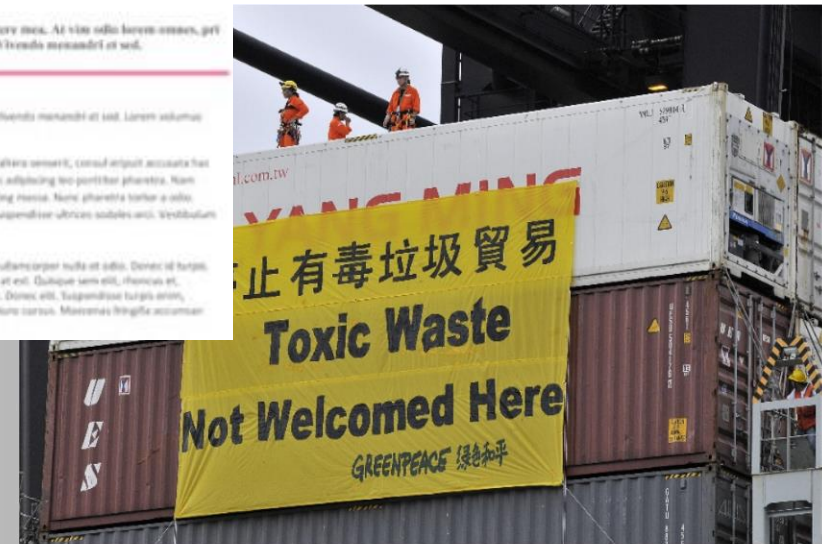
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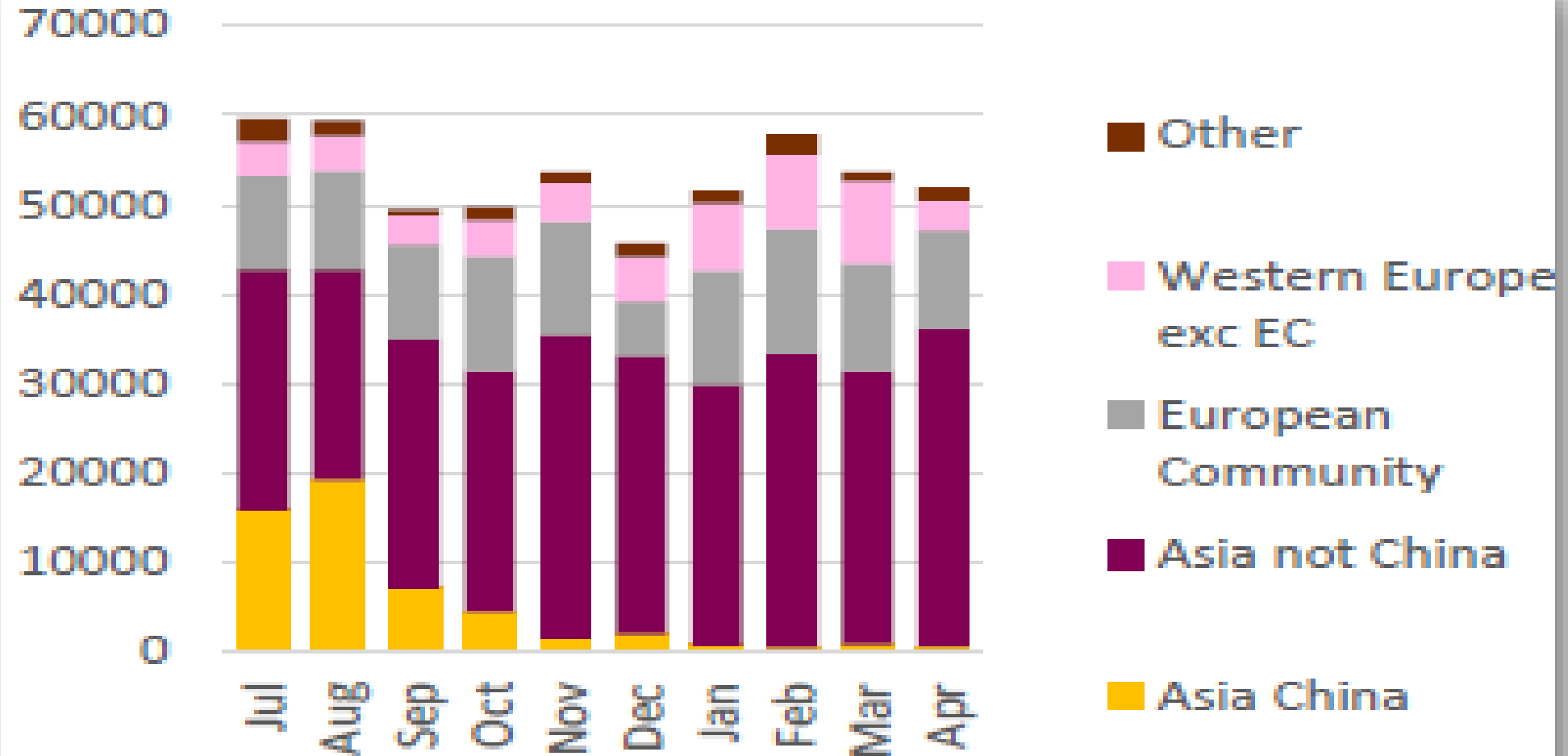
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Waste Plastic Exports 2017 to 2018



WASTE INDUSTRY RESPONSE

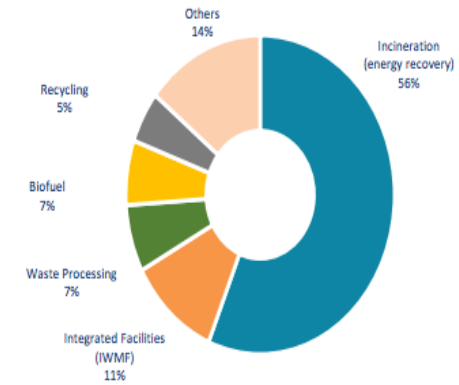


ARC Copenhagen



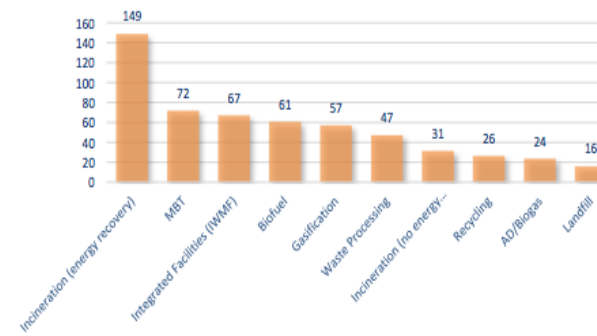
AMEY Yorkshire England

May 2017: Investment Values By Leading Technology Type (%)



Source: AsuCinn database, May 2017

May 2017: Average Investment Values by Leading Tech Type (US\$m)



Source: AsuCinn database, May 2017





The UK Resources and Waste Management Strategy'

Changes ahead



The proposition



Three good reasons to be here:

1. Resources sit at the very heart of the new strategy
2. It signals a step change in approach to both virgin and secondary materials
3. Delivering its ambitions requires far greater collaboration across the product supply chain



CHANGES TO WASTE MANAGEMENT IN ENGLAND

Evolution of Waste Management Practices: In the past, most waste was dealt with by disposal, but over time that will shift increasingly to recycling, reuse and ultimately prevention.



1 Prevention

Using less material in design and manufacture. Keeping products for longer; reuse. Using less hazardous materials.

2 Preparing for reuse

Checking, cleaning, repairing, refurbishing, whole items or spare parts.

3 Recycling

Turning waste into a new substance or product. Includes composting if it meets quality protocols.

4 Other recovery

Includes anaerobic digestion, incineration with energy recovery, gasification and pyrolysis which produce energy (fuels, heat and power) and materials from waste; some backfilling.

5 Disposal

Landfill and incineration without energy recovery.



The backdrop

 Major milestones on climate change, low carbon growth and the clean tech, resource productivity & natural capital thinking

- EU Circular Economy Package draws resources and waste sector into this wider agenda and ramps up ambition on waste
- New materials emerge, most notably bioplastics, and start to move into the mainstream

“It won’t be long before all our plastics come from plants instead of oil”

QZ, October 2016



The backdrop

But at the same time:

- circa 4Mt tonnes of food waste to landfill/yr
- recycling rates for even commonplace materials plateauing
- some new products/materials make recovery and recycling harder
- secondary materials struggle to compete with virgin
- growing evidence of marine plastics crisis
- resource security concerns mount



Key Ambitions



- *Clean Growth Strategy, Oct 2017*
 - **Eliminate avoidable waste of all kinds by 2050**
 - **Work towards eliminating food waste to landfill by 2030**
- *Industrial Strategy, Nov 2017*
 - **Double resource productivity by 2050**
- *25yr Environment Plan, Jan 2018*
 - **Eliminate avoidable plastic waste by 2042**
- *UK Plastics Pact, April 2018*
 - **Work towards all plastics packaging being recyclable, reusable or compostable by 2025**



The Approach

A whole product/material life cycle (rather than traditional end-of-pipe) approach

Production Consumption End-of-life

Ambition to move from weight-based metrics to embrace wider environmental impacts e.g. carbon

*Recycling 1 tonne of plastic bottles
saves 0.75 tonnes CO₂e*

And more interventionist...



Lifecycle Approach

Production phase: resource efficient design & manufacture

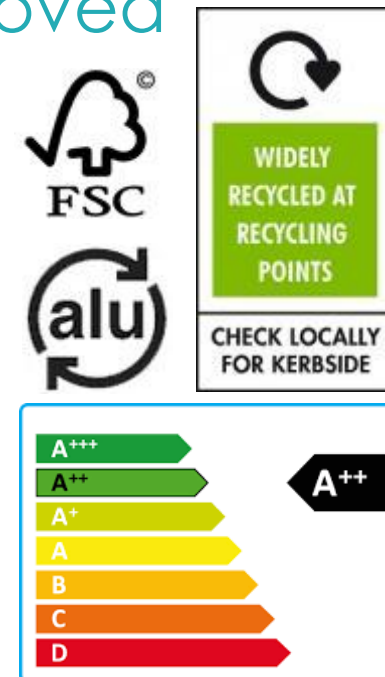
- Extended Producer Responsibility (big ticket item)
- Ecodesign – materials efficiency, durability and recyclability (mirroring EU work)
- New Chemicals Strategy – sustainable use, hazardousness and barriers to recycling
- Resource efficient business ‘clusters’



Lifecycle Approach

Consumption phase: sustainable choices and opportunities to extend 1st product life

- Household & business choices improved
 - Labelling & information
 - Reducing barriers to reuse and remanufacturing
 - Appropriate disposal and bans on some products
- Green procurement



Lifecycle Approach

End of life phase: increased materials recovery, reduced impact, recovery of energy

- Collection consistency / better access to recycling – higher capture/higher quality/less contamination
- Much stronger focus on businesses
- Separate food waste collections and refreshed policies on biowaste treatment
- Residual waste infrastructure – focus on capturing heat and incineration tax still on the table
- Barriers to use of secondary materials



EPR – a game changer

New principles for all EPR frameworks and intervention across the product lifecycle:

- Clear outcomes, objectives and responsibilities
- **Full net cost recovery** producers pay the full costs of disposal
- **Modulated fees to incentivise resource efficiency and productivity throughout product life**
- Transparent and fair
- Robust and appropriate governance, compliance mechanisms and enforcement
- Easy for consumers to make sustainable choices



EPR – a game changer

Short to medium term consultations:

- Packaging (*imminent*)
- Waste electrical & electronic equipment (2020)
- Batteries (2020)
- End-of-Life Vehicles (2021)



Longer term: 5 new waste streams

- Textiles, bulky waste, construction products, tyres & fishing gear (2022)



Packaging EPR

Focus on packaging – impact, complexity, political / consumer attention, currently sub-optimal

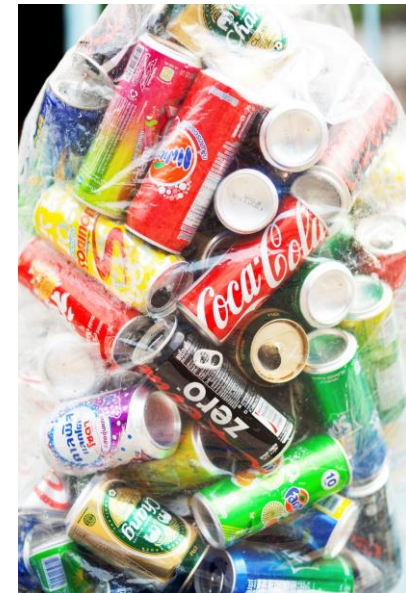
- X only circa 10% of the cost
- X no incentive to design for resource efficiency
- X doesn't stimulate markets for secondary plastics
- X limited support for collection & recycling infrastructure, particularly for post-consumer waste
- X not transparent and open to fraud
- X incentivises export of materials



Packaging EPR

Aligned consultations due imminently:

- Plastics tax – items with less than 30% recycled content
- DRS for beverage containers
- Collection consistency



Other measures:

- Banning some single use plastic products
- Standards for bio-based/biodegradable materials



Food waste

Producer responsibility under a different name

- Annual reporting of food surplus and waste
- Food waste targets & redistribution obligations
- New food surplus & waste hierarchy
- More action and collaboration under Courtauld 2025 Agreement
- Sector-specific statutory Codes of Conduct to protect producers from unfair practices



Waste Crime

New strategic approach – prevent, detect, deter

- Regulatory reform – DoC, Exemptions, Carriers, Brokers & Dealers, hazardous waste, waste exports
- Intelligence sharing, tax registration checks & new financial provision
- Mandatory digital tracking of waste, analytical tools to capture poor performance trends
- Abandoned Sites Action Plan – early warning system
- More powers for EA and LAs and tougher penalties



Data and metrics

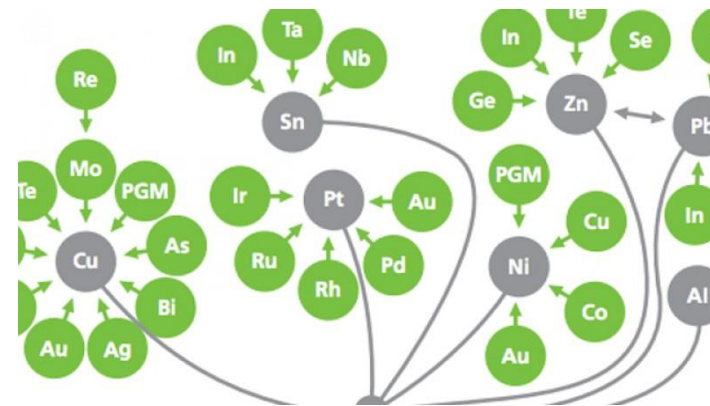
- Better resources and waste data
- Shift from weight-based targets – notably GHG and natural capital
- Set of strategic indicators feeding back into Defra 25yr Plan
- Consultation on non-binding performance indicators for LAs on quantity of materials collected for recycling
- Resources and Waste Strategy Evaluation Plan to be published in spring 2019



Other strategic/enabling measures

Mapping materials in the economy

- National Materials Datahub (BEIS, Defra & ONS)
 – viability and importance to UK economy
- Innovative digital solutions to track waste
- Cross-government oversight of UK's natural resource security & review of the Resource Security Action Plan



Other strategic/enabling measures

Innovation & research

- Industrial Challenge Fund
- 5 additional Areas of Research identified, including EPR, food waste and plastics
- Development of standards for bio-based & biodegradable materials
- £20m Plastics Research & Innovation Fund
- £20m Plastics & Waste Investment Fund



Other strategic/enabling measures

Renewable fuels

- Support technology innovation to create transport fuels from waste feedstocks - RTFO



Waste/chemicals interface

- Chemicals Strategy to address barriers to reuse and recycling posed by their use - no timeline yet

Improving End of Waste regime

- Review EOW framework as laid out in EU legislation and UK mechanisms such as Quality Protocols



+ / Biodiesel / Steel Slag

WRAP Quality Protocol

Biomethane from waste

End of waste criteria for the production of biomethane from landfill gas and anaerobic digestion



WRAP Quality Protocol

Flat glass

The quality protocol for flat glass



WRAP Quality Protocol

Anaerobic digestate

End of waste criteria for the production and use of anaerobic digestate from the digestion of source-segregated biodegradable waste



WRAP Quality Protocol

Tyre-derived rubber materials

End of waste criteria for the production and use of tyre-derived rubber materials



WRAP Quality Protocol

Recycled gypsum from waste plasterboard

End of waste criteria for the production and use of recycled gypsum from waste plasterboard



WRAP Quality Protocol

Processed Fuel Oil (PFO)

End of waste criteria for the production and use of processed fuel oil from waste lubricating oils



WRAP Quality Protocol

Poultry Litter Ash

End of waste criteria for the production and use of poultry litter ash from the incineration of poultry litter



WRAP Quality Protocol

Aggregates from inert waste

End of waste criteria for the production of aggregates from inert waste



WRAP Quality Protocol

Pulverised Fuel Ash (PFA)

End of waste criteria for the production of pulverised fuel ash (PFA) and furnace bottom ash (FBA) for use in bound and grout applications in specified construction and manufacturing uses



<https://www.gov.uk/government/collecti- ons/quality-protocols-end-of-waste- frameworks-for-waste-derived-products>

What does this mean for materials?

Resources are at the heart of this strategy

Delivering better outcomes right across the product cycle:

- more resource efficient design & manufacture – **using less materials**
- enhanced longevity, durability & product – using less performance – **making materials work harder**
- improved end of life outcomes – **making it easier to repurpose and recycle materials**
- Keeping materials in the economic loop through more innovative **use of secondary materials**



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<http://www.mudjeans.eu/Media>



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REMANUFACTURING



MARKS &
SPENCERS
PLAN A



<http://www.desso.com/c2c-corporate-responsibility/circular-economy>



COCA COLA
PET
BOTTLES

Share Our
Passion

BRITISH AIRWAYS

Doc Brown tossed a banana peel, some egg shells, and a partially-consumed beer into "Mr. Fusion" to make the DeLorean time machine fly?



CIRCULAR ECONOMY – EXAMPLES OF SUCCESS

<https://www.cisl.cam.ac.uk/publications/low-carbon-transformation-publications/collaboration-for-a-closed-loop-value-chain>

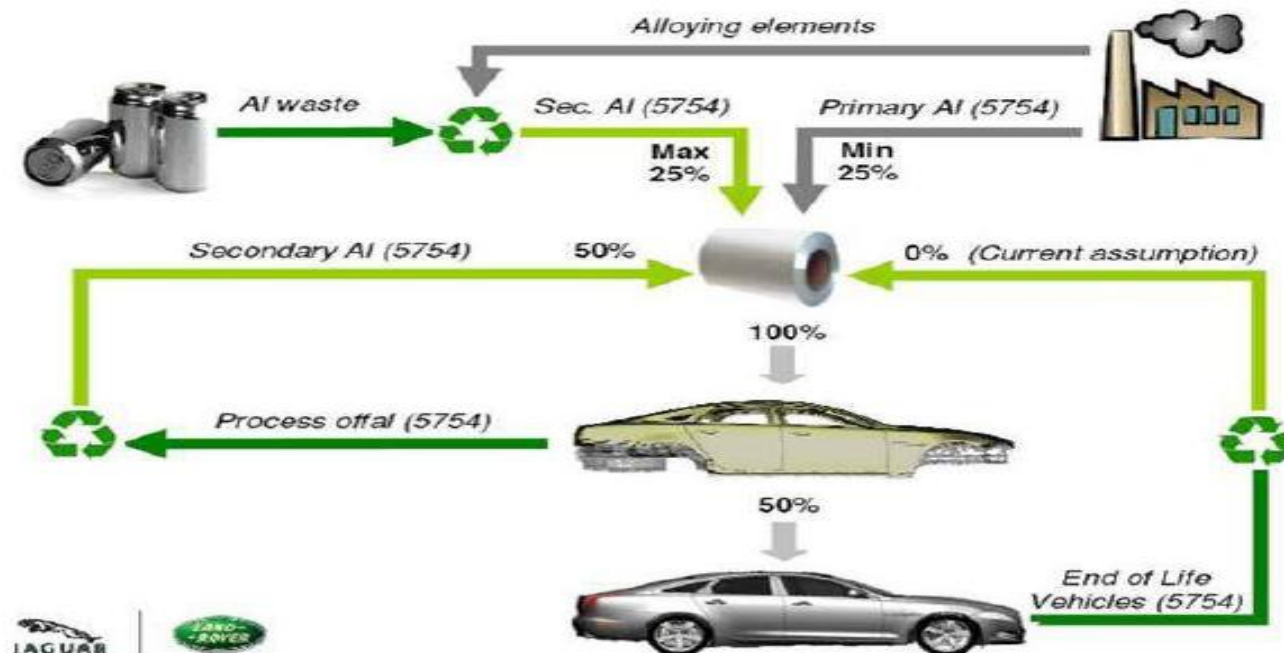
REALCAR Project Scope



Target up to **75%** recycled Aluminium

- Closed loop manufacture
- Expand to supply base
- Review additional secondary metal supply

Jaguar Land Rover Closed Loop recycling plan & future growth



Case studies – Circular Economy - Success Factors – Jaguar Landrover

- **MATERIAL SUITABILITY AND INNOVATION**
 - Are materials suitable for loop closure
 - Are rigorous and consistent waste segregation systems in place
 - Is a culture of innovation embedded in the development team
- REALCAR took 5 years of technical development to get the materials right and develop a new grade of aluminium (RC574) that met their needs and could be recovered. Innovation was key.
- The development work was in part funded by a €1.5 million grant.
- We are still learning how to exploit secondary raw materials and they are not a straight replacement for primary raw materials.
- For processors new markets are needed to avoid lock in with one manufacturer.
- All parties need to understand the need for segregation to maintain quality of scrap supplied for recovery

Based on – A circular economy case study – Collaboration for a Closed Loop Value Chain. Transferable Learning Points from the REALCAR Project. University of Cambridge Institute for Sustainability Leadership

We can't pass on our waste and "hope" it's recycled
Emma Howard-Boyd Environment Agency Chair



Council "appalled" after Milton Keynes waste found in jungle



Don't fear change, embrace it



Thank you for your attention!

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