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Climate change and waste management: *Why we should Stop the Waste*

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- Waste management's role in climate change
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The challenge

- Global consumption of resources is increasing rapidly
 - Fuelled by increasing levels of consumption per capita in rich countries
 - And by a rapid rise in consumption in some very large poorer countries (China and India)
- This increase is having environmental and economic impacts
 - Climate change is an urgent threat
 - Increasing resource use has many other impacts, e.g. damage to biodiversity and depletion of water supplies
 - There is also an economic impact as prices of many resources increase
- We must act urgently to both reduce our climate impacts and improve resource efficiency
 - Delaying action on climate change is not an option, as shown by the recent Tyndall report for Friends of the Earth [1]
 - Improving our resource efficiency will reduce the damage that we do to the environment, whilst helping our economy in the future as resources become more expensive.



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Waste management and climate change - the impact?

- In DEFRA's environmental report [2]:
 - "Waste sector emissions of all greenhouse gases accounted for approximately 2% of UK emissions of greenhouse gases in 2003, but have fallen from a contribution of 5% in 1990. Methane accounts for approximately 80% of waste sector emissions."
 - Carbon savings from the scenarios examined which had either waste prevention (stabilisation at 2002/2003 levels) or increased recycling (59% of municipal waste, 49% commercial and industrial) could be around 3% of current greenhouse gas emissions by 2020.
 - » *NB: We would view these recycling rates as un-ambitious.*
- WRAP research [3] shows the impact of recycling
 - Recycling in the UK is already saving around 10-15 million tonnes of CO2 equivalent per year, equivalent to taking 3.5 million cars off the road
 - NB: Some of this saving actually occurs outside the UK, e.g. in savings in mining & material processing.
 - This study also demonstrated that the majority of life cycle assessments back recycling over incineration with energy recovery.
- Friends of the Earth research [6] has shown that anaerobic digestion of household food waste alone could generate 0.4% of UK electricity demand



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Waste policies to maximise resource efficiency

- The top of the waste hierarchy shows the way:
 - Waste prevention - the best environmental option, avoiding resource use
 - Reuse - reduces need for resources and manufacturing
 - Recycling - reduces need for extraction and processing of new resources
 - Composting - returns nutrients and structure to soils; displaces other fertilizers; sequesters carbon; and, in the case of anaerobic digestion, produces methane which can be used as a 100% renewable energy source.
- Then we must phase out the rest - the residual waste, which is currently landfilled or incinerated
 - Phasing out residual waste is the right long term direction, both for resource efficiency and climate change.
- The problem with residual waste treatments...



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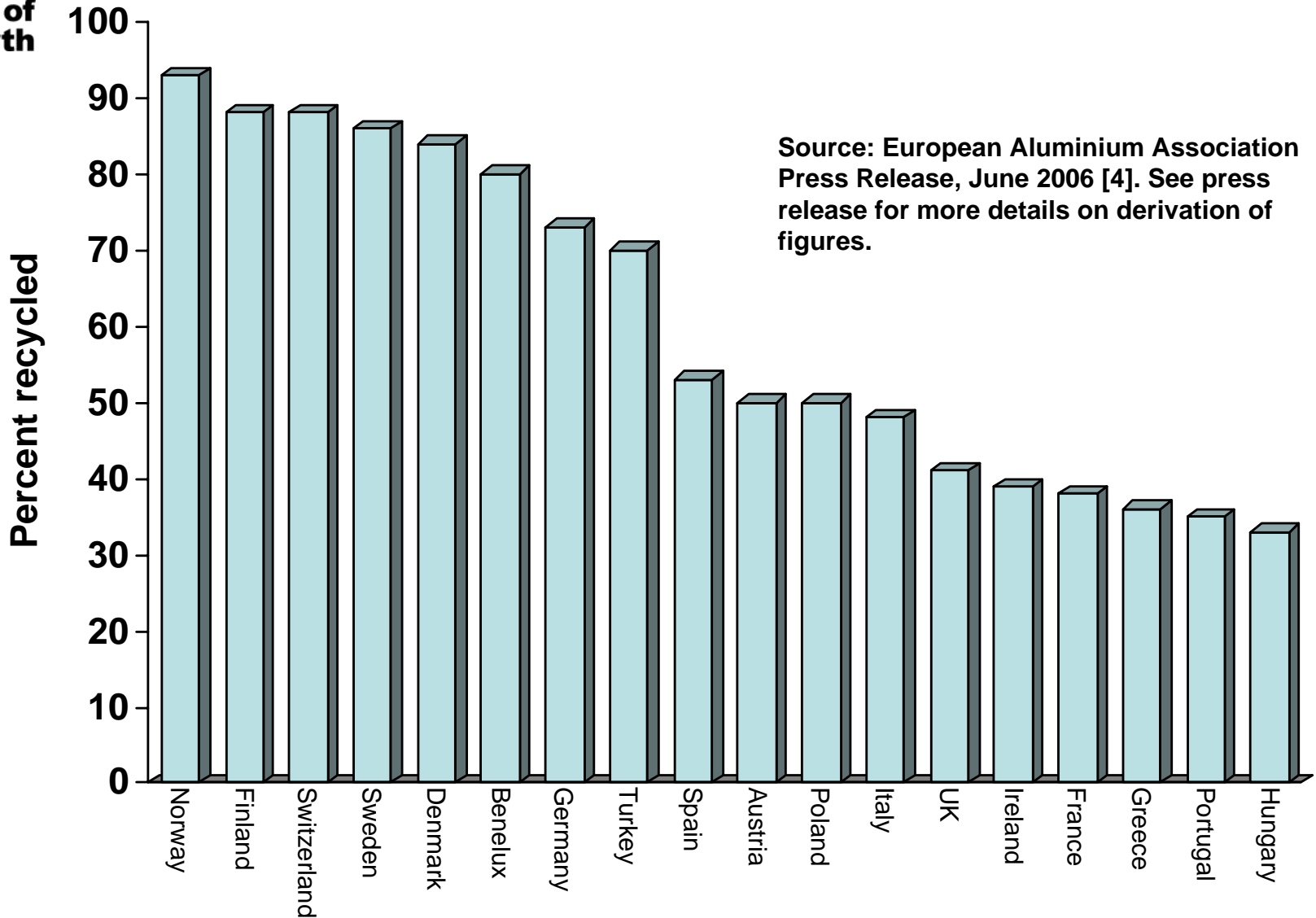
Landfill and climate

- Problems:
 - Landfilling biodegradable wastes will lead to methane production
 - Some of this can be captured, and energy generated from the landfill gas
 - Much will not be captured, and will contribute negatively to climate change
 - Landfilling of material that could be recycled, e.g. aluminium cans, creates climate emissions when materials have to be replaced.
 - In spite of the high market value of aluminium cans (>£800 per tonne), the recycling rate in the UK is not impressive:



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Aluminium can recycling - 2005





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Preventing the residual waste that goes to landfill

- Divert biodegradable wastes through:
 - Source-separated food waste collection, followed by anaerobic digestion or composting
 - Maximising recycling
- Ban landfilling of reusable, recyclable and compostable materials
 - Particularly important as a tool to force recycling of commercial waste
- Increase landfill tax
 - Most stakeholders agree that it is far too low at the moment
- Use mechanical biological treatment to pre-treat any remaining residual waste prior to landfill
 - Allowing maximum removal of recyclables (including plastics)
 - Preventing methane production in the landfill.
 - NB: We must ensure that this technique is designed to be gradually phased out as residual waste volumes decrease



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Incineration and climate

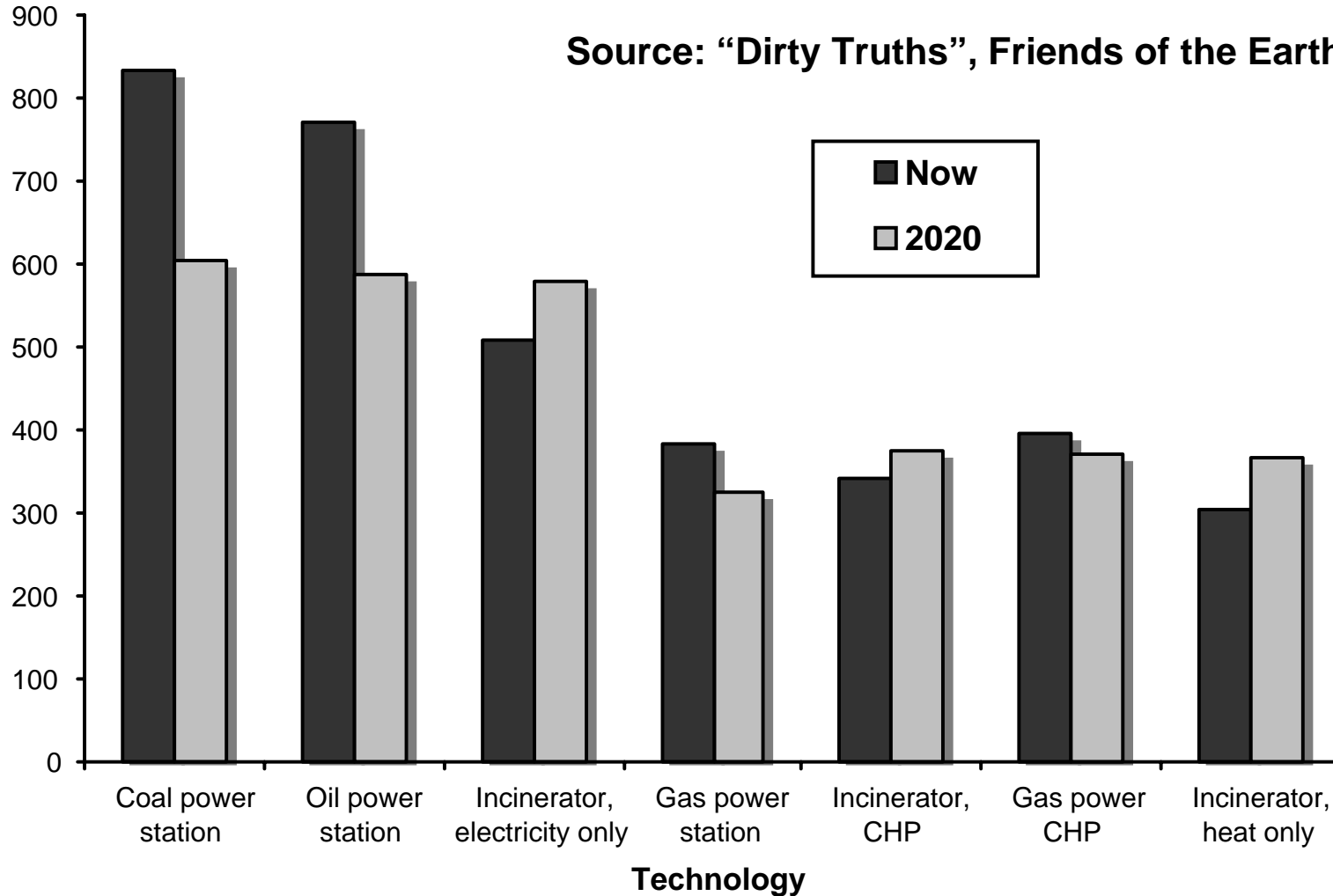
- Incineration creates a demand for residual waste
 - Incinerators are expensive, and require long term financing, and usually long-term contracts forcing delivery of waste for 20 years or longer.
 - These contracts create a ceiling on future levels of waste prevention and recycling.
- Incineration generates energy inefficiently, whilst emitting fossil fuel-derived CO₂
 - Incinerators are designed to dispose of rubbish, and need a lot of air pollution control equipment.
 - Much of what is burned in incinerators is fossil-fuel derived - e.g. plastics, synthetic textiles etc. When burnt, this produces fossil fuel derived carbon dioxide.
 - Therefore, the power generated from incinerators is not 'green energy' or 'renewable energy' [5,6]
 - Incinerators produce more total CO₂ per unit energy generated than a coal fired power station.
 - If only fossil-fuel derived CO₂ is considered, an electricity only incinerator produces around 33% more than a gas fired power station.



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Fossil CO₂ pollution from power generation, now and in 2020

Source: "Dirty Truths", Friends of the Earth [5]





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Preventing the residual waste that goes to incineration

- Bring in an incineration tax to divert waste up the hierarchy
 - as used in countries such as Denmark and Sweden
- Redirect funding support to better waste management methods
 - e.g. Effective recycling systems and anaerobic digestion
- Ban incineration of materials that can be reused, recycled or composted
- **NB: DEFRA is proposing an increase in incineration - we believe this is a fundamental error**



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Waste to energy from anaerobic digestion

- E.g. Greenfinch project in Ludlow
 - DEFRA funded
 - Strong public support
- Recycles 5000 tpa of source-segregated waste into:
 - Pasteurised fertilizer for local agriculture
 - Biogas, producing electricity & heat (100% renewable)

www.greenfinch.co.uk





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Long term policies to phase out residual waste

- Phasing out of residual waste (getting rid of rubbish) will also require other changes
 - E.g. re-design of goods to be reusable, recyclable or compostable:
 - Some signs of this happening now, e.g. Sainsbury's are beginning a move to compostable or recyclable packaging.
 - New policies will be required, e.g.
 - More producer responsibility schemes, to oblige producers to recycle their products at end of life, leading to eco-innovation
 - Changes to packaging regulations to force recycling and composting
- We also need to develop effective waste prevention programmes
 - Including variable charging
 - At local, national and EU levels.



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Conclusions

- We have to act now to improve our eco-efficiency
 - We must reduce our impacts on climate change
 - Wasting resources will not help the UK economy
- Recommendations for the England waste strategy:
 - Promotion of separate collection & anaerobic digestion of food waste, not other energy from waste technologies - ***not an increase in incineration, as currently proposed by the government***
 - More ambitious recycling targets, and a phase out of landfill or incineration of reusable, recyclable or compostable materials
 - Redesign of goods to make them reusable, recyclable or compostable
 - Variable charging, increases in landfill tax, and a new incineration tax
- Recommendations for the review of the EU Waste Framework Directive:
 - No re-branding of incinerators from ‘disposal’ to ‘recovery’
 - Creation of an effective waste prevention process, with targets
 - Promotion of recycling, including a phase out of landfill or incineration of compostable or recyclable materials



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