

## Data Work Book - Contents

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## Energy

Subject	Source	Excerpt
	1-1	<i>Energy from Waste: The Scottish Government announces its position on Energy from Waste to the parliament. Stating they support technologies such as Anaerobic Digestion, and in general that their approach to waste is mindful of climate change challenges as well as energy policies.</i>
	1-2	<i>Climate bill 'could lead world' - A newly published Scottish Bill is being proposed as a world leading bill against climate change, with Scottish Parliament stating that Greenhouse Gases produced by Scotland in 2050 will be only 20% of its current day emissions.</i>
	1-3	<i>3rd Annual Climate Change Summit - This conference is one of the most popular gatherings of corporate responsibility, climate change and environmental professionals in Europe. Topics include energy efficiency, water, carbon, supply chain management, communications and stakeholder engagement strategies.</i>
	1-4	<i>The ASI &amp; Market force's 14th Annual Conference The Future of Utilities - Tackling the realities of a new era: balancing conflicting pressures in an evolving market. As the industry continues to tackle the challenges of volatile market conditions, climate change mitigation, securing a sustainable supply and responding to changing customer demands, senior representatives from four key utilities discuss strategies for preparing the industry for the future.</i>
	1-5	<i>Palm Oil - The Sustainable 21st Century Oil - Palm oil (PO) is the world's most widely produced and traded vegetable oil. It is predominantly used for food, but increasingly also used for oleochemicals and more recently as a feedstock for biodiesel. With world population projected to increase to over 9 billion by 2050, PO will become even more important for world food supplies.</i>

	1-6	<p><i>SUSTAINABILITY: Shaping an Environmental Legacy for World Cities - Global drivers for sustainable development</i></p> <p><i>Global population: doubling every 40 years.</i></p> <p><i>Material consumption: doubling every 20 years.</i></p> <p><i>Global warming: the 1990s were the warmest decade in the 20th century.</i></p> <p><i>Inefficiencies: it takes 20 kg of raw materials to produce 1 kg of ‘bought goods’.</i></p> <p><i>Dwindling resources: in 30 to 50 years, the demand for oil and gas will outstrip supply.</i></p> <p><i>Sheer volume: construction is responsible for 40% of global energy use and raw materials.</i></p> <p><i>Energy use: 50% of UK energy consumption is used in the operational phase of buildings.</i></p> <p><i>Transport: 10% of national energy consumption is in the production and transport of construction materials.</i></p>
	1-7	<p><i>Green Building Mandates Signed by 16 Cities - Get your checkbooks out, Bill Clinton’s Climate Initiative has garnered the support of 16 cities around the world to renovate city-owned buildings to make them for green/efficient. The makeovers will include replacing heating, cooling and lighting systems with energy-efficient networks; making roofs white or reflective to deflect more of the sun’s heat; sealing windows and installing new models that let more light in; and setting up sensors to control more efficient use of lights and air conditioning.</i></p>
Climate Change	1-8	<p>The source provides information on Scotland's Climate Change Declaration "Scotland's Climate Change Declaration acknowledges the reality and importance of climate change and is a means of demonstrating local leadership and commitment to action: all of Scotland’s 32 local authorities are signatories. The Declaration includes commitments both to mitigate our impact on climate change through reducing greenhouse gas emissions and to adapt to predicted climate change impacts"</p>
	1-9	<p>The Climate Change Bill for Scotland details a number of targets, methods, procedures and progress made.</p> <ul style="list-style-type: none"> <li>- The Scottish Ministers must ensure that the net Scottish emissions account for the year 2050 is at least 80% lower than the baseline.</li> <li>- The Scottish Ministers must ensure that the net Scottish emissions account for the year 2030 is at least 50% lower than the baseline.</li> <li>- Scottish Ministers must set annual targets with regard to net emissions.</li> <li>- In this Act, the “baseline” means the aggregate amount of— <ul style="list-style-type: none"> <li>(a) net Scottish emissions of carbon dioxide for 1990; and</li> <li>(b) net Scottish emissions of each of the greenhouse gases other than carbon dioxide for the year that is the baseline year for that gas.</li> </ul> </li> </ul>

	1-10	<p>This source outlines patterns of climate change across Scotland in March 2006. The source argues that in order to prepare and adapt for the future we must proceed by analysing the degree of historic change in specific locations.</p> <p>The executive summary stresses some key findings:</p> <ul style="list-style-type: none"> <li>• <i>Since 1914 average temperatures in Scotland have risen by 0.5°C.</i></li> <li>• <i>Temperatures have increased in every season and in all parts of Scotland since 1961.</i></li> <li>• <i>Scotland has become wetter since 1961, with an average increase of almost sixty percent in winter months in northern and western Scotland</i></li> <li>• <i>The snow season has shortened across the country since 1961.</i></li> </ul>
	1-11	<p>Sniffer has made some key climate change projections for Scotland which are based on the UKCIP02 Scenarios. They outline the following:</p> <p>Average temperature – As in the rest of the UK, Scotland will experience mean annual temperatures of between 0.5 and 1.0 Celsius warmer than present.</p> <p>Average Precipitation - In the 2020s, winters along the east and Argyll and Ayrshire coasts will be up to 10% wetter than present, whereas summers in Scotland will be up to 10% dryer than present</p> <p>By the 2080s, there will be 40-60% less winter snowfall over the Cairngorms, with up to 80% less along parts of the Scottish east coast</p> <p>Heat wave and rain storm frequency – By 2080 rainfall events will, on average, be unaffected in north-west Scotland, 25-75% more intense in east Scotland, up to 100% more intense in west Scotland and more than 150% more intense in parts of south-west Scotland (Likelihood of Flash Flooding)</p> <p>Average wind speed – By 2080, the wind speed with a recurrence interval of 2 years (i.e. a typical wind speed) is set to increase in south west Scotland by 2-4% in winter and decrease across most of south and central Scotland by up to 2-6% in summer.</p> <p>Sea level rise – The UKCIP02 scenarios suggest a net sea-level rise for Scotland of between 15-28cm by the 2080s.</p>
	1-12	<p>This source states that agencies across UK Government have joined together to highlight the issues of climate change via Google Earth. This will produce an informative tool for the public to visualise the effects of UK climate change and engage with the topic.</p>

Climate Change Statistics	1000-4	“Scotland's total annual greenhouse emissions in 2005 were 54,522 kilotonnes CO2e. This made up 8.3% of UK total in 2005. Total UK emissions this year were 653,803 kt CO2e. Scotland's emissions in 1990 were 64,555 kt CO2e . If we are to cut our levels of emissions by 80% of this in 2050 we will need to be producing 12,911 kt CO2e per year by then. Scotland's per capita emissions are 10.69 tonnes CO2e (based on 5.1m people) which is lower than the EU-25 average of 10.9 tonnes CO2e and the EU-15 of 11 tonnes CO2e Per capita emissions for the whole of the UK is 10.86 tonnes CO2e (based on 60.2m people), so Scotland is slightly better.”
Climate Change Statistics	1000-4	“In recent years Scotland's emissions have decreased slightly, but this reduction is largely due to the decline in heavy industry, rather than a result of government policies. Energy and transport emissions that account for over half of Scotland’s emissions are on the increase.”
Climate Change Statistics	1000-4	“Sectors responsible for Scotland's greenhouse emissions: power stations (26%), road transport (18%), heating homes (14%), agriculture (23%), industrial/commercial (23%).”
Climate Change Statistics	1000-4	“Scotland has lower emissions than comparable nations such as Finland, Denmark and Ireland. Our emissions are similar to Norway's.”
Carbon Emissions	1000-9	“Buildings account for approximately 40% of the carbon emissions in the UK, with non-domestic buildings responsible for approximately half of this. “
Carbon Emissions	100-4	Carbon reduction rather than carbon neutral was envisaged as being a more realistic target
Raploch’s Carbon Footprint	1000-24	Raploch’s carbon footprint is 10.39 tonnes per person, pledges to reduce to 9.89 tonnes. Stirling council average is 12.67 tonnes, 22% greater than Raploch’s. Scotland is 11.71 tonnes, 13% greater.
Scottish government standards	1000-23	<p>Policies are similar to England but with more focus on carbon reduction. In practice, some developers believe this leaves more room for negotiation and a wider range of low carbon solutions.</p> <p>The Scottish Government are currently considering the 56 recommendations made in the <b>Sullivan Report</b>. Resulting policies are expected to be rolled out in the <b>Scottish Climate Change Bill</b>.</p> <p>The analysis of the <b>Firm Foundations</b> consultation exercise has now been issued and focuses most on social housing. Stuart Maxwell, Scotland’s communities’ minister has announced his intention to outline the Scottish government housing policy direction by the end of the year.</p>

Scandinavian Energy examples	1000-20	“With several years left to run in the project, Samsø’s progress has been remarkable. The island’s 21 wind turbines, sited on land and offshore, produce enough electricity to match the 4,350 islanders’ 29,000MW requirement. Some 70 per cent of Samsø’s total heat production is piped into homes from three district heating plants powered by straw, woodchips and solar power. Even isolated farmhouses far away from villages have been roped in – some 250 homes have switched from oil-based or electric central heating systems to units powered by wood-burning stoves, solar heating or biogas.”
UK power capacity 'sufficient for electric cars'	1000-15	“Power capacity in Britain is sufficient to charge electric cars in the medium term, according to a new report. A ten per cent increase in electric cars and plug-in hybrids would raise power demand by less than two per cent.”
UK Smart Meter	1000-15	“All homes in Britain will have smart meters installed by 2020 under plans published today [11 May]. Great Britain will be the first country in the world to have an overhaul of this size for both electricity and gas meters. Smart meters enable meter readings to be taken remotely and together with a display device give householders real time information on their energy use.”
Energy wastage	1000-23	The UK is the worst energy waster in Europe with habits which could cost £11bn by 2010 and an extra 43mte of CO2 emitted. Average UK household energy use has risen 9% since 1995. UK homes consume 38%, 40%, 44% and a staggering 100% more energy than Italian, French, German and Swedish households respectively.
Ofgem	1000-23	Ofgem The shift towards renewable energy also requires some guidance from the Regulator. Ofgem have been encouraging suppliers to improve information available to consumers with regards to distributed energy schemes, micro-generation and low carbon grid supplies. Ongoing consultations include: Clearing a Path for Growth in Sustainable Local Generation.
Exported Electricity	1000-23	The Government asked Ofgem to carry out a Review of the Market for Exported Electricity from Micro-generation. It concluded that suppliers offer a fair value for export. However, as the market is still in infancy, it recommended the market would improve if better provision was made to help customers find the best deal to suit their circumstances and easier access was given to financial incentives

Non Renewables-Diesel	10-1	<p>A report from Houston-based consulting firm Purvin &amp; Gertz Inc., commissioned last year by the European Commission in partnership with the Organisation of Petroleum Exporting Countries, predicts that Europe's imports of diesel and gasoil - a petroleum product used as a diesel fuel and heating oil - will almost double by 2020, to 67 million tons a year, or 1.4 million barrels a day, from 34 million tons a year, or 700,000 barrels, now.</p> <table border="1" data-bbox="701 332 1339 553"> <thead> <tr> <th></th> <th>2020</th> <th>2030</th> </tr> </thead> <tbody> <tr> <td>Gasoil</td> <td>0.3%</td> <td>0.3%</td> </tr> <tr> <td>Biofuels</td> <td>7.4%</td> <td>9.4%</td> </tr> <tr> <td>LPG</td> <td>2.0%</td> <td>2.1%</td> </tr> <tr> <td>Gasoline</td> <td>31.4%</td> <td>29.3%</td> </tr> <tr> <td>Diesel</td> <td>58.9%</td> <td>58.9%</td> </tr> </tbody> </table>		2020	2030	Gasoil	0.3%	0.3%	Biofuels	7.4%	9.4%	LPG	2.0%	2.1%	Gasoline	31.4%	29.3%	Diesel	58.9%	58.9%
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Non Renewables-Natural Gas	10-2	<p>By 2030, the International Energy Agency predicts, European gas imports will double because Europe won't be able to supply its own energy needs... But unless action is taken now, importers could be in a very vulnerable position. Much of the extra supply [Natural Gas] could come from Russia if the necessary investment is made in new production. A single, competitive gas market would help depoliticise the EU-Russia gas relationship, with major foreign-policy benefits for Europe. It would also improve the security of supply for all European gas consumers. The European Energy Community is the obvious building block for this approach, but its scope needs to extend beyond market liberalisation and include more proactive and practical forms of cooperation.</p>																		
Non Renewables-Coal	1000-3	<p>Other than the large CO2 emissions, burning coal creates a material called coal ash. Proper disposal of this hazardous material is not always accomplished. 130 million tons of waste from coal ash is produced every year. This material contains hazardous substances such as mercury, arsenic, and other toxic materials.</p>																		
Liquefied Petroleum Gas and Compressed Natural Gas	1000-22	<p>“The Energy Security benefits of LPG and CNG are limited as are the potential CO2 reductions. Fuel cost savings are low and a more widely available refuelling infrastructure would be required for greater penetrations of vehicles running on these fuels. Alternative hydrocarbons such as Liquefied Petroleum Gas and Compressed Natural Gas which were popular in the late 1990s and early 2000s due to policy factors have been almost wiped out by the removal of these policies along with costly vehicles and conversion technologies, fuel storage safety issues and a lack of widely available refuelling infrastructure.”</p>																		

Renewable Energy	1-13	Scotland's renewable energy potential – Beyond 2010 -Is it reasonable to suggest that by 2020, we can achieve a position whereby Scotland could generate as much as 40% of its energy from renewable sources by 2020? What measures would be required to realise this potential?
	1-14	Forum for Renewable Energy Development in Scotland: Scotland's Renewable Energy Potential: Realising the 2020 Target - Future Generation Group Report - They believe that Scotland is well placed to meet its renewable electricity targets, thereby contributing to tackling global warming and in so doing creating a viable new industry with particular benefits for remoter areas and communities. This paper suggests, however, that the Scottish Executive's targets are more helpfully expressed in terms of installed capacity, so providing greater clarity and allowing progress to be more easily monitored. The target should be based on estimated electricity demand in Scotland. On this basis, a total of around 6 GW renewable installed capacity is required. The target should not be regarded as a cap. This paper lists a number of possibilities of reducing Scotland's need on more traditional forms of energy production.
	1-15	Scottish Executive - National Planning Policy Guideline NOOG 6 (Revised 2000) Renewable Developments. - This paper highlights Scotland's long tradition of generating electricity from renewable sources. The aim of the Scottish executive therefore is to ensure that the commitment to renewable energy is satisfied and supported through development plan policies and development control decision unless, at the site level, there are serious adverse impacts that cannot be mitigated.
	1-16	Additional renewable energy growth through small scale community orientated energy policies - This paper summarises the energy policies that the UK Government has enacted in order to achieve its renewable targets by 2010. Current policies are designed primarily to support large-scale renewable projects through renewable obligation certificates, levy exemption certificates and capital grant schemes. Small-scale renewables can make a significant cumulative contribution to the RE (renewable energy) mix. This paper suggests that the Government could go further towards approaching its targets through rural-focused changes to its energy incentives programmes.

	1-17	Review Report on: Promotional strategies for electricity from renewable energy sources in EU countries.- Joint report by the Cluster "green electricity" co-financed under the 5th framework programme of the European Commission. - The idea of the NFFO (Non-fossil fuel obligation) - the Scottish is the SRO, the Scottish Renewable Order. Wind power in Scotland, through the process of bidding, led to cheaper prices than coal, oil, nuclear and some gas. The strategy of the NFFO should trigger and enhance competition between generators, as well as manufacturers. It should encourage renewables suppliers to improve operations performance and technology efficiency.
	1-18	Policy frameworks for renewables Analysis on policy frameworks to drive future investment in near and long-term renewable power in the UK - This study had two principal objectives: 1. To review the case for renewable electricity generation in the light of the Energy Review; and 2. To explore alternative support frameworks and policies that would allow near and longer-term Government objectives for renewables to be met cost-effectively.
	1-19	<i>The Energy Savings Trust-This source highlights 5 main renewable forms of energy, Wind, Solar, Biomass, Biofuel and Heat Pumps. Furthermore, this source further examines how communities can go about gaining grants to install these technologies.</i>
	1-20	<i>National Renewable Energy Laboratory - At NREL, they work to get technologies into the market faster than ever. At the same time, they continuing to help identify and break down the structural barriers that are preventing advanced energy technologies from being adopted quickly and easily. The site full of useful information concerning the advancement of all renewable technologies.</i>

	1-21	<p>Forum for Renewable Energy Development in Scotland: Scotland's Renewable Energy Potential: Realising the 2020 Target - Future Generation Group Report - In order to help deliver the Programme for Government commitment to make an equitable contribution to the UK effort, the Scottish Executive set targets that 18% of electricity generated in Scotland should come from renewable sources by 2010 rising to 40% by 2020. It seems likely that the renewable energy capacity already installed, plus capacity that has been consented but not yet built, will be sufficient to meet the 2010 target. The Scottish Executive's policy is set out in Securing a Renewable Future: Scotland's Renewable Energy, published in March 2003. This states that "Scotland should aspire to generate 40% of its electricity from renewable sources by 2020." This commitment is included in A Partnership for a Better Scotland, which confirms that, during the lifetime of the current Parliament, Scottish Ministers "will work towards our target for 40% of Scottish electricity generation to be from renewable sources by 2020 as part of our commitment to addressing climate change."</p>
	1-22	<p><i>The Ecologist - Britain could be carbon-free by 2030 - Britain could become a 'carbon-free' country in just twenty years, according to a new report published by the Wales-based Centre for Alternative Technology. The authors call for a reduction in demand for electricity in 'energy obese Britain' of 50 per cent by 2027. This would be incentivised through an international carbon budget passed down to consumers in the form of carbon 'credit cards' – tradable quotas for carbon which would decrease in quantity year-on-year. Nuclear power is dismissed as politically and technologically 'brittle', and its place would be taken by a massive increase in off-shore wind power, tidal generation, the use of biomass crops, such as switchgrass, the inclusion of solar panels in new buildings, and a mandatory use of the 'waste' heat generated when producing electricity.</i></p>

	1-23	<p>1. The Executive's commitment to renewable energy is driven both by environmental imperatives and by the potential for new economic development. An increase in renewable electricity generation as a means of reducing carbon emissions forms an important part of Scotland's efforts to tackle climate change. More renewables can also provide greater diversity in our energy mix, which will be vital to ensuring security and continuity of supply as fossil fuels continue to deplete.</p> <p>2. A thriving renewables sector also has the potential to enhance Scotland's manufacturing capacity, to develop new indigenous industries, particularly in rural areas, and to provide significant export opportunities. Our strategy, therefore, is to encourage the development of renewable energy both as a response to our climate change commitments and as a measure to promote the Scottish economy.</p> <p>3. The progress made to date in developing renewable energy in Scotland has only been possible with the advice, support and commitment of the many stakeholders involved.</p>
Cost of Renewables vs. Non-Renewables	10-3	“According to the International Energy Agency, wind power is already more competitive than coal in many locations. And ... for less than the price of a new generation ‘clean-coal’ power station, the United States could commercialise geothermal power,”
Renewable Energy-Wind	10-4	[Talking about an industry developing around the exporting of technologies and devices adding to the economy of the nation that first develops new energy technologies.] "There is a precedent. Thirty years after the pioneering Danish wind power technology companies started a new industry, they still provide about 40 per cent of the world's wind turbines.
	10-5	The U.K. is currently the biggest producer of offshore wind power. Although the U.K., with its strong financial incentives for investors, is currently the biggest producer of offshore wind power, it faces stiff competition from continental European countries such as Germany and the Netherlands, where the grid-connection process is more straightforward. And with the wind farms from the Scottish licensing round due to be commissioned starting in 2015, the timing is tight.
Current energy capacity-Onshore wind	1000-22	“SSE owns and operates around 600MW of onshore wind farm capacity in Scotland, Northern Ireland and the Republic of Ireland and has consent to build another 400MW in various locations. Its Hadyard Hill wind farm in South Ayrshire was the first in the UK to generate over 100MWof electricity.”

Current energy capacity-Offshore wind	1000-22	“SSE has consent to build a 288 megawatt (MW) offshore wind farm in Germany and is to construct a 504MW offshore wind farm at Greater Gabbard in the outer Thames Estuary. On completion, it is expected to be the largest offshore wind farm in the world.”
Offshore wind	1000-11	“The UK requires 25% of its electricity to come from offshore wind by 2020 if it is to meet its EU renewables target of 15% of all energy by this date. 25% of UK electricity equates to 29GW of offshore wind power capacity. This would require a £75bn investment from industry.”
Wind Turbine-Fintry Village	1000-17	<p>“At current prices, the people of Fintry would be expected to make about £900,000 over the first 15 years while they pay off the cost of the 115-metre turbine, then roughly £4 million during the next ten years. The expected lifespan of a turbine is 25 years.</p> <p>There is talk of using the money to convert the sports hall from expensive, oil-fired heating to an environmentally friendly, ground-source heat pump. Fitting insulation, double glazing and solar panels to homes in the village are other options, while, in the future, the money could even be used to pay for hydrogen-fuelled buses to take people to Stirling and Glasgow.”</p>
Renewable Energy-Wind: Funding	10-6	Cost Benefit analysis built, ten wind parks featuring hundreds of turbines could generate as much as 6,000 megawatts of electricity, a step towards the Government's ambition to provide 15 per cent of the UK's energy from renewable sources by 2020. ... However, experts have questioned whether the wind farms will ever be built without fresh government incentives to make them more viable. Industry analysts say that the cost of building offshore wind farms stands at about £3 million per megawatt of installed capacity, suggesting that the price of building 6,000 MWs could top £18 billion. Conventional power-generating equipment costs a fraction of this. Gas-fired power stations, for example, cost about £500,000 per megawatt - or one sixth in terms of electricity generated.
Renewable Energy-Wave	10-7	The potential export market [SEE Wind Energy] for marine energy technology is vast. There are significant tidal resources in the Americas, New Zealand, South Africa, Russia, Indonesia, and China. The wave power list is even longer. Marine energy would be a long term Scottish economic asset; the technology is in its infancy and is likely to undergo decades of refinement. Like the benefits the Danes still gain from wind power technology, marine-energy innovation, with all the wealth and jobs that accrue from it could be based in Scotland.

Renewable Energy-Wave Funding	10-7	Scotland's primary attraction in the past was research and development funding. Both UK and Scottish governments offered grant schemes that successfully lured the majority of the early tidal and wave energy technology companies. But that government research and development funding has all but dried up. No grants are presently available from the Scottish Government... Time is short for government: other countries are waking up to the economic potential of tidal and wave technology. Earlier this year [2008], Ireland began offering marine energy research and development grants and this week the US followed suit. For Scotland to continue as the world's leading location of this expertise, new grants are needed, and soon. Otherwise the industry will follow the money and go elsewhere. <b>NOTE:</b> the author figures a new scheme to maintain Scottish wave-power would cost less than £10 annually to save their advantage and prevent firms from moving to other countries. "To have the genuine prospect of becoming the world leader in a new technology, with major potential export markets is rare for any country; but with marine energy technology, Scotland has just that."
Renewable Energy-Rivers	100-1	FREEFLOW HYDRO project utilises river energy and can be installed free for users
Current energy capacity-Hydro	1000-22	"SSE's total output from its hydro electric stations (excluding pumped storage) during 2007/08 was 3,518GWh. This compares with 3,767GWh in the previous year, which was the fourth highest on record. The construction of what will be SSE's second largest conventional hydro electric station at Glendoe, near Loch Ness, is now entering its final phase."
Straw Power plants	1000-20	"About 10 per cent of Avedøre's output comes from straw – trucked in from the fields of eastern Denmark to a purpose-built barn adjacent to the main boiler building. According to E2, the Danish company that built the plant in co-operation with Sweden's Vattenfall. Straw is carbon-dioxide-neutral in that combustion only releases the same level of carbon dioxide that it absorbed while growing. Another example of Danish holistic thinking is in the disposal process – waste ash is returned to farmers for use as fertilizer."

	Biogas	10-8	<p>Good Practice Case Study: Demonstration of an optimised system for biogas from biological waste and agricultural feed-stock, Sweden Biological organic fertiliser by the local farmers. transport buses and private cars in Västerås. The digestive is used as effective anaerobic process. The gas is cleaned and used in public household waste and ley crop is co-digested in an energy Energy data: The plant produces biogas equivalent to 15 000 MWh for vehicle fuel. With additional gas from the sewage treatment plant (8 000 MWh) 40 city fuel. The gas that is not sold as vehicle fuel is used for CHP buses, 20 cleaning vehicles and 500 cars will be supported with production. Contribution to Sustainable Development: The biogas production plant contributes to sustainable development in many different areas. The project helps develop rural areas and local economic life through cooperation between farmers, institutional kitchens and municipalities for example.</p>
	Biofuels Technology	1000-22	<p>“Biofuels are not the green solution many claim. The lifecycle CO2 emissions; including those associated with the cultivation of feedstocks, and production, can be higher than petrol or diesel. Then there are the risks of increased deforestation to increase land use for biofuel production; CO2 emissions associated with deforestation amount to 18% of global emissions – larger than the total global contribution from transport. There are also problems with reduced food production and energy security risks associated with having the fuel supply exposed to agricultural risks such as weather (including floods and droughts), pests and diseases. We expect biofuels to contribute towards the low carbon transport mix but the extent to which they do so will be dependant on the development of second generation biofuels and regulation to protect people and the environment from any negative impact of increased biofuel production.”</p>
	Algae for Transport Fuels	1000-6	<p>“Microalgae can be cultivated and manipulated to produce high yields of oil that can be used as a feedstock for further refining into transport oil. The potential biomass yield of microalgae is vast compared to conventional agricultural biofuel feedstocks and it has few of their negative impacts (it does not require arable land or freshwater and does not compete with commodity food crops). Therefore, the production of microalgae biofuels at scale would represent a disruptive technological breakthrough.”</p>
	Nuclear - Fusion vs. Fission	1-24	<p><i>Stand alone power systems for the future: Optimal design, operation &amp; control of solar-hydrogen energy systems. - A stand-alone power system (SAPS) is defined as an autonomous system that supplies electricity without being connected to the electrical grid. The first part deals with the fundamentals of stand-alone power systems, while the second part deals with the simulation of integrated based on solar-hydrogen energy technology.</i></p>

	1-25	<p><i>Comment on MIT study "The Future of Nuclear Power" A letter to correct the public record: Nuclear power faces, as the Executive Summary says, "stagnation and decline," chiefly because it's uneconomic. The study correctly finds that "In deregulated markets, nuclear power is not now cost competitive with coal and natural gas," but major cost reductions "could reduce the gap," and very large "Carbon emission credits, if enacted by government, can give nuclear power a cost advantage."</i></p>
	1-26	<p><i>FUSION AS A FUTURE POWER SOURCE: RECENT ACHIEVEMENTS AND PROSPECTS. - Recent advances in high energy plasma physics show that nuclear fusion - the energy source of the sun and the stars - may provide the corner-stone of a future sustainable energy system. Such power plants would be safe and environmentally friendly.</i></p>
	1-27	<p><i>Thoughts about future power generation systems and the role of energy analysis in their development-In face of the likely doubling of the world population and perhaps tripling of the power demand over the next 50 years, this paper (1) presents some thoughts on the possible ways to meet the power demands under the constraints of increased population and land use while holding the environmental impact to a tolerable one, and (2) outlines the ways energy analysis may be effectively used in the conception and development of such processes. To effectively develop the innovative power generation systems needed in the 21st century, irreversibility and energy analysis should be much more focused on the intrinsic process details.</i></p>
	1-28	<p>The Times - Windmills flap helplessly as coal remains king - "It's a day's work in the power industry and it is 16 years since the Kyoto conference on climate change, when this country signed up to a process that would seek to avert global warming by weaning the world off the combustion of oil, gas and coal. Since then we have had two Energy White Papers, one Energy Review, the launch of European carbon trading, the decline of North Sea gas, the promotion of wind farms and the eleventh-hour rescue of Britain's nuclear industry." and "Meanwhile, the UK must make a huge decision. We have promised to shut down seven old coal plants by 2015 because they emit too much sulphur. These can supply 12 gigawatts, or a sixth of UK capacity. Ideally, we would fill the gap with nuclear power, but EDF has made it clear that the first new British nuke won't be ready until 2017, supplying less than 2 gigawatts."</p>

	1-29	<p><i>The Times - It's this simple: wind farms the size of London, or safe, clean nuclear plants - To replace a 1,000 megawatt (MW) nuclear station supplying just 1/65th of peak demand requires 30 miles of wave machines; or it would need a wind farm that would cover an area equivalent to Inner London, or for solar power, it would require an area half as much again. If we were to try to replace the output of that 1,000MW nuclear power station with bio-oils or biomass fuels, we would have to cover the entire Scottish Highlands with oil-seed rape or turn Wales into a giant willow coppice. - This article argues that Nuclear is the only viable option, its clean, emission free and has the best safety record in the energy industry. It further highlights the limitations of "so-called" green energies, and that we should air on the side of caution when trying out perceived "quick fixed solutions".</i></p>
	1-30	<p><i>The Times - Harnessing the Sun - The world's insatiable demand for energy is rapidly altering the economics of its production. As the price of crude oil rises, exploration in inhospitable seas and frozen wastes becomes profitable. Gas, too, becomes more valuable as an alternative, and the breakneck rise in production has transformed the economies of countries such as Qatar and Bolivia. But accelerating demand, especially from China and India, is also driving up carbon emissions. What is the alternative? Fusion: Scientists have developed lasers that generate the required extreme temperatures, and a prototype for Hiper (high energy laser fusion research) may be built in Britain in the next five years. This article implies that this is a viable option, and one that reached within a lifetime.</i></p>
	1-31	<p><i>First Science - Nuclear Fusion: Energy for the Future?- The energy crisis has rocketed from a textbook concept into the most pressing political issue of our time. Future energy supplies are increasingly vulnerable and global consumption is expected to escalate dramatically, increasing by 71% by 2030. Fusion is the way forward, the raw materials are plentiful, and not confined to areas of political instability. "Nuclear Fusion could render carbon dioxide-producing fossil fuels obsolete by 2100.</i></p>
	1-32	<p><i>The Ecologist - Saved by the Atom - The article is concerned with the viability of Nuclear power: with the same old concerns – safety, radioactive waste disposal, security against terrorism or aberrant states, the health impacts of permitted releases of radioactive fission products and transuranics – these are all going to surface again. Furthermore, we have to look into the political impact, both nationally and internationally. How can we self-righteously deny suspect countries such as Iran or North Korea the right to build their own 'civilian' nuclear reactor? The author concludes with the line that "A nuclear power programme will cost us dear, if not the Earth."</i></p>

Biomass	1-33	SUBMISSION FROM SCOTTISH COAL - A statement from the Executive of its long-term commitment to biomass in Scotland and the contribution it can make to reaching and exceeding the 40% renewable electricity by 2020 aspiration. This article is also concerned with Scottish Coal and their impact on the environment and their new initiative "Clean Green Coal" (the Committee has a copy of our leaflet on this subject). The concept involves three short to medium term actions to achieve reductions in non-renewable CO2 emissions of up to 50% - Co-firing with Biomass; Clean, Green Coal Burn; and Smarter, Greener Coal Production. And Carbon Capture and Storage in the longer term to achieve total reductions of over 90%.
What is Biomass?	1000-7	"Biomass is organic matter of contemporary biological origin (i.e. that was living recently). Biomass materials that are commonly used for energy purposes encompass a very broad range of resources ranging from wood through to sewage sludge, animal slurries and crops grown specifically for energy purposes."
Why use Biomass?	1000-7	"Biomass materials are currently used to provide heat, electrical and motive power. They already make an important contribution to the UK's renewable energy supply, representing 82% on a primary input basis in 2006 which is 1.9% of total, inland primary energy consumption (source: BERR 'Energy in Brief'). "
Why use Biomass?	1000-7	"Carbon dioxide is emitted during the processes of energy conversion (e.g. combustion), this is largely balanced by the carbon dioxide that has been captured in its own growth. Fresh growth on an annual cycle could recapture the emitted carbon dioxide, if resources are managed sustainably, and result in very low net emissions to the atmosphere. Where biomass resources which would normally be discarded as wastes (such as wood offcuts, used pallets etc.) are used to displace fossil fuels, the savings are particularly significant as the alternative end-use for these 'wastes' may be landfill (e.g. waste wood) or to be spread on fields (e.g. animal slurries). In these situations, gases of decomposition such as methane would be released to the atmosphere which are far more powerful greenhouse gases than carbon dioxide alone (methane has a global warming potential 21 times higher than that of carbon dioxide)"

Local impact of new biomass power plant	1000-14	<p>“Benefits for local residents: A saving of 40% on heating costs and 1,300 tonnes of CO2 emissions. Clean air, no soot and virtually no noise Benefits for the Community: Potential to provide an estimated 15 jobs for every megawatt of biomass Opportunity to bring neglected woodland into active management enhancing woodland biodiversity. The chance to utilise wood waste, which would otherwise be sent to landfill. “</p>
Biomass: Pyrolysis oil for transportation	1000-8	“Pyrolysis oil from sustainable sources of biomass is a potential source of low-cost fuels with low system greenhouse gas (GHG) emissions, if it could be integrated into the existing transport fuel supply chain. However, the properties of the oil produced from current fast pyrolysis processes are unsuitable for direct integration.“
Biomass: Pyrolysis oil for transportation	1000-10	“The properties of pyrolysis oil produced from current fast pyrolysis processes are unsuitable for direct integration into transportation fuel. The Pyrolysis Challenge has the objective of producing oil with the properties required for integration through: a) modifying the pyrolysis process to produce better quality oil directly, or upgrading the oil before or at the refinery.”
Renewable Energy vs Conservation	1-36	‘The Scottish energy minister, Jim Mather, said yesterday that the 181-turbine project, which would have dominated the moors of northern Lewis, would have had "significant adverse impacts" on rare and endangered birds living on the peatlands, a breach of European habitats legislation.’
Slow Planning Process for Renewable Energy	1-37	‘The fragility of the wind power business was highlighted recently when Shell pulled out of the world's biggest offshore wind farm - the London Array, off Kent - because of spiralling costs associated with planning delays.’
	1-37	‘E.ON estimates that, on average, a project spends between two to three times longer in the Scottish planning system than in the English one.’
Renewable Energy Benefits in the Long Term	1-38	“Unfortunately it is the short term that people are very worried about and an interest-free loan for energy saving measures, which probably won't yield anything for a number of years, won't be a top priority for the majority of hard-pressed firms.’
Viability of Renewable Energy	1-39	‘Dr Tony Trapp, whose company built one of the first tidal devices, told The Scotsman the issue of renewable energy was based on "faith not science". He said four companies in the UK that had tried to develop tidal energy had still not achieved any output.’
Westminster vs Holyrood	1-40	‘At a conference in Edinburgh, Jim Murphy is to underline Westminster's intention to promote the expansion of nuclear energy.’

	1-40	'The Scottish Government is opposed to building new nuclear plants and can effectively veto them through planning powers held at Holyrood.'
Edinburgh's approach to energy requirements	1-41	The study aims to show that over the next 20 years Edinburgh can meet its various growth and sustainability objectives simultaneously – satisfying the energy demands of its increasing population, continued economic growth, and substantial cuts in the emission of CO2 – by adopting a decentralised energy approach,
Sources of Power generation - Nuclear future	1-42	By 2025 most existing UK nuclear power stations, with the exception of Sizewell B, will have been retired
UK CO2 policy	1-42	UK Government established a target of a 60% reduction of CO2 levels by 2050 (compared to 1990 levels), and the recent Energy Review asked for substantial progress towards this target to be demonstrated by 2020
Energy Sustainability at community level	1-42	Energy Sustainable Communities is a recent and still underdeveloped concept but can be defined as “Energy Sustainable Communities” are communities that implement a set of sustainable energy policy measures in the field of renewable energy sources (RES) and rational use of energy (RUE) with a strong involvement of the local population in the planning and implementation process.
Combined heat and power	1000-1	“Using heat that would otherwise be wasted is often the most cost effective way of reducing energy supply costs. In many remote communities there is an abundant supply of waste heat generated by diesel power plants which could be used to heat nearby buildings. In on-grid communities, large buildings that consume significant amounts of heat in the winter could use micro-turbines to also generate their own power needs.”
Run-of-river hydro	1000-1	Run-of-River systems divert a segment of the river’s flow in order to produce electricity on a smaller scale than hydro-electric plants, however, they also have a much lower environmental impact.

Solarwall® Technology.	1000-1	<p>“SolarWall® technology is a low cost method to use solar energy to heat air for buildings. The application of this technology for new buildings will reduce the cost of heating buildings. The incremental cost of solar air heating is very small if it is considered early on in a project and can save thousands of dollars every year on heating costs. When added to building designs before they are built, the incremental costs can be very small, and even when added as a retrofit a solar air heating system can pay for itself in as little as 1-3 years.”</p>
Incorporating solar into existing buildings	1000-21	<p>“CENTRAL SYSTEM WITH TWO-PIPE NETWORK A common heating system in multi-family buildings uses a central conventional boiler or district heating station to supply both domestic hot water and space heating. A two- pipe heat distribution network is used to deliver the heat to the apartments.</p> <p>The heat distribution system can stay exactly the same as in the conventional system. In each apartment, so-called ‘apartment heat transfer units’ are used that control the space heating loop flow and return temperature and supply heat for domestic hot water using a heat exchanger. The apartment heat transfer units are an essential part of the system because they ensure that the return temperatures from each apartment are as low as possible. Typically the return temperatures of well adjusted two-pipe networks are around 30°C.”</p>
High efficiency wood and pellet stoves	1000-1	<p>“Modern high efficiency wood stoves produce fewer emissions and require less labor than traditional wood stoves. Wood pellets are manufactured by compressing sawdust and other sawmill wood wastes. Pellets are made from dry and compressed material so that they are easily combustible and leave very little residue. Because pellets are made from waste materials, they can be a low cost source of energy if purchased locally. Wood pellets were found to be economic in almost every community where they were considered.”</p>
Passive Housing	1000-2	<p>These houses are built to maintain a comfortable temperature all year round without the need for heating. This is done through large triple glazed south facing windows, 30cm insulation, and a unique air blending system which brings in fresh air from outside. Although these houses are 10% more expensive to build, this results in 90% heating cost reduction.</p>

PassiveHaus Standards	1000-18	<p>“</p> <ul style="list-style-type: none"> <li>• very good levels of insulation with minimal thermal bridges</li> <li>• well thought out utilisation of solar and internal gains</li> <li>• excellent level of airtightness</li> <li>• good indoor air quality, provided by a whole house mechanical ventilation system with highly efficient heat recovery</li> </ul> <p>By specifying these features the design heat load is limited to the load that can be transported by the minimum required ventilation air. Thus, a PassivHaus does not need a traditional heating system or active cooling to be comfortable to live in - the small heating demand can be typically met using a compact services unit which integrates heating, hot water and ventilation in one unit”</p>
District Heating	1000-3	<p>“District Heating. A key energy strategy in both Denmark and Sweden is district heating. The map of Denmark’s energy generation shows facilities in virtually every town and village. A key change in both Denmark and Sweden was a shift in how waste- to-energy plants were operated from maximising for electricity generation to maximising for heat production and distribution. In contrast, the only waste-energy plant in Oregon, located in Brooks, is operated solely for electricity generation. By 2002, 59% of all Danish homes were heated by district heating and less than 6% of waste was sent to landfills. A carbon dioxide tax on all households supports the district heating system.”</p>
	1000-3	<p>“Hot water is distributed to homes and commercial buildings through a 4-pipe distribution network built by the company in tunnels under Stockholm. The pipes run under the buildings.”</p>
	1000-19	<p>“Some countries, particularly in Scandinavia, show a significant penetration of district heating of over 50% of the heat market. However, district heating has only a small fraction of the total heat market of the European Union (EU). Therefore the potential is large and varies in each country depending on past national policies.”</p>
District Heating-Sweden	1000-16	<p>“AB Fortum Värme runs the District Heating system that supplies hot water to around 100,000 households and commercial and industrial premises in the southern districts of Stockholm, Sweden. Using the energy produced by burning local domestic waste materials, plus additional bio-mass waste from industrial and commercial sources, this represents an equivalent oil saving in the region of 60,000 cubic metres per annum.”</p>
Ground Source Heat Pumps	1000-5	<p>“Ground source heat pumps make use of renewable energy stored in the ground, providing one of the most energy-efficient ways of heating buildings. They are suitable for a wide variety of building types and are particularly appropriate for low environmental impact projects.”</p>

Ground Source Heat Pumps	1000-5	“They can be installed in most of the UK, using a borehole or shallow trenches or, less commonly, by extracting heat from a pond or lake. Heat collecting pipes in a closed loop, containing water (with a little antifreeze) are used to extract this stored energy, which can then be used to provide space heating and domestic hot water. “
Ground Source Heat Pumps	1000-5	“Typically they cost more to install than conventional systems; however, they have very low maintenance costs and can be expected to provide reliable and environmentally friendly heating for in excess of 20 years.”
Solar Water Heating	1000-13	“Solar water heaters can reduce hot water heating costs by 30-50% annually. Solar water heaters can be installed on homes as well as buildings that use significant amounts of hot water such as schools, hotels and laundromats. Solar hot water systems typically costs on the order of \$6,000 installed and pay for themselves within 10 years...Constructing new homes that are ‘solar ready’ adds very little to construction costs and can reduce installation costs for solar water heaters at a later date.”
Construction to Optimise Passive Solar Heating	1000-13	“Designing communities, houses and community buildings with the largest windows facing south can maximise the amount of free energy that each building can use. This is equally important for residential and new community buildings. Properly designed awnings to keep the same windows shaded in the summer months are important to ensure buildings do not overheat or require cooling in the summer.”
The Danish Model	1000-23	GDP in Denmark has doubled in the past 30 years – their energy demand has remained static. Between 1975-2001, Denmark’s national heating bill fell 20%, even as the amount of heated space increased by 30% Power plants have been radically reduced in size and built closer to people’s homes and offices to reduce transmission losses.
The Swedish Model	1000-23	building comparatively conventional homes and providing heat and power through carefully planned infrastructure at a district level. This is paid for upfront by the city council and the utility companies. Combustible waste is cleverly sucked through a system of tubes, rather than being driven away by polluting lorries, and burned in CHP plants to provide electricity and heat via the district heating system
German Model	1000-23	From the start of 2009, all new homes built in Germany will be required to install renewable energy heating systems that can provide at least 20% of a households heating and hot water requirements. The use of renewable energy sources for electricity has increased 300% in the last 10 years and renewable heat has increased 40%.

Food

Subject	Source	Excerpt
	2-1	<i>A National Food and Drink Policy- This policy is to promote Scotland's sustainable economic growth by ensuring that the Scottish Government's focus in relation to food and drink, in particular the industry, addresses quality, health and wellbeing, and environmental sustainability recognising the need for access to affordable food for all.</i>
	2-2	<i>A National Food and Drink Policy for Scotland- Describes what the policy is, how it was decided, how it is being delivered, and includes the full discussion paper, written responses, analysis of responses as well as work stream papers on 'Sustainable Economic Growth', 'Food and Drink Choices', 'Celebrating the Safeguarding Scotland's Reputation', 'Walking and Talk', and 'Access, Affordability and Security'.</i>
	2-3	<i>FM hosts 'Supermarket Summit'-Top retailers from across the UK come together to discuss how they can work with the Scottish Government to achieve sustainable economic growth. Waste, energy, sustainability, farming and the Scottish national food and drink policy are discussed.</i>
	2-4	<i>Inquiry into food affordability- Although the Scottish Government recognizes the need for access to affordable food, food labeling, home-grown produce, a 'cooking bus', health and nutrition centre's, and catering contracts that are geared towards healthier menus are mentioned as a part of the Scotland's move towards sustainable economic growth.</i>
	2-5	<i>France-UK split over EU farm plan- France has failed to get unanimous agreement on the future of the EU's Common Agriculture Policy (CAP). The UK, Sweden, and Latvia objected to the final French draft on EU farm policy after 2013.</i>
	2-6	<i>CAP reform-a long-term perspective for sustainable agriculture- June 2003, EU farm ministers adopted a fundamental reform of CAP. The new CAP will be geared towards consumers and taxpayers, while giving EU farmers the freedom to produce what the market wants. The article also includes key elements of the reformed CAP, and implementation of the reform.</i>
	2-7	<i>Sustainable' flood plan promised - An overhaul of the way flooding is managed in Scotland has been promised by the environment secretary. This is an issue that will be hard for a single community to manage themselves without either local government or specialist services involved.</i>

	2-8	<i>Sustainable Development and Local Food - Forward Scotland's discussion paper looking at the role that local food plays in sustainable development. The paper discusses the proposition that local food has a significant contribution to make in supporting local economic activity, providing jobs and stability in local communities and reducing Scotland's carbon footprint therefore making progress towards a more sustainable future.</i>
Global Food Competition	2-9	"In the face of global competition it is clear we must harness our collective resources and pull together the skills and energy of the entire supply chain - our farmers and fishermen, processors and distillers, our researchers and educators and our public sector agencies - to take the industry forward."
	2-10	'One catering manager explained how French free-range chicken was 10% cheaper than British, leaving him struggling to justify a change. Another had only been able to find local yogurt at twice his current price.'
Local vs. Imported Food Greenhouse Gas Emissions	2-9	'Our understanding is also growing of the very considerable burden of greenhouse gases associated with what we eat – around one fifth of all the UK's greenhouse gas emissions are from the food system.'
	2-11	Source finds that London's food-related emissions create 19 million tonnes of greenhouse gases per year, compared to 15 million tonnes in the commercial and public sector, 16.7 million tonnes in the domestic sector, and 9.6 million tonnes in the transport sector (excluding aviation).
	2-12	'But a warning that beans have been air-freighted does not mean we should automatically switch to British varieties if we want to help the climate. Beans in Kenya are produced in a highly environmentally-friendly manner. 'Beans there are grown using manual labour - nothing is mechanised,' says Professor Gareth Edwards-Jones of Bangor University, an expert on African agriculture. 'They don't use tractors, they use cow muck as fertiliser; and they have low-tech irrigation systems in Kenya. They also provide employment to many people in the developing world. So you have to weigh that against the air miles used to get them to the supermarket.'

	Agriculture - within a broader context of rural development	2-13	High-input farming has shown clear signs of unravelling the fabric of the rural environment. It is also necessary to plot the direction of agriculture within a broader context of rural development. As recent livestock problems facing Western European farmers have proven [BSC], the West does not have all the answers. The CEE region is now in a position to avoid the mistakes of the West as it maps out the future of its rich rural areas. Economic recession, problematic land restitution and structural changes have caused out-migration and a disruption of traditional patterns of land use that are threatening formerly man-created and managed ecosystems. A study of the ten accession countries published by the Institute for European Environmental Policy last year highlighted 'land abandonment' as the most serious issue concerning rural development and harmonisation of agriculture with biodiversity.
	Sustainable Food/Biofuel	2-13	<p>The source is from the Sustainable Development Commission Scotland Website. Information is provided with regards to Sustainable Food and Drink in Scotland:</p> <p>In 2005 the Sustainable Development Commission defined sustainable food and drink thus:</p> <ul style="list-style-type: none"> <li>• <i>safe, healthy and nutritious food for consumers in shops, restaurants, schools, hospitals etc</i></li> <li>• <i>providing a viable livelihood for farmers, processors and retailers, whose employees enjoy a safe and hygienic working environment, whether in the UK or overseas</i></li> <li>• <i>respecting biophysical and environmental limits in its production and processing, while reducing energy consumption and improving the wider environment; it also respects the highest standards of animal health and welfare, compatible with the production of affordable food for all sectors of society</i></li> <li>• <i>supporting rural economies and the diversity of rural culture, in particular through an emphasis on local products that keep food miles to a minimum.</i></li> <li>• <i>meeting the needs of less well-off people</i></li> </ul>

	2-14	FORUM FOR RENEWABLE ENERGY DEVELOPMENT IN SCOTLAND PROMOTING AND ACCELERATING THE MARKET PENETRATION OF BIOMASS TECHNOLOGY IN SCOTLAND - The Biomass Energy Group (BEG) was established by the Forum for Renewable Energy Development in Scotland (FREDS) in January 2004. The task assigned to us was to consider how biomass, especially forestry products, could make a meaningful contribution to Scotland's renewable energy mix and thus deliver significant environmental and employment benefits. BEG's vision is to develop a biomass industry in Scotland which will lead the UK's efforts in this sector, while supporting sustainable rural development and creating a wealth of jobs across the supply chain. BEG has concluded that a biomass industry in Scotland has the potential to supply as much as 450 MW of electricity from the wood fuel resource while employing over 2,000 people and stimulating other sectors of the Scottish economy. This is a conservative estimate. The successful development of biomass technology in Scotland using energy crops as the fuel source would further boost electrical output and employment. However, it will take 5 years to lay the foundations for this industry. This report looks at the establishment of the basic infrastructure needed and the partnership between Government and industry that will be required to deliver this potential.
	2-15	The Ecologist - Bio fuels 2.0
	2-16	BBC - Biofuel centre launched in city
	2-17	PUBLIC PERCEPTIONS OF FOOD AND FARMING IN SCOTLAND FINAL REPORT PHASE ONE (MAIN SURVEY)
	2-18	Scottish Government - Funding for zero waste technology
Rising Food Prices	2-19	'USDA expects unit costs of production of cereals to rise by up to 15% between 2006-7 and 2016-17.'
	2-19	'Compared to 2005 levels, the price of maize is likely to be higher by 40% in 2016-17, with wheat prices up by 20%, and rice by 14%.'
	2-19	'The short-term impacts are alarming: incomes fall by more than 25%, and food consumption by almost 20%. Medium-term prospects remain bleak, with incomes and food consumption down by 11% and 8% respectively.'
	200-1	Affordability is important-some may not be able to grow own food and it may be cheaper for them to buy at supermarkets

Domestic vs. Imported Food	200-4	In particular, the desirability of self sustainability in food was debated. One strand considered food mile footprint to be of prime importance and that we should be self sufficient in everything that can be grown domestically. The opposite strand believed that globalisation of food production was a result of international advantages in production which should be encouraged.
Increasing Stress of Global Food Production	2-20	'Based on current trends, the FAO predicts that our current 60 billion count of global livestock will double by the year 2050 to 120 billion. By then, the world's farm animals could be consuming an amount of food equivalent to the intake of 4 billion people.'
Move towards making food more sustainable	2-21	Touted as a green potato that you won't throw away, the Vales Sovereign tattie is on the shop shelves this week. It is claimed that the Vales Sovereign potato has a smaller carbon footprint because it needs less water, pesticides and fertiliser than other varieties on the market. Along with topping taste trials at major supermarkets, it seems the plant breeding work over the last 16 years has produced a winner.
Sustainable methods of food production	2-22	Bio Organics, Inc. attempts to imitate nature's production processes by adding mycorrhizal fungi inoculates: naturally occurring fungi spores that bring great amounts of nutrients to soil and moisture to their host plants. This has proven especially helpful for areas with poor soil and for plants that are extremely dependent, such as grapes, melons, citrus, oaks and pines.
	2-23	Source outlines some of the harmful effects of excessive use of agrochemicals, such as fertile soils becoming acidic due to heavy chemical fertilizer application, degraded soils and groundwater pollution due to leaching, over-reliance on chemical pesticides for pest problems, and pesticide residue concerns in the domestic consumption sector.
Land Management	20-1	.....our aim is to promote sustainable rural land management and to safeguard both natural and cultural heritage. Over the next 10-15 years we see land management expanding beyond traditional farming and forestry to cover the provision of a growing range of environmental goods and services, including dealing with climate change.
Factory farms vs small-scale farms	2-24	...a Michigan study demonstrated that small hog farms proportionately spend almost 50% more at local businesses than large farms do, primarily because the larger farms buy feed in bulk from sources outside of the community. Since factory farms are vertically-integrated, farm materials are bought within the corporation, rather than at the local feed or hardware store. In addition, industrial farms are often too large to be locally-supplied, so they must buy feed and other materials in bulk from distant suppliers.'

	2-24	<p>Factory farms directly affect community health by introducing potentially hazardous substances into the air and water. Air pollutants such as hydrogen sulfide, ammonia, and particulate matter are released in significant quantities by these large confined animal feeding operations, and all have the potential to negatively affect their surrounding communities. People living near hog farms, for example, often have increased respiratory problems, most likely due to the large quantities of ammonia emitted by those types of facilities.'</p>
	2-25	<p>'Working conditions at confined animal feeding operations (CAFOs) are unhealthy, dangerous and extreme. Because the animals are often housed directly above the giant pits that store their manure, harmful gases such as hydrogen sulfide, ammonia, carbon dioxide, and methane that are produced by the decomposing manure can contaminate the air that the animals and farm laborers breathe...As many as 25% of all workers at confined animal feeding operations experience chronic bronchitis, while up to 70% will have acute bronchitis at some point during the year. Chronic exposure to hydrogen sulfide can cause many problems, most notably in the neurological and cardiological systems.'</p>
	2-26	<p>...family farmers serve as responsible stewards of the land. Unlike industrial agriculture operations, which pollute communities with chemical pesticides, noxious fumes and excess manure, small family farmers live on or near their farms and strive to preserve the surrounding environment for future generations. Since these farmers have a vested interest in their communities, they are more likely to use sustainable farming techniques to protect natural resources and human health.'</p>
	20-2	<p>...In seven of the last nine years demand has exceeded global supply [grains]. The resulting food inflation over the last 18 months has clearly exposed many policy errors, and things will change from now onwards. ... But [Sean] Rickard's "third era" will, he asserts, be one that offers opportunities for producers. Global demand for food is growing ... that will place a huge burden on farmers and will inevitably involve the embracing of different farming practices. "Reality demands rapid adoption and development of GM crops and also a rapid return to industrialised farming. We need capital-intensive economics of scale and structural change. We will also need better productivity, lower unit costs and higher quality."</p>

	20-3	The overview of emerging global trends, policy developments, challenges and prospects for European agri-futures, point to the need for a new strategic framework for the planning and delivery of research. The complex dynamics operating between the domains of agriculture, food, environment, land use, society and rural sustainability highlight the need for a new framework encompassing research on agrifood and the related areas of environment and rural economies. The framework needs to cater for four broad lines of action and a fifth cross-cutting theme: - Sustainability challenge : facing climate change in the knowledge-based biosociety - Security challenge: safeguarding European food, rural, energy, biodiversity and agri futures - Knowledge challenge: User-oriented knowledge development and exchange strategies - Competitiveness challenge: Positioning Europe in agri-food and other agri lead markets C1013
	20-4	Environmentally friendly farming methods generate employment. It is difficult to quantify the impact of more environmentally-friendly agricultural production on employment, but a fairly clear picture is provided by organic farming, the most highly developed and structured branch of sustainable farming. While no exact figures are available, it can be said that, in order to meet consumer demand, this branch of agriculture must be clearly organised to: ensure the credibility of this type of production, and open up consumption channels in order to move from being a niche market to capturing a substantial market share.
Buying Local	200-3	It was noted that some issues are unhelpful, like the notion that sustainability can come through simply local production and consumption.
Allotments: Farming Parcels	20-5	By the war's end, there were 1,300,000 allotments in Britain. A mere 250,000 survive, and despite a waiting list of 100,000 frustrated trowel-wielders, many are under threat as local councils and others decide that they can put the land to more lucrative use. NOTE: The standard allotment measures 100ft by 30ft. One half that size leased to the author for £10.50 per annum.
Food biodiversity	2-27	About 7,000 different species of plants have been raised as food crops in the history of human agriculture. Yet in part because of modern tendencies towards mass production, only fifteen plant and eight animal species are now relied upon for about 90% of all human food. As a result of this homogenization of the food industry, thousands of non-commercial animal breeds and crop varieties have disappeared, along with the valuable genetic diversity they possessed.'

	2-27	The loss of genetic diversity in livestock poses several significant problems...[I]ndustrial production has created a system in which livestock breeds are no longer suited to local environmental conditions. Instead, industrial livestock breeds have been bred to live in a carefully-regulated environment. In order to survive, these animals require costly inputs such as climate-controlled housing, regular doses of antibiotics, and large quantities of high-protein feed.'
	2-28	Our vision for food in Scotland is that it should make the nation healthier, wealthier and smarter with production making communities stronger and consumption respecting the local and global environment.
		A healthier Scotland will result from changing individual behaviour and attitudes about diet and food choices; from improving the nutritional quality, safety and freshness of food on offer in institutions and the catering sector; to supporting Scottish food manufacturers and retailers to take the initiative in driving forward consumer demand for more affordable, healthier food options. Communities across Scotland will enjoy better access to affordable, safe, healthy and fresh seasonal food.
		A wealthier and fairer Scotland will result from the sustainable economic growth of the food industry through greater co-operation and collaboration from primary production to final market, ensuring the long-term viability of primary producers, and increasing export markets for Scottish produce.
		A safer and stronger Scotland will result from a thriving food industry where local communities will flourish and become better places to live through improved access to amenities and services.
		A greener Scotland will result from reducing the environmental impact of food and drink production, processing, manufacturing and consumption by encouraging responsible behaviour throughout the supply chain through reduced emissions, unnecessary use of raw materials, waste, packaging, energy and water use.
		A smarter Scotland will result from a highly-skilled and innovative food industry with consumers that are better informed about where their food comes from, how it was grown and the wider health, environmental, social and economic benefits of the choices they make.
	2-29	As a summary of our current thinking on food, we could say that we have to focus on healthier food, local food and help people to become more aware of the environmental impacts of the food supply chain, and where food comes from before it reaches the shelves. This will help us sustain and grow our important export markets that bring so much wealth to Scotland.

	2-30	UNISON welcomes plans to introduce a cross-cutting National Food Policy. It makes total sense to draw together a range of policy areas as they affect food, including climate change, sustainable development, health, education, transport etc., addressing issues such as public sector food procurement, food labelling, animal welfare and local sourcing of food. Sustainability should be at the heart of food policy.
	2-31	Forward Scotland's response to the Scottish Governments discussion Choosing the Right Ingredients - The Future for Food in Scotland 2008. Forward Scotland welcomes the discussion on the future for food in Scotland and commends the government for bringing into focus for the first time the complexity of issues that revolve around the food we grow and eat. We believe that the discussion will solicit evidence and recommendations from a wide range of organisations, business and communities to the Scottish Government that will call for a coherent and ambitious policy for food in Scotland. A food policy that recognises a role for local food can provide a framework that enables the realisation of the opportunity that it presents for progress towards a more sustainable society. Local food benefits the local economy through support for local producers, it can provide viable long-term employment and maintain employment particularly in rural communities, and it can engage people in healthier lifestyles and reduce the carbon footprint of the food we consume.
	2-32	NFU Scotland's concerns focus on one fundamental issue which threatens the future, not only of Scottish agriculture, but of our ability to feed ourselves. The fear is that the decline in our food production capacity will undermine any food and drink policy, exacerbate food security concerns and have serious social, environmental and economic consequences.
	2-33	Scotland's local authorities and catering firms who serve the public sector have been asked to do their bit for the Scottish food industry. Rural Affairs Secretary Richard Lochhead has written a letter urging these bodies to, wherever possible, purchase and eat more locally produced food. He said: "I firmly believe that we, as a nation, ought to be making much more of Scotland's reputation around the world for producing premium food and drink products. I am deeply concerned about the long term health and well-being of one of the cornerstones of Scotland's food heritage, our agricultural sector.

	2-34	Striking the right balance between environmental, economic and social factors in developing a sustainable food supply was the focus of a symposium held in Edinburgh earlier this week. Symposium speakers covered such subjects as the Food Standards Agency's approach to sustainable development in policy making, the use of food waste, and food science and chemistry in the science of global food supply. Duncan Oswald, founding Director of environmental consultancy Ecodyn, commented that the UK is not self-sufficient, there is a widening food trade gap and prices are going up. There is less productive land per person and in the developed world we are using more than our fair share, he said.
Water	20-6	Dwindling water supplies in various regions around the world have begun to create competition among major consumers. The Organisation for Economic Co-operation and Development estimates that global water use will rise as much as 30% in developing countries and 10% in the developed world by 2025, and that nearly two-thirds of the world's population could face water scarcity in the same period. "Re-using water is one way to avoid pitting farmers against citizens and industries for access to scarce freshwater resources,"
	200-1	The built environment should make constructors include the flushing of toilets with rainwater not fresh water
	200-1	Should the supply of water be metered or public?
	200-1	Will the climate be dryer and will water supply be a major concern?
	2000-1	Water UK outlines 'A Vision for Water' at Sustainability Scotland Conference: Policy has to take account of many different needs – people and households, industry, construction, agriculture, and the health of the natural environment which supports everything. This simple truth has several implications – including for water abstraction and access, for demand management, and for the quality of water in the environment. The reason why this is so important is that sustainability means integrated decisions. Three principles of the UK sustainability strategy are the framework for this speech: living within environmental limits; ensuring a strong healthy and just society; and achieving a sustainable economy.
Stormwater and Green Infrastructure	2000-2	"In new communities like Orestad, the Western Harbor and Hammarby Sjostad parks and greenspace are critical design elements. Every building in Orestad is adjacent to a park. Rainwater is collected and used to create gardens, bioswales and canals. "

	2000-2	“The Western Harbor developers also succeeded in developing functioning wetlands in and along the canals, providing green texture along the concrete edges. They also have used green roofs, softening rooflines, and they created sightlines to the Sund from everywhere in the development.”
	2000-2	“Malmo one of Sweden’s largest urban sustainability projects, showcased different approaches to green roofs and stormwater canals because the new systems had to be built into an existing development. Adding the greenspace and sustainable energy and transportation systems, revitalized one of the poorest parts of the city of Malmo.”
Precipitation Trends	2000-3	“Across Scotland there is a west-east precipitation gradient due to the prevalence of westerly winds. There are also marked contrasts between lowland and upland sites with areas about 400 metres in elevation generally receiving more than 1,000mm of precipitation a year.”
	2000-3	“Annual levels of precipitation increased by .5-1.0% a decade in most locations in the high latitudes of the Northern Hemisphere during the twentieth century, contrasting with a decline in rainfall in the subtropics (Folland et al., 2001).”
	2000-3	“On average across Scotland, the west has become wetter and the east drier (Mayes, 1996)Geographical trends are particularly marked between the seasons, with the west becoming wetter in the winter half-year and the east becoming drier in the summer half-year. “
Re-use of greywater	2000-4	“Greywater is water that has already been used in the household, for instance, bathwater. This water can be diverted for use in household gardens and can even be treated at home to allow for more applications. However, this type of home water treatment usually involves heavy chemicals and as of now this type of recycling is more harsh on the environment than collective waste water treatment.”
Precipitation Trends	2000-5	“The IPCC Report (1996) indicated a reduction in the spatial extent of snow cover in the Northern Hemisphere of approximately 10% between 1973 and 1994. Since the late 1970's there has been a significant reduction in the average number of days with snow lying, the average rate of change has been 12 days per decade, which has been associated with changes in mean temperature during the winter months. The average number of days with snow lying across Scotland as a whole during the winter (November to April) is reduced by 9 days for every 1.0°C increase in mean temperature.”

Flooding Potential	2000-5	“Predicted changes in snow lie may well influence the magnitude of large floods and the frequency of smaller flood events during the winter. Water resources management could become more complex, and flood forecasting and water resource management require better information about snow.”
Flooding Potential-Effects	2000-5	“The irregular nature of snow accumulations in recent winters has made it difficult to predict river flows. It would appear that the sudden thawing of heavy snowfalls could have lead to an increased frequency of winter floods. There has been an associated increase in winter baseflows due to more frequent snow-melt and rain, and a reduction in spring flows due to a reduction in the snow-melt component of flow. The may well have impacted on fisheries, on the seasonal availability of water resources, and on the management and safety of Scottish upland reservoirs”
Reducing consumer water usage	2000-6	“Low flow Showerhead- Showering is usually the largest single use of hot water in a home and can account for 10%–15% of total energy use in the home. Old style showerheads use 3 or even 4 gallons per minute (gpm). Newer models typically use 2.5 or 2.2 gpm, and super low-flow showerheads use only 1.75 gpm.”
Trade effluent	2000-7	“Trade effluent is defined as any wastewater discharged during the operation of a business or industrial process. It covers discharges from both large factories, and small industrial units and includes process waters, cooling waters, contaminated surface water runoff and wash water from vehicles, machinery and floors. It is the legal responsibility of a company which discharges trade effluent to public sewer to obtain a Consent from Scottish Water. Failure to apply for Consent may result in a fine, which is currently set at a maximum of £40,000.”

## Transport

Subject	Source	Excerpt
	3-1	<i>Transport 'roadmap' for the way ahead- The Scottish Executive wants to cut emissions, improve public transport, create more car-free zones and see more short journeys made by bike or on foot.</i>
	3-2	<i>Cameron's Britain: Transport Policy- How the Conservatives have changed and complicated travel today.</i>
	3-3	<i>Scotland's National Transport Strategy- The document discuss three key issues that will make a fundamental difference towards deliver a world class transport system: improved journey times and connections, reduced emissions, and improved quality, accessibility and affordability.</i>
	3-4	<i>BAE SYSTEMS' Hybridrive System buses make California debut - Hybrid electric buses equipped with BAE Systems' HybriDrive™ propulsion system will make their debut in two California transit systems this spring and are due to enter service in San Francisco later in the year. Ten HybriDrive™-equipped buses have now completed 300,000 miles of revenue service in New York. MTA New York City Transit plans to add 325 more buses equipped with the BAE Systems drive train to its fleet between 2001 and 2004.</i>
	3-5	<i>Communities to benefit from Railways contract extension - Forward Scotland broadly welcomes the railway franchise extension and the commitments and provisions it provides. A wholly new community fund is a positive aspect that if handled well could provide a real legacy. Forward Scotland notes a number of key initiatives focussed around improvement to passenger environment, safety and facilities. We recognise the innovative nature of the stations community regeneration fund and believe that it has the potential to provide an opportunity for those not already engaged in railway activity to take 'ownership' of an asset at the heart of their community.</i>

		<p>3-6 <i>Community Assets and the Railways - Forward Scotland believes that there is significant potential to contribute to the regeneration of Scotland's railways and to provide space for local groups by bringing unused and underused space back into use on platforms across the land. There are over 300 railway stations lying in the heart of communities and more can be done to bring them into 21st Century use.</i></p> <p><i>We are working with FirstScotrail, the Railway Heritage Trust, and a number of groups in Arbroath including the Angus Transport Forum to regenerate Arbroath Station. Through this project we hope to learn about the obstacles and solutions that can assist other groups to realise their ambitions.</i></p>
	<p>Transport Overview</p>	<p>30-1 Nearly all researchers into the future of global passenger transport assume that both car ownership and overall vehicular travel will continue to rise. But they also increasingly acknowledge the environmental and resource problems facing vehicular transport, particularly global climate change and oil depletion. In order to meet these challenges, researchers propose a variety of technological solutions, including greatly improved vehicular fuel efficiency, alternative fuels and propulsion systems, and carbon capture and storage. In this paper we question whether these optimistic solutions can be developed and widely deployed in the limited time frame available, and argue instead that not only are ever-rising vehicular mobility levels unlikely to occur, but that the human costs of continuing this approach are also too great. Instead we argue that because transport is a derived demand, we must first articulate a preferred vision of the future, then design an appropriate, sustainable transport system. Finally, we briefly outline what such a low mobility future transport system would look like, using our own city, Melbourne, Australia, as a case study.</p>
		<p>30-1 A new system based on a socially and ecologically sustainable world-view would see a reversion back to non-motorised (or active) transport and public transport. The new system would entail some replacement of vehicular transport energy by human effort-a partial reversal of the trend established by the Industrial Revolution. (This is not to say that our preferred solution could not benefit from technological advances, but does not rely on them. After all, electric public transport, buses, and cycles have all been in use for over a century, and walking is as old as humanity). Some present benefits of private travel would be lost, such as privacy and the psychological benefits of driving, but the change would bring its own benefits. Not only would fewer vehicle traffic casualties result, but if allowable speeds for remaining road vehicles were greatly reduced, so would injury severity in the remaining collisions. Active travel modes would now be safer and less stressful, and their more widespread use would enhance both human health and fitness levels.</p>

Government Transport goals	3000-23	"We believe the Government is in real danger of not delivering the required emission reductions without a root and branch re-think of priorities. The Government's Climate Change Act Delivery Plan has a stated aim of 'almost complete decarbonisation of road transport by 2050 with significant progress by 2030 through wholesale adoption of electric cars and vans, and significant decarbonisation of rail by 2050.' Achieving this is a major challenge."
Lack of Awareness of Transport Alternatives	3-7	"Many Scots drive to work without being aware of the alternatives."
Innovative way to get children to school safely	3000-26	An innovative way to safely move children to school is the walking schoolbus. The bus "driver" walks a designated route picking up children on the way. This increases the childrens' safety, allows them to exercise, and is a green way to travel. These networks can be set up informally by groups of parents or through a school.
Rural Transport	30-2	Global oil production, on the other hand, is currently running at close to 81 million barrels per day and is predicted to fall to 39m by 2030...However, the impact will be far greater on rural communities. The reliance on private transport and decreasing viability of rural services is already a factor in the increasing isolation of those least able to afford to travel. For many, private transport, whether a car or taxi, is the only way of accessing doctor's surgeries, schools, shops and post offices.
Rising Cost of Public Transport	3-8	"In real terms the cost of motoring has fallen by 10% over the last 25 years while average bus and rail fares have risen by 40%."
Increased Government Spending on Airports and Motorways	3-9	"Last week, the Government launched its long-promised Scottish Climate Change Bill, claiming that this made it a world leader in tackling climate change. Yet earlier this week, we saw the Government announce a £10 billion road-building programme. Today, it has announced that it will enable airport expansion and protect it from full public scrutiny."
	3-10	'Policies that boost the attractiveness of individual motorised travel at the expense of public and active transport alternatives hold no benefits for the 36% of Scotland's households that do not have access to a car. The share of such households is particularly high in urban areas (59% in Glasgow, 42% in Edinburgh) and the overwhelming majority of these have low incomes. Even in the Highlands, where social exclusion on economic grounds can be exacerbated by genuine geographic isolation, one household in five has no access to a car.'

	3-11	'The international aviation industry is conspicuous by its absence from international and national targets for emissions reductions. It is also the fastest-growing source of greenhouse gas emissions in developed countries.'
Lack of Funding for Active Travel	3-12	'The Budget proposes that the principal funds allocated for the enhancement of walking and cycling, 'Support for Sustainable and Active Travel' and 'Cycling, Walking and Safer Routes' remain static at £9m and £11m per annum, respectively, during the course of the Budget period. In contrast, the Government has set out plans for a large growth in spending on trunk roads and motorway budget lines.'
	30-3	For 'Encouraging non-motorised transport' a number of suggestions were put forward, such as bicycle parking places outside shops, a pool of bicycle carriages, a network of cycle tracks between communities and free walking and cycling lanes without reducing obstacles.
Carpool lanes	3000-27	In the United States carpool lanes (for cars carrying more than one person) are popular for encouraging people to carpool and to reward those who do with faster driving times.
Motorways III-Designed for Active Travel	3-13	'For decades roads have been designed predominantly for vehicles, ignoring the needs of those on foot or on bike. For almost as long, the 'transport hierarchy' has placed walking and cycling as the modes that should be given highest priority – but this is almost never carried through into reality by politicians and transport planners.'
Vulnerability to Changes in Oil Supply	3-14	'The oil strike at the Grangemouth oil refinery in April 2008 demonstrated just how exposed the Scottish transport sector is to security of oil supplies.'
	3-15	'The Soil Association points out that less than 10 per cent of the fruit we eat is grown here; up to half our vegetables are imported; and 70 per cent of animal feed used across the EU is imported.'
	3-16	Source outlines how the British economy is run on the principle of 'just in time' delivery of goods, such that the sudden loss of petrol supplies has the potential to bring the country to a virtual standstill in only a few days.

	Public Transport	3-17	<p>This source shows a negative picture for Scotland and its green transport trends. The 2006 source shows an increase in car and air travel and a decrease in those walking to work/school. The author states a demand for more projects ensuring that there are safe walking or cycling routes to school and more investment in public transport alternatives, especially busses and trams, which will give commuters more choice.</p> <p><i>Some of the key findings for 2005 were:</i></p> <ul style="list-style-type: none"> <li><i>* The total volume of traffic, at 43 billion (thousand million) vehicle kilometres, was the highest level ever recorded and 16 per cent more than in 1995.</i></li> <li><i>* The total number of vehicles licensed grew by 3 per cent to 2.53 million, 33 per cent more than in 1995 and the highest number ever.</i></li> <li><i>* 24 per cent of households had two or more cars, compared with 18 per cent in 1999.</i></li> <li><i>* There were 75.1 million passenger journeys on Scot Rail services (in the 2005-06 financial year), 9 per cent more than the previous year and 48 per cent more than 10 years earlier. Rail passenger numbers are at the highest level since (at least) 1960.</i></li> <li><i>* Per head of population, there are fewer rail passenger journeys originating in Scotland: 14.4 per head in Scotland in 2004-05, compared with 18.8 per head in GB.</i></li> <li><i>* There were 23.8 million air terminal passengers, 5 per cent more than in the previous year, 93 per cent more than in 1995, and the highest level ever recorded.</i></li> <li><i>* The number of air passengers per head of population has been higher for Scotland. Between 1995 and 2005, air terminal passengers increased by 93 per cent for Scotland and 77 per cent for the UK as a whole.</i></li> </ul>
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	3-18	<p>This source questions the extent to which Edinburgh's new trams are green. It highlights a number of advantages:</p> <p><i>"Research shows that 20% of peak hour and 50% of weekend tram passengers in other parts of the UK previously travelled by car</i></p> <p><i>Trams will be good for city centre business. Dublin is held up as the example where they say that, after trams were introduced, there was a rise of between 20% - 35% of visitors to Grafton Street."</i></p> <p><i>They will enhance Edinburgh's reputation as a good place to live, work and visit through a range of environmental benefits from air quality to noise reduction to less congestion."</i></p> <p>However, despite this positive outlook, this article raises concerns that the trams are only as green as the energy that they run on.</p> <p><i>"The trams obviously have to rely on available power supplies and in Scotland that's about a third from coal-fired plant, between a quarter and a half from nuclear and the rest from gas and renewable like hydro and wind energy."</i></p> <p><i>One of the main suppliers will be the Longannet power station in Fife - Scotland's biggest single emitter of the greenhouse gas, carbon dioxide."</i></p> <p>Furthermore there is also the worry that these trams make getting to Edinburgh Airport easier, yet the Greens want to see less flying.</p>
	3-19	<p>This source is from the Scottish Socialist Party and suggests that you have to be red to be green. It advocates that all public transport should be free, thus enabling Scotland to lead the world in the fight against climate chaos. In this way the Scottish Socialist party are suggesting a move somewhat similar to that of Hasselt, San Francisco and Hawaii</p> <p><i>"The Scottish Socialist Party has put the call for free public transport for all at the heart of its recent election campaign. We'd start with treating public transport like the essential service it is, by taking it out of the hands of millionaire profiteers, and bringing it under the democratic control of elected, public boards at local and national level. Then we could get moving on a programme of expansion, so Scotland has the public transport network we desperately need, and make it free to use."</i></p>

	3-20	<p>This source details the Tram Project Environmental and Sustainability Policy Statement. It shows that environmental responsibility is at the heart of the Tram Project.</p> <p><i>The management team:</i></p> <ul style="list-style-type: none"><li><i>- Is committed to good environmental management practice, including building sustainability into the project and the prevention of pollution; Shall promote a positive culture on environmental and sustainability issues through leadership and communication; Use effective communication within the team as a primary enabler of environmental good practice; Shall put in place suitable management arrangements for ensuring environmental; matters are integral to the execution of the Tram project; Is committed to continual improvement of its environmental management arrangements; Will set environmental and sustainability objectives which shall be monitored and reviewed for effectiveness and suitability; Shall work with the relevant statutory bodies to comply with or exceed applicable legislation, regulations and contractual obligations.</i></li></ul>
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	3-21	<p>The Transport Scotland Corporate Plan 2008-2011</p> <p><b>Road and Rail:</b> <i>"Reducing greenhouse gas emissions and achieving changes in both the means and patterns of travel are key challenges in securing sustainable economic growth and a greener Scotland. The environmental impacts of all transport policies and projects will be considered in the context of the Government's Strategic Target of reducing emissions by 80 per cent by 2050.</i></p> <p><b>Bringing Communities Together:</b> <i>"Bringing communities and people across Scotland closer together by improving transport connections between them is a key component in achieving the Government's Purpose."</i></p> <p>Since April 2006, 318 million free bus journeys have been made.</p> <p><b>Action on Climate Change:</b> <i>"The Scottish Government is leading the way in tackling climate change. The Government's Economic Strategy includes sustainability targets to reduce greenhouse gas emissions over the period to 2011 and to reduce emissions by 80 per cent by 2050."</i></p> <ul style="list-style-type: none"> <li>- Investigating the environmental aspects of our trunk road construction and maintenance operations</li> <li>- We will take forward a number of road maintenance schemes over the Plan period using the latest sustainable construction techniques and recycling processes.</li> <li>- For rail, the Scottish High Level Output Specification (HLOS), published in July 2007, sets out Scottish Ministers' expectations for Network Rail's investment between 2009-2014. It is a £3.6 billion rail blueprint aimed at offering more high quality public transport alternatives to the car.</li> <li>- Electric trains use 25 per cent less energy than equivalent diesel trains. When supplied from sustainable power generation, electric trains can offer emission-free transport.</li> </ul>
	3-22	<p>This news release from the Scottish Government Website mentions the new Park and Ride Scheme which opened up on the outskirts of Edinburgh in April 2008. The development has space for 561 cars, thus encouraging greener transport for Scotland. <i>"Reduced congestion, fewer cars on our roads, and a less polluted environment - this facility, and others like it across the country, will deliver real benefits for Scotland."</i></p>

	3-23	<p>This source discusses the Renewable Energy Framework as a blueprint for a greener Scotland. The Framework has been initiated to ensure that Scotland meets tough European climate change targets.</p> <p>The Renewable Energy Framework includes proposals for a tenfold increase in the levels of renewable energy used for heat and transport in Scotland.</p> <p>The new blueprint for a cleaner, greener Scotland aims to capitalise on the country's rich renewable energy resources, attract jobs and investment, while meeting the EU target of 20 per cent of energy to come from renewable by 2020</p> <p>The plans are also supplemented by £2 million of new funding for the Scottish Biomass Support Scheme.</p> <p>Quotes by Alex Salmond:</p> <ul style="list-style-type: none"> <li>- <i>"Renewable energy is at the heart of this Government's vision of increasing sustainable economic growth and development.</i></li> <li>- <i>"In recent weeks I have announced £1 billion of investment in renewable projects including the Clyde wind farm, Crystal Rig wind farm and Scottish Power's plans to use the Pentland Firth to generate green electricity.</i></li> <li>- <i>"I am confident we will meet our interim target of 31 per cent of our electricity from renewables by 2011 and with our rich renewables resources we could exceed the 50 per cent target by 2020."</i></li> </ul>
	3-24	<p>This source shows that in 2005 proposals for a congestion charge in Edinburgh were rejected. The plan was to charge motorists £2 a day to enter the congestion zone with a penalty fine of £60 if they failed to pay.</p> <p>About 290,000 residents were asked if they were in favour of cordons.</p> <p>The turnout for the postal ballot was 61.8%. There were 133,678 votes against and 45,965 in favour.</p> <p>Leader of Edinburgh City Council, Labour Councillor Donald Anderson, said: "The idea is now dead and buried for Edinburgh but we are as committed as ever to further improving our city's transport."</p>
	3-25	<p>Celsius - Nuclear Fusion-Fission Hybrid could make carbon-free energy - Physicists at The University of Texas at Austin have designed a new system that, when fully developed, would use fusion to eliminate most of the transuranic waste produced by nuclear power plants. The invention could help combat global warming by making nuclear power cleaner and thus a more viable replacement of carbon-heavy energy sources, such as coal.</p>
	300-1	<p>Transport is expensive and we should think more about 'shared schemes' e.g., how taxis are shared in Morocco and don't leave for the next town until they are full</p>

Public Transport Accessibility	3000-27	In parts of Brazil the bus travel is very low, promoting equality and it benefits those who live further outside the city and tend to be poorer by charging the same fare for each journey no matter the distance, therefore short rides subsidise longer ones.
Air Travel	30-1	The airline manufacturer Airbus [5] annually issues single value forecasts 20 years ahead for world air travel. Their latest projection assumes that air passenger travel will grow annually by 4.8% out to 2025, with much of the growth from newly industrialising India and China, where air travel is already growing strongly.
Diesel	30-4	For years, Europe's automobile industry has been betting on diesel-engine cars. And drivers have lined up to buy them, attracted by their greater fuel economy and tax incentives that encouraged diesel use over gasoline. The supply-demand mismatch is so serious - diesel-engine cars now account for about half of new cars sold in Western Europe - that it is raising concerns in the upper echelons of the European Union about what effects the bloc's reliance on diesel imports might have on prices and energy security over the long term. ...in certain European countries, like France and Belgium, diesel-powered cars now account for more than 70% of new cars sold.
Bio fuels	3-26	The Ecologist: Bio fuels Report: How Green is my Tank? - Live Green, Go Yellow' exhorts a multimillion-dollar ad campaign from General Motors (GM), the world's largest automaker, promoting flexible fuel cars capable of running on blends of up to 85 per cent ethanol, mainly derived from corn. 'GM FlexFuel vehicles lead the way to a cleaner, less oil-dependent future, when they run on renewable, US grown fuel. Join the ride!' - Bio fuels only have a part to play under a scenario where greatly improved fuel economy reduces petrol demand to a level with which photosynthesis can compete. Unless automakers accept the need for serious action on fuel economy in addition to lower carbon fuels, bio fuels will remain a dangerous distraction.
	3-27	SAC Consultancy Division - Economic Evaluation of Bio diesel Production from Oilseed Rape grown in North and East Scotland - Oilseed rape is well suited to Scottish growing conditions and produces high yields and oil contents. However, no processing facilities exist in Scotland and the crop must either be transported south or to the continent for crushing. Bioethanol can be blended with, or can substitute for petrol, but as a fuel substitute requires engine modification, unlike bio diesel which can be used in unmodified diesel engines. The aim of this study is to identify the potential to add value to oilseed rape grown in the North and East of Scotland by conversion to bio diesel, and to stimulate economic activity through the establishment of processing facilities and the provision of end products from the process.

3-28	<p>Scottish Renewables - Delivering the New Generation of Energy - C.3 ENERGY IN 2020 - KEY POINTS: 2020 PROJECTIONS</p> <ul style="list-style-type: none"> <li>• Potential 54% contribution from renewable electricity</li> <li>• Potential 9GW installed capacity of renewable electricity projects</li> <li>• Carbon emissions fall by 21% on 1990 baseline</li> <li>• Offshore technologies in wind, wave and tidal stream come of age</li> <li>• 10% of heat sourced from renewables and microgeneration</li> <li>• Storage and carbon sequestration technologies - hydrogen, biomass, batteries - see greater use</li> <li>• A number of decentralised energy systems and greater use of microgeneration take pressure off centralised transmission networks</li> <li>• Vehicle kilometres travelled continue to increase but more efficient motors and greater use of biofuels see carbon impact stabilise and fall</li> <li>• RTFO target increased to 10% and met (= 3.55 TWh equiv, making a 5% contribution to emissions cuts Assuming that the 2010 RTFO target is reached, it is projected that the RTFO could set a target for 2020 of 10% of transport fuels sold to constitute renewable fuel. This would translate into 3.5TWh of annual consumption, equating to 7.5% of total transport energy demand in Scotland, at 2002 demand levels. This would translate into an emissions saving of 1.5MtC.</li> </ul> <p>According to the Department for Transport<sup>65</sup>:  “Today most biofuels come from crops like oilseed rape and wheat, which can be mixed with petrol and diesel and run in ordinary cars. In the future we could see more advanced biofuels made from waste and possibly even renewable hydrogen.”  However, the Energy Saving Trust concluded in its road transport report<sup>66</sup> that:  “Hydrogen from renewable electricity sources for a mass market vehicle application is likely to be insufficient for at least 30 years, but significant transitional benefits can be secured from bi-fuelling and from dedicated depot based fleets meeting niche markets, including using hydrogen derived from gas”.</p> <p>In total, combining both generation from bioenergy and consumption, the biomass sector could account for as much as 8.9TWh.</p>
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	3-29	Written Answers Tuesday 7 February 2006 Scottish Executive - Mr Andrew Arbuckle (Mid Scotland and Fife) (LD): To ask the Scottish Executive how it intends to achieve the EU 2% target of energy creation from biofuel by 2010. Because of the UK single fuel market - the Scottish Government has accepted all UK targets. To increase the Biofuel use from 2% 2005 to 5.75% for 2010. The Department for Transport has recently commissioned a feasibility study on the possible introduction of a Renewable Transport Fuel Obligation (RTFO) for bio fuels and other renewable transport fuels, and is currently consulting with stakeholders at UK level. The Scottish Executive is closely following this work and considering its implications for Scotland.
	3-30	SUBMISSION FROM ENERGY SAVING TRUST (EST) - The UK has the theoretical potential to provide a large proportion of household heating and transport fuel from home-grown biomass (heat and electricity) and bio fuels (transport), and there are numerous studies that have explored this. For transport the practical carbon reduction potential from bio fuels in the UK in the short to medium term is around 1 million tonnes of carbon dioxide per year in 2010, which will be delivered when the Renewable Transport Fuel Obligation is fully phased in across the UK (the RTFO will likely be set at 5% by 2010: the carbon saving depends on how the biofuel is produced)
Fuel Cells	3-31	Rocky Mountain Institute Quest for Solutions (RMIQ) Public Lecture Given Institute, Aspen, Colorado, Hydrogen: The Future of Energy:Hydrogen-fueled super efficient vehicles will be safer and cleaner, cost less to drive, cost about the same to buy, and offer the potential to repay most or all of their cost from power sell-backs
	3-32	Cleaner Energy, Greener Profits - This research paper explores the cost-effectiveness of fuel cells as an electrical generation source to provide domestic, commercial and industrial power. Cleaner Energy, Greener Profits finds that, over the next decade, the once-centralized electric power industry will evolve toward a more competitive and heterogeneous structure. In this new environment, the use of fuel cells will become economical if their proponents can capture their benefits as small, decentralized power sources. Fuel cells and other distributed generation sources require less power distribution infrastructure (wires and transformers) because they can be sited close to where power is used. They are cleaner and quieter than conventional power generation sources, so they can be located near or inside buildings where their output is used. Because fuel cells are modular and flexible in size, they don't result in overbuilding of capacity as do large power plants. Also, they can provide power with better reliability than conventional systems

	3-33	Twenty Hydrogen Myths: This documented white paper demystifies hydrogen energy, debunks popular misconceptions, and proposes a surprisingly easy, attractive, and profitable path to the hydrogen economy hydrogen has elicited a great deal of conflicting, confusing, and often ill-informed commentary. This peer-reviewed white paper offers both lay and technical readers, particularly in the United States, a documented primer on basic hydrogen facts, weighs competing opinions, and corrects twenty widespread misconceptions. It explains why the rapidly growing engagement of business, civil society, and government in devising and achieving a transition to a hydrogen economy is warranted and, if properly done, could yield important nation and global benefits.
	3-34	THE NEGAWATT REVOLUTION - Using existing technology we can save three fourths of all electricity used today. The best energy policy for the nation, for business, and for the environment is one that focuses on using electricity efficiently – for it's the only policy that makes economic sense. This article appeared in The Conference Board Magazine
	3-35	Hydrogen and Fuel Cell Opportunities for Scotland: The Hydrogen Energy Group Report - This paper looks at how to create a political, fiscal, business, educational and social environment within which hydrogen and fuel cell technologies can be developed to greatly enhance a robust and sustainable renewable energy economy in Scotland.
	3-36	Forum for Renewable Energy Development in Scotland: Scotland's Renewable Energy Potential: Realising the 2020 Target - Future Generation Group Report - Hydrogen fuel cell technology, although at the early stages of development, offers Scotland many opportunities, most notably, perhaps, in the ability to capture and store energy from renewable resources. There is limited development of still further renewable technologies in Scotland, mainly at the micro end of the spectrum. The Executive's Scottish Community and Householder Renewables Initiative ( SCHRI) funds the installation of renewable technologies in homes, schools, hospitals and other public buildings. The SCHRI has supported the development of several technologies, from micro wind and biomass CHP systems through to solar water and space heating, micro hydro, geothermal, air and water source heat pump solutions. The scheme was recently extended for a further three years, and is currently undergoing a review to ensure that it remains properly funded and appropriately targeted.
Electric Cars	300-1	Transport-electric cars should be 'cool and sexy' to catch on

Electric car launched in UK	3000-24	“Britain's first four-seater electric car has been launched. The Citroen C1 Ev'ie has a top speed of 60mph and has a travel range of between 60 and 75 miles in normal driving conditions. It can operate for six hours after charging using a 13 amp socket overnight and includes features like central locking, electric front windows and integrated front seat head restraints.”
Cooking waste powered public bus in Bristol	3000-24	“A bus that runs on fuel made from waste cooking oil has been launched in Bristol. The Chipper has been developed by the First Group. Its name comes from the fact that the oil used to power it has been collected from local chip shops and restaurants. As well as being a near carbon-neutral fuel source, biodiesel made from waste cooking oil can produce less carbon monoxide when it is burnt, so it is considered better for the environment than conventional diesel”
Hydrogen Technology	3000-25	“Hydrogen is often sited as the fuel of the future. There are two ways to use hydrogen as a transport fuel: one uses hydrogen in an internal combustion engine in a system similar to current petrol or diesel vehicles; the other uses hydrogen stored in fuel cells to generate electricity which then runs the vehicle. Both of these options are still at R&D stage with some early prototypes. The CO2 emissions from hydrogen depend on the method used to produce it, they are higher for production through reformation from natural gas and lower when produced through the electrolysis of water particularly if the electricity used is generated from renewable sources.”
Hybrid Technology	3000-25	“Although reducing use of petrol and diesel, hybrid vehicles still depend on oil and their emissions are higher than the most efficient ICEs. However, they are an important step in the progress towards a low carbon transport mix and can help smooth any transition away from fossil fuel road transport.”
Plug-in Hybrid Technology	3000-25	“Plug-in hybrids have the benefit of electric vehicles and internal combustion engines. They are low carbon vehicles with the flexibility to allow consumers to continue their standard driving patterns whilst reducing emissions. “
Electric Vehicle Technology	3000-25	“Electric vehicles have the advantage of zero point of use and low lifecycle emissions (77g/km); and decarbonising the grid will contribute to reducing this figure. But current models are limited by range and speed. Ongoing developments in battery technology are providing opportunities to extend range and speed and draw electric vehicle use beyond cities to commuters and fleets. However, to achieve significant penetration of the UK car pool, substantial investment would have to be made in electric vehicle charging infrastructure. As such, in the medium term, electric vehicles are best suited to city and commuter use with sales increasing in this market.”

Hybrid Vehicle Timescale	3000-25	“As identified, <b>most of the top manufacturers are working on hybrid vehicles and preparing to begin mass producing these during the 2010s.</b> This fits in with the timescales suggested in the King Review with and given in the relevant section above. Also inline with the timescales suggested there, most of the manufacturers are working on longer term alternatives such as hydrogen vehicles but these are still at a relatively early stage of development.”
Shift to Electric Vehicles	3000-25	<b>“What seems clear is that car manufacturers are starting to recognise electric propulsion as becoming a core business either in electric or plug-in hybrid electric vehicles.</b> This demonstrates the seriousness of the current context and the dramatic impact it could have on the automotive industry; potentially transforming the way cars are made, who profits from them and the way they are sold and driven.”
Electric Vehicle Timescale	3000-25	“Electric vehicle technology improves, policies are put in place which incentivise electric vehicle uptake and the high price of oil and subsequent high prices for petrol mean that consumers shift on mass to the new technology. A rapid increase model which sees electric vehicles out number standard internal combustion engines by 2023. This would be a paradigm shift.”
Issues associated with Electric Vehicles	3000-25	“Charging issues are the most prevalent concern associated with electric vehicles. Pay-for-charge stations are proposed in cities, but with the price of electricity fluctuating within a single day, it is difficult to know how to charge users. Additionally, at home users may have the option to charge vehicles using at home solar energy. The other option is to make batteries easily removable and provide replacement modular batteries that can be swapped either manually or automatically at points throughout a city.”
Need to Reduce Individual CO2 Contribution	3-37	‘The average person in the UK is responsible for 9.6 tonnes of CO2 a year. To meet the target of a 20 per cent cut by 2010, this will need to come down to 7.9 tonnes, and to meet the 60 per cent reduction target, this will need to come down to 3.5 tonnes by 2050’
Increase in Traffic	3-38	‘Traffic levels [in Scotland] are forecast to increase by a further 27% by 2021.’
Alternative Public Transport	3000-1	Availability of public bicycle and car rental in large cities where people can pick a up anywhere around the city and drop it anywhere else.
Bicycle Alt. Transport	3000-2	Started in Lyon, the Paris version called Veilb has proved a huge success. The key seems to be subsidising these bicycles so that they are virtually free, in addition to creating bicycle stations every couple of blocks.

	3000-19	A non-profit group in Portland, Oregon in the USA aids low-income children and commuters in getting bicycles and teaches them to repair their own bikes. This programme allows those who could not ordinarily afford a bicycle to travel to work to use this sustainable mode of travel.
Congestion Charges	3000-3	London was the first city in the UK to institute this charge for driving a vehicle into the city centre of London in 2003, today the charge is 8GBP
	3000-4	Manchester considered implementing a similar charge, but the motion was defeated by voters.
	3000-5	A similar charge in Edinburgh was also rejected by voters
Car Sharing Schemes	3000-6	Following the success of the Bicycle sharing scheme in Paris, the government recently released a statement saying they would work towards a similar car sharing scheme using sustainable electric cars. Critics argue the capacity of electric car companies is not enough to accommodate an order of 4000 cars by the French government.
	3000-8	Car sharing schemes are most cost-effective for those that drive less than 5000 miles per year. Yet concerns are raised about the accessibility for the disabled.
	3000-14	Many websites already exist to connect people travelling the same routes to allow for car-pooling, however, these do not seem to be well known and are relatively difficult to find.
	3000-15	Car sharing is especially convenient and cost effective for those that do not need a car everyday and drive less than 7500 miles each year. A Quebec based car sharing scheme actually cannot advertise because of the large numbers of people interested in car sharing without any marketing or advertising efforts.
High Speed Rail	3000-9	High speed rail has a few downfalls; the trains require new track to be laid specifically for high speed trains, this track is very expensive (a British government estimate for one line from London to Scotland was estimated at \$55 billion), and the track cannot be laid quickly, this project would take 20 years to complete.
	3000-11	At the completion of the rail network in 2020, "90% of the Spanish population will be within 50kms from a bullet train station"
High Speed Rail and Sustainability	3000-7	In a quantitative study done in Sweden, high speed rail was found to not cut carbon emissions in the long term. "The motivations behind these investments can be for a number of positive reasons, but reduced carbon emissions should not be one of them,"
	3000-9	A similar study conducted by the British government showed similar results that high speed rail would actually emit more carbon than an air route.
	3000-10	Another report shows that a London-Manchester high speed rail system would not produce a net carbon savings when compared with air travel, but a London-Edinburgh/Glasgow network would save on carbon emissions.

New Technology Powers Mass Transit	3000-12	Steps are being taken in Delhi to power subway stations through solar energy. The stations are now powered at night by stored energy from solar panels installed at the transport headquarters.
	3000-13	“The railway's system cuts back on energy use by about 30 percent by powering trains with energy harnessed while braking. As trains' brakes are applied, the force drives three traction-phased motors to produce electricity, which is then sent to the electricity lines to reduce the overall energy requirement.”
Balancing Transport, accessibility and sustainability	3000-16	The Horizontal Programme on Sustainable Development promotes coordinated analyses on economic, environmental and social issues and long-term perspectives in the OECD work programme.
	3000-17	Home Zones could provide a better balance between cyclists, pedestrians, and vehicle traffic while providing more options for residents within their neighborhoods. It is an initiative aimed at petitioning government.
City Planning to reduce traffic	3000-18	This online version of the book: ‘Carfree Cities’ proposes a completely new way of thinking about traffic and transportation. They propose a change in the way cities are designed in order to make public transport more accessible and efficient.
	3000-20	Many components are necessary to achieve a walkable community including; creating centres of business within walking distance (.5 miles at most) of residential neighborhoods, and providing all the services for this community within that area. Also, all communities should provide housing options for all income levels to enable those who work in service related businesses supporting the community can live in the community and walk to work. Lastly, the streets should be pedestrian friendly with pavements on all streets where it is necessary, lower speed limits, and more open green spaces such a parks to allow for physical activity.
Bus Rapid Transit	3000-21	Bus Rapid Transit systems were first introduced in Curitiba, Brazil and despite a rapid population boom following the implementation, the traffic in the city decreased 30%.
	3000-22	Bogata, Colombia has also recently adopted the BRT scheme in recent years which has served as a worldwide example of the success of this type of system. It has been compared to an above ground subway; where tickets are purchased at terminals and customers board the bus similar to a subway train. The dedicated bus lanes mean people can travel faster and more cost effectively than by car. Also, this type of transport has a much lower up front cost than laying track for a tram/train/subway system.

## Waste

Subject	Source	Excerpt
	4-1	<i>New vision for waste- Managing waste as a resource is an important part of achieving sustainable economic growth and a greener Scotland. The article discusses how and why 'Zero Waste' must succeed.</i>
	4-2	<i>Household Waste Prevention Action Plan (Scotland)- This is a plan to stop growth in municipal waste by 2010. This is the introductory page to 20 action points that have been selected on what is considered achievable at Scotland's level in terms of reducing waste. These action points can be view by clicking the 'next' button on the upper right-hand corner of the page.</i>
	4-3	<i>Consultation Paper on Potential Legislative Measure to Implement Zero Waste- One can link to the consultation paper on this page. The consultation seeks views on proposed primary legislation to help implement Zero Waste. It discusses what has been done so far to reduce waste, and what it hopes to do in the future.</i>
	4-4	<i>National Waste Management Plan for Scotland Regulations 2007 No. 251- This document covers all areas of the national waste plan for Scotland. Including the modification of past waste plans.</i>
	4-5	<i>Policy for the Long Term Management of Solid Low Level Radioactive Waste in the UK- The document is the statement of the UK Government and devolved administrations policy for the long term management of the UK's solid low level radioactive waste (LLW).</i>
	4-6	<i>Concerns over nuclear waste plans - Environmentalists in Scotland have criticised a key interim recommendation from a government advisory committee on nuclear waste disposal.</i>
	4-7	<i>Burn baby burn - Britain's sitting on a waste time bomb - we must recycle more and bury less... and quickly. But there is a third option, which those models of eco-awareness, the Danes, don't even blink at: burning it. The potential of the proposed Surrey site for an incinerator may offer single communities a smaller option, however the pro's and con's must be weighed before the go ahead.</i>
	4-8	<i>Waste plant may provide power - Currently in the south west of England, there are talks of waste power plants, creating energy from the waste that typically enters the ground in land fill sights. If this plan were to go ahead, the opportunity for other councils to involve themselves in this could be numerous.</i>

	4-9	<p><i>Scotland – towards zero waste - The Scottish government's newly created Zero Waste Think Tank met for the first time on March 26, chaired by Cabinet Secretary for Rural Affairs and the Environment Richard Lochhead.</i></p> <p><i>The group, announced in a parliamentary statement on waste in January, brings together a number of experts to discuss the best ways in which Scotland can move towards a zero waste society.</i></p>
	4-10	<p><i>Climate bill 'could lead world' - A newly published Scottish Bill is being proposed as a world leading bill against climate change, with Scottish Parliament stating that Greenhouse Gases produced by Scotland in 2050 will be only 20% of its current day emissions.</i></p>
	4-11	<p><i>Landfill Communities Fund and Viridor - Forward Scotland administers the application, assessment and distribution of grants on behalf of landfill operator Viridor Waste Management. This scheme offers grants from the Landfill Communities Fund for community projects in the vicinity of its landfill sites i.e.. East Lothian extending to Edinburgh and Scottish Borders and North and South Lanarkshire.</i></p> <p><i>The government collects a levy called the Landfill Tax on every tonne of waste dumped in licensed landfill sites in the UK. The Landfill Communities Fund (formerly the Landfill Tax Credit Scheme) allows landfill operators to use 6.5% of the tax collected to support the maintenance and development of community assets.</i></p>
Priority on Recycling	4-12	"The priority has to be waste prevention, something that this report only touches on."
Financial incentives for Recycling	4000-7	In some U.S. states a bottle deposit is taken at time of purchase, usually \$.05-.10 and is returned to the consumer when they return the bottles to supermarkets. This scheme has had widespread success.
	4000-7	In the U.S. some bottles are actually re-used before being recycled. This strategy began in the early 1970s and continues today, on average a glass bottle can be reused 15-20 times before it is broken down.
	4000-7	In 30 years, the U.S. has binned over one trillion aluminium cans worth about \$21 billion.
Inconsistent Pattern of Achievement Between Councils	4-12	"However, there is a very inconsistent pattern of achievement between various different councils and that certainly needs to be addressed."

Lack of Viable Market for Recycled Materials	4-13	‘The recession has brought this into focus, as the market for recycled materials has shown worrying signs of starting to dry up, meaning there is nowhere to send rubbish after it is put in the recycling bin. There are even rumours of large quantities of UK rubbish sitting in storage – a situation experts insist has not yet arisen in Scotland.’
	4-13	‘Mr Murchison argues that establishing plants in Scotland to process recycled materials could create jobs and boost the economy. However, before that can be done, a constant supply of raw materials will be needed, which means more people need to recycle.’
	4-13	"We need to increase the flow of recycled materials," he says. "We need a constant flow. At the moment, it's more of a trickle."
	4-13	‘Shipping waste overseas to be dealt with has attracted a lot of negative publicity. However, Mr Murchison thinks it is good to have those markets available as Scotland builds up its recycling rates to levels where it can set up manufacturing plants at home.’
	4000-7	Some cities run Precycle programmes which challenge consumers to consider the impact of what they buy before they buy it.
Precycle Programmes		
Recycling	4-14	The National Waste Plan (2003) set about to: <ul style="list-style-type: none"> <li>- provide widespread segregated kerbside waste collections across Scotland (to over 90% of households by 2020);</li> <li>- aim to stop growth in the amount of municipal waste produced by 2010;</li> <li>- achieve 25% recycling and composting of municipal waste by 2006, and 55% by 2020 (35% recycling and 20% composting);</li> <li>- recover energy from 14% of municipal waste;</li> <li>- reduce land filling of municipal waste from around 90% to 30%;</li> <li>- provide widespread waste minimisation advice to businesses; and</li> <li>- develop markets for recycled material to help recycling become viable and reduce costs.</li> </ul>

	4-14	<p>Costs</p> <p>A broad estimate of the current operating costs of collecting, treating and disposing of municipal waste across Scotland is approximately £220 to 240 million a year or about £70 per tonne. Using the same method and based on today's prices, the operating cost of waste management under the BPEO is projected to increase to:</p> <p>→ £340 to 370 million in 2010 (£90 to £100 per tonne);</p> <p>→ £360 to 420 million in 2020 (£85 to £95 per tonne).</p> <p>Over the same period capital expenditure of some £700 million will need to be invested in new infrastructure for municipal waste(1).</p>
	4-15	<p>In Scotland new research shows:</p> <p>34% will recycle more waste in 2009</p> <p>34% will use energy efficient light bulbs</p> <p>33% will walk more</p>
	4-16	<p>Scotland's schools are to become greener under a new Government initiative to promote renewable energy and energy efficiency.</p> <p>Education Secretary Fiona Hyslop has announced a package of measures which will work towards a lower carbon school estate and meet the Government's commitments to have renewable generation in every school as well as contributing to reducing greenhouse gas emissions by 80 per cent by 2050 as will be required under the Scottish Climate Change Bill.</p>
	4-17	<p>This article shows an improvement in Scotland's recycling performance. Further it mentions the launch of a new website; Waste Aware Partner's website - enables people to share campaign materials, ideas and best practice.</p> <p><i>"Clackmannanshire, Moray, Fife and East and South Ayrshire are blazing a trail, having already exceeded 40 per cent of waste being recycled or composted."</i></p> <p><i>"A little further behind are Dundee and Orkney, but both are demonstrating that it is possible to overcome the challenges that city and rural local authorities can face in recycling waste."</i></p>

	4-17	<p>The Scottish Government's key targets in relation to municipal waste are:</p> <ul style="list-style-type: none"> <li>-To stop the growth in municipal waste by 2010</li> <li>-To achieve 40 per cent recycling/composting of municipal waste by 2010; 50 per cent by 2013; 60 per cent by 2020 and 70 per cent by 2025</li> <li>-No more than 25 per cent should be treated by energy from waste by 2025</li> <li>-No more than 5 per cent should be land filled by 2025</li> <li>-A commitment to recycle is one of the Scottish Government's 10 Greener pledges</li> </ul>
	4-18	<p>This source from BBC News states that Scotland's recycling rate has continued to rise. <i>"The annual recycling and composting rate rose to 32.9% while the rate for the second quarter of 2008/09 (July to September) increased to 36.3%. Councils have been given targets to meet of 50% by 2013, 60% by 2020 and 70% by 2025"</i></p> <p><i>"These positive results should encourage us all to continue with our efforts to minimise waste growth and maximise recycling and to continue to meet the ambitious recycling/composting targets set out for Scotland."</i></p>
	4-19	<p>Audit Scotland's Sustainable Waste Management Report has a number of key points:</p> <ol style="list-style-type: none"> <li>1. Scottish councils need to achieve rapid reductions in the amount of biodegradable municipal waste disposed of in landfill to meet the requirements of the Landfill Directive. However, this is made more difficult by the increasing amount of waste being generated by Scottish households.</li> <li>2. Significant progress has been made in meeting interim recycling targets.</li> <li>3. Despite this, there has been slow progress made in developing residual waste treatment facilities.</li> <li>4. The increases in the amount of recycling have led to increased costs. The cost of recycling increases with the recycling rate and the value of the materials collected falls. This eventually limits the economic viability of recycling schemes.</li> <li>4. Councils, the Scottish Government and other agencies need to work more effectively together to make rapid progress in waste minimisation, recycling and waste treatment to achieve the Landfill Directive targets.</li> </ol>
	4-20	<p>The National Waste Strategy Scotland (1999) contains four principles:</p> <ol style="list-style-type: none"> <li>1. The Proximity and Self Sufficiency Principle (close to home/groups deal with own waste)</li> <li>2. The Precautionary Principle</li> <li>3. The Polluter pays Principle (polluters bears full cost of actions)</li> <li>4. Best Practicable Environmental Option (BPEO) and the Waste Hierarchy</li> </ol>

	4-20	<p>Targets in the Strategy</p> <p>The statutory targets tend to be contained within EU Directives, key targets (specifically from the proposed Landfill Directive) include:</p> <p><i>-50 – 65% recovery of specified packaging materials and a 25% recycling of all packaging materials by 2001.</i></p> <p><i>-Reductions in biodegradable municipal waste going to landfill to 75% of 1995 levels by 2006, to 50% by 2009 and to 35% by 2016.</i></p>
	4-20	<p>COSTS ASSOCIATED WITH IMPLEMENTATION OF THE STRATEGY</p> <p>SEPA estimate the costs associated with the changes required to waste management contained within the Strategy to be between £20 and £50 per tonne of waste diverted to landfill. In total, this could mean an additional maximum of up to £40 million per year for the waste management industry. These costs would be in addition to an estimated £400 million in capital costs over 15 years of Strategy implementation.</p>
	4-21	<p>This source claims that packaging in stores is increasing with up to 40% unrecyclable. Despite efforts by supermarkets to cut down on the amount of packaging, there is still a worryingly high amount.</p> <p><i>"At a time when people are trying to tighten their belts, this excessive packaging is leading to greater use of landfill sites and therefore higher council tax bills, the LGA said. Councils currently pay £32 in landfill tax for every tonne of rubbish they throw into landfill, and this will continue to rise."</i></p>
Germany's Green Dot System	4000-7	<p>"Implemented in 1993, this system requires manufacturers, users, and distributors of packaging to take back used packaging from the consumers for recycling. In order to sell in Germany, manufacturers must reduce the amount, weight, and dimensions of packaging."</p>
Development Permits and Building Codes	4000-7	<p>"Permits and codes provide mechanisms to ensure builders and real estate developers incorporate waste reduction into their plans." This could include building houses to accommodate recycling. Also, instead of demolishing old buildings, they are first salvaged and then torn down.</p>
Individual Consumption	4-22	<p>If everyone on the planet consumed as much as an average Scotland resident, an additional 1.8 Earths would be required to sustainably support global resource consumption.</p>
Future of Scottish Market for Recyclate	4-23	<p>'Prices for recyclates continue to be a major concern in Scotland as it has become increasingly evident that market rates are lower than reported in the UK as a whole.'</p>
	4-23	<p>'There are significant reprocessing capacity shortfalls in plastics and organics, with treatment capacity for food waste of primary concern.'</p>

	4-23	'There are concerns surrounding over-capacity (under – utilisation) of reprocessing facilities for wood – where some panel board manufacturers are importing materials; tyres – where only 26% of capacity appears to be utilised and textiles – where additional capacity of around 20% - 30% of existing throughput exists.'
	4-23	'Competition for materials is likely to become a significant issue in the coming years as targets require more recyclates to be recovered from the waste stream.'
	4-23	'For core materials such as paper, metals, glass and tyres the markets are mature, fairly well defined and understood with little room for innovation or new applications.'
	4-23	'For materials such as organics, textiles, wood and plastics however, more work will be required to encourage diversification of material usage as existing markets either reach a saturation point or existing market requirements (such as quality or price) cannot be met within existing recovery operations.'
Waste Reduction	4000-7	"Most waste production originates in the manufacturing and distribution phases of production of consumer products. Therefore, opportunities for source reduction in municipal solid waste begin before products are even manufactured"
Waste Taxes	4000-7	"Isolating the cost of disposal and recycling on tax bills highlights the costs to users and may provide an incentive to reduce. The City of Tulsa, Oklahoma (USA) developed a user-pay system charging waste taxes based on the amount of wastes generated. Waste taxes are charged monthly along with water/sewer taxes. If the waste portion of the bill is not paid, water service is halted. This provides an effective means of enforcement.
Edinburgh Standards for Sustainable Waste Management	4-24	"To encourage improvements in the waste management practices of businesses and other organisations in or involved with the City of Edinburgh. Such improvements shall play a pivotal role in ensuring that by 2015, Edinburgh will lead the most successful and sustainable city region in Northern Europe and sustain the highest quality of life of any UK city."
Edinburgh City's response to Waste Strategy	4-25	They will ensure that Edinburgh plays its full role in achieving the increasingly demanding targets being set in Scotland's Waste Strategy. In particular the National Waste Strategy's target to reduce waste generation growth in Scotland to 0% by 2010.
Central Gov funding for sustainable projects	4-26	Continuing its funding initiative for period 2007/20, the Scottish Government has provided Glasgow with access to £27m specifically to expand recycling to tenemental properties and generally to increase the recycling rate.
Composting	4000-7	Restaurants, grocers, food manufacturers, breweries, and universities are only a sample of businesses that could reduce rubbish volume by composting

	Incineration	4000-1	Rates of incineration are projected to rise from 9% to 25% in the next 15 years, with the incineration process providing 'green energy'. This promise of 'green energy' is misguided according to Friends of the Earth.
		4000-2	An independent study conducted on behalf of Friends of the Earth showed that incineration emits 1/3 more carbon as coal/fossil fuel powered plants. The study also shows that anaerobic digestion is a truly green way to deal with non-recyclable waste.
		4000-3	"Currently, 2.8 million tonnes (9%) of municipal waste and 100,000 tonnes (3%) of hazardous waste is treated in incineration facilities in the UK. In 2002, incineration of waste generated the equivalent of 726,000 tonnes of oil · generating enough power for over ¼ million homes through Combined Heat and Power schemes."
		4000-6	Incineration technology has become more efficient. New incineration units are being developed for use on Navy ships in order to generate some of the needed energy and handle the waste generated onboard. This type of technology is also important because it could be applied to many other sectors, not simply military due to the small design of the incinerator.
	Landfill	4000-4	"Landfill is still the principal means of managing most of the waste, although land-filling of municipal waste has decreased (in England) from 79% in 2000/01 to an estimated 55% at the end of 2007."
		4000-5	"Landfill Gas is one of the largest sources of methane emissions to the atmosphere. If methane is released into the atmosphere it is a potent greenhouse gas. In fact, its global-warming potential is 21 times greater than that of carbon dioxide. It is also a danger underground - potentially migrating off site to nearby buildings and creating an explosive atmosphere. Landfill gas has to be dealt with to prevent both its emission into the atmosphere and its danger to surrounding property. "
		4000-5	New efforts to collect the gases produced by the waste in landfills powers on site generators using the released methane.
	Integrated Vacuum system for waste in District Heating	4000-6	"In the Western Harbor redevelopment in Malmo, a vacuum system was installed to transport solid waste to the generation facility, avoiding the need for garbage trucks. The district heating system also provides cooling in the summer, as it does in Stockholm."

## Economy

Subject	Source	Excerpt
	5-1	<i>The Government Economic Strategy- The Government Economic Strategy supports the delivery of the Purpose, that is, to focus the Government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable growth. The specifics of this strategy can be found on this webpage.</i>
	5-2	<i>Performance at a Glance- a summary of the assessment of the Purpose Targets and National Indicators, which are shown in more detail elsewhere in Scotland Performs. This is a simply layout of how Scotland and the Government are doing, rather than a comprehensive measurement of every activity undertaken to achieve the Purpose and National Outcomes.</i>
	5-3	<i>Scottish Budget Spending Review 2007-The purpose of the Scottish Government is to focus its resources on creating a more successful country with opportunities for Scotland to flourish, through increasing sustainable economic growth. The remainder of the article discusses how this will be done, a more detailed description will be found by reading the eight following chapters by clicking next on the upper right hand corner of the webpage.</i>
	5-4	<i>Grants to community groups - We're pleased to announce a total of over £56,000 was offered to three community projects through the Viridor Credits Scotland grant programme in early December 2008. The grant funds are associated with the landfill operations at Oxwell Mains, Dunbar, and Rigmuir, East Kilbride. In East Lothian Saltoun Community Association received an offer of £5,384 to replace the old toilet windows and also the patio doors in the village hall. Although well used by a range of groups in the village, the hall was starting to suffer with water entering where there was a poor fit. As well as making the hall more comfortable, the running costs should also be reduced meaning that more use can be made of the facility.</i>

	5-5	<i>Scotland a happy place - Forward Scotland presented at the Royal Geographic Society international conference in London on the 27th of August. We continue to challenge economic growth and its measure, GDP as being the best measure of societies progress in the 21st century. We propose a qualitative approach of self reported well-being that takes account of social, economic and environmental experiences to determine society's progress.</i>
Europe's economic challenges	50-1	...Need to understand the interconnected relationship and the multiplicity of the challenges and reforms that we are addressing. The link, for example, between energy and prosperity, also provides a fresh perspective on the debate on renewable energy. A low carbon economy becomes an opportunity, not just an environmental cause. It can be an economic opportunity. We also need to keep a close eye on our competitiveness, of course, in this context and the challenges of Asia and from the Americas. Europe's next generation will face new challenges to Europe's relative influence and importance.
Increasing Inequality	5-6	'Around 60 per cent of workless households are concentrated in just 40 districts of the UK.'
	5-6	'Current policy assumes that differences in enterprise rates are the result of market failure. Interventions are therefore directed at removing the barriers to business formation and increasing the numbers of business start-ups in deprived areas. Yet not every business start-up is beneficial to economic development, and neither is every closure detrimental. Not every type of business activity brings the same value to an area. Areas where there is a range of businesses of different types and sizes may be more resilient to economic change.'
	5-7	'At the beginning of the twenty-first century, inequality has reached levels not seen in the UK for over 40 years. Despite decades of economic regeneration programmes in low-income communities, our place of birth continues to be a major predictor of the jobs we do, our health and life expectancy, and the income we earn.'
	5-7	'Prior to LEGI, the evaluations attached to regeneration programmes tended to focus mainly on quantitative economic outputs, such as the numbers of jobs and enterprises created and people trained. But projects can be successful on these terms without changing underlying inequalities. This report argues that the approach taken to evaluations has relied too heavily on two flawed assumptions – that outputs provide a true measurement of change, and that there is necessarily a direct cause-and-effect relationship between investment and the achievement of policy objectives.'

	Narrow Focus of Efficiency Agenda	5-8	‘Wider benefits to the community, be they social or environmental, are not considered in the current model, which only recognises cost and the achievement of narrowly defined targets.
		5-8	‘In the current market-centred ‘narrow efficiency’ model, resources are understood solely to be public sector finances or ‘the public purse’, people and natural resources are neglected. Hence only the ‘inputs’ that have a financial value are counted. Through this lens, the input/output (efficiency) ratio is most easily enhanced by focusing on price reductions or cost savings.’
		5-8	‘The perverse result is that outcomes – particularly longer term and those of wider public benefit to people and communities – are not taken into account. The impacts of preventative services, for example, which save money to the public purse but do not put cash in the hand of commissioners, are ignored.’
	2008-2009 Current Economic Crisis	5-9	This source demonstrates that the economic crisis is not only a problematic force for sustainable development, but rather an enabling force - an appropriate time for change. <i>"The financial crisis has created an enormous opportunity for change"</i> <i>"The United States Climate Action Partnership last week renewed and strengthened its call for the U.S. Congress to adopt a mandatory national cap and trade system to reduce current U.S. greenhouse gas emissions by 80 percent by 2050."</i>
		5-10	This source highlights the benefits that the economic crisis may have on sustainability. 1. Competitors that talk a good game but don't actually do much will be exposed 2. Most environmental schemes can actually save money 3. You have the opportunity to talk positively to media with long term perspective. 4. Due to government regulations - scaling down is not an option <i>"For instance, car manufacturers cannot afford to stop developing new technologies to drive down their vehicles’ emissions as they have no choice but to work towards meeting the EU emission standard of 130g/km average CO2 emission levels by 2012."</i>

	5-11	<p>One of the Eight Millennium Development Goals was to ensure environmental sustainability. This source alludes to the possibility of these goals being put on the back burner for the purpose of domestic survival.</p> <p><i>"She admits that there is a risk that international aid priorities - and funding - will slip off the political agenda as governments and individuals grapple with their own domestic crises."</i></p>
	5-12	<p>In this source Jan Bebbington gives her perspective on the challenges posed by the economic crises for a sustainable Scotland. She argues that we cannot have an environmental and social resilience as well as a materially growing economy. The two are in conflict.</p> <p>Further, she suggests that the current policies enacted by the UK Government are not promising in terms of sustainable and rather than cutting VAT, they would perhaps be better creating a 'green' new deal that increases resource efficiency and reduces fuel poverty. She argues that the Scottish Government are much more open to such ideas than the UK Government are.</p>
	5-13	<p>This source shows Went Jiaboa advocating the necessity to fight unsustainable lifestyles irrespective of the global financial crisis. <i>"As the global financial crisis spreads and worsens, and the world economy slows down apparently, the international community must not waver in its determination to tackle climate change,"</i> Xinhua news agency quoted him as saying.</p> <p><i>"As the global financial crisis spreads and worsens, and the world economy slows down apparently, the international community must not waver in its determination to tackle climate change,"</i> Xinhua news agency quoted him as saying.</p>

	5-14	<p><i>This article comments upon a study conducted by Taylor Wessing which argues that despite fears that the recession would deal a blow to the sustainability agenda, it may actually have a positive effect on sustainability issues. The head of construction and engineering at Taylor Wessing Helen Garthwaite said: "This report reveals that far from putting the brakes on sustainable building, industry leaders could actually be using the economic downturn as an opportunity to boost their green credentials in preparation for proposed legislative developments in the area."</i></p> <p><i>"More immediately, the realisation is also dawning that decisive action on sustainability may actually stimulate economic activity and job creation, while cost savings can be achieved through less energy consumption and greater waste reduction."</i></p> <p><i>"Its study, which canvassed the view of almost 5,500 professionals in the development sector, found industry leaders had "woken up to sustainability issues" since the credit crunch.</i></p>
	5-15	<p>This source adds further hope that the economic crisis will have a positive effect upon sustainability. It suggests that the demise of the conventional construction industry will give rise to the sustainable building industry.</p> <p><i>"Asked whether the financial crisis has impacted on their organisation in tackling sustainability, 56% of its members said sustainability had become a bigger focus. Only 18% said the credit crunch has had an adverse effect on efforts to address sustainability"</i></p> <p><i>Paul King, the chief executive of UK GBC, says: "I think we've seen an end to 'boom and bust' for sustainability. This time it's going to remain high on the political and corporate agenda because the climate change imperative is now so strong. This is reflected in what the building industries are facing in terms of government policy and regulation – not just in the UK but around the world. Failure to adapt and innovate will lead to obsolete buildings and obsolete companies. Those that grasp the opportunity will prosper, those that don't will fail. UK-GBC members recognise this and want to be among the winners not the losers."</i></p>
'Prosperity without Growth'	500-3	<p>Considerable discussions around the primacy of neo-classical economic models over the new 21<sup>st</sup> century (and post recession) need for a new mantra – 'prosperity without growth'</p>

	The Role Crisis plays	500-1	Crisis can trigger us in a direction e.g., sharp crisis like swine flu or blunt crisis like global warming-without a crisis, we muddle on and take any action too late
		500-3	A crisis can force people and organisations to move out of comfort zones and lead to innovation and accelerated change e.g recent flooding has led to a change in attitude towards building on flood plains
	UN Views on the Economics of Sustainability	50-2	<p>“[In] 2008... UNEP... launch[ed] its <b>Global Green New Deal</b> and <b>Green Economy initiative</b>. These two concepts crystallise the best current thinking on how to translate sustainable development into an actionable agenda ... at the centre of global affairs”</p> <p>“...one wonders why a simple \$10 or \$20 climate change levy on a barrel of oil might not be the way to slice through the current complexity of the UN climate change negotiations and assist in securing a serious deal in Copenhagen in 2009.” “During the last climate negotiations in Poznan, Poland, another myth was challenged. The heads of three major renewable companies ... announced that solar power would be grid-competitive ... in as little as three to five years.” “According to the International Energy Agency, wind power is already more competitive than coal in many locations. And ... for less than the price of a new generation ‘clean-coal’ power station, the United States could commercialise geothermal power,”</p>
	Green Economy-UNEP Annual Report 2008	50-3	<p>“The Mission of the United Nations Environment Programme is ... inspiring, informing and enabling nations and peoples to improve their quality of life without compromising that of future generations.” “Future prosperity and stability means rethinking how we exploit the planet’s natural assets ... a growing number of political and business leaders are advocating innovation and investment in a new ‘green’ economy. By pursuing a green economy based on efficient and equitable resource use we can not only cut down greenhouse gas emissions and protect essential ecosystems, but reinvigorate national economies, improve human wellbeing and achieve many of the targets agreed ... at the turn of the Millennium.” RM004 On 22 October 2008, UNEP and leading economists launched the <b>Green Economy Initiative (GEI)</b> aimed at seizing an historic opportunity to bring about tomorrow's economy today.”</p>

	Bio-based Economy	50-4	<p>Developments here in Europe are more scattered. Some countries, notably France, Germany and the UK, have been forging ahead since the mid-1990s. Others are only just picking up on the idea, and Europe-wide co-operation is lackluster so far. A concerted, all-out effort is needed from all EU member states, for we must face the inevitable depletion of fossil resources - not only fuel, but also a multitude of minerals -, we must end our dependency on hydrocarbons from politically unstable regions, and we must do all that is in our power to curb the threat of global warming.</p>
	Cost of UK Climate Change Bill	5-16	<p><i>In this source, Peter Lilley raises his concerns about the costs of the climate change bill outweighing the benefits, with the Impact Assessment strongly contradicting the Stern Review.</i></p> <p><i>"Neither Parliament nor most of the media bothered to discuss the cost of one of the most immense projects ever adopted in this country. Indeed, Parliament waived it through without even discussing its cost and with only five votes against."</i></p>
	Budgets aimed at Sustainability	5-17	<p><i>In the 2007 Scottish Budget Spending Review Chapter 7 focuses upon a Greener Scotland.</i></p> <p><i>"Forward Scotland looks forward to continuing to work with the Scottish Government under this new budget towards the pursuit of sustainable development as a means of improving the economic, social and environmental wellbeing of Scotland and its people."</i></p> <p><i>The Scottish Government Budget Spending Review states that it will combat climate change, fund prizes to inspire innovation, support progress in marine energy and tidal power, support a reduction in biodegradable municipal waste, improve sustainable procurement, reduce pollution, support new waste management projects, invest in public transport (providing £840.0m/£917.0m/£897.0m on rail and tram services and projects in Scotland, £3 million a year on travel information, £57.2 million a year to support bus services and £11 million a year on direct support for sustainable and active travel), undertake historic building conservation projects and see through a Scottish Marine Bill.</i></p> <p><i>"We are committed to playing our part in the global effort to reduce greenhouse gas emissions. We will work towards an ambitious target: to reduce Scotland's emissions by 80 per cent by 2050 from 1990 levels"</i></p>

		<p>5-18</p> <p>This source details Scotland's collaboration with Ireland and Northern Ireland to pioneer innovative research into marine renewable energy after being awarded £5 million from the European Union.</p> <p>Alex Salmond - Scotland's First Minister said:</p> <p><i>"The £5 million investment is a welcome boost to what is proving to be one of our most resilient and promising sectors in these challenging economic times.</i></p> <p><i>"By identifying the potential for a new industry, this regional project could bring long term economic and social benefits to the cross border area, including the prospect of hundreds of valuable jobs in remote coastal areas and islands.</i></p> <p><i>"The development of mari-fuels could have a lasting impact on remote and rural communities by providing locally produced, relatively cheap, low impact fuel as well as serving the local public transport infrastructure."</i></p>
	<p>Politics/SNP Independence</p>	<p>5-19</p> <p>If Scotland were to become independent, could it really survive economically? From public spending to North Sea revenue, Ashley Seager does the maths. - "Even if all revenue from North Sea oil and gas had come to Scotland, the country would have had a 'persistent deficit'," says Professor Arthur Midwinter, an adviser to the Scottish Executive's finance committee. Many Scots dream of going it alone, believing that an independent Scotland, even without subsidies from elsewhere in Britain, could sustain itself using oil revenues from the North Sea, and thus mimic the economic success of their Celtic neighbours in Ireland. But how realistic is that?</p>
		<p>5-20</p> <p>Is Scottish independence stone dead? As Scotland's economic outlook darkens the SNP should feel much less confident of winning the Glenrothes by-election: This article highlights the problems facing Scotland and Alex Salmond's Bid for independence in 2010, and that the SNP faces a real problem in convincing people to vote for independence. with the Sunday Times Poll placing the figure at around 34% for independence.</p>

	5-21	<i>The Scottish Government: The Scottish Government's relationship with Europe - In my view [Alex Salmond], just as Flanders leads for Belgium at the Fisheries Council, so should Scotland lead for the UK. Regardless of Scotland's constitutional future, and regardless of the future framework of a policy which does the European cause so much damage and which would be better to revert to national control and conservation, it simply cannot be right that Scotland - with 68 per cent of the UK catch and the largest fishing zone of any single EU country - sits in a subsidiary position when these decisions affecting our communities are being made.</i>
	5-22	<i>Opportunities for Scotland in Europe - As the Scottish Government, we are determined to raise Scotland's voice in Europe - determined to develop closer, and direct, links with the European Commission, the European Parliament, the European Council and other key groups in Brussels. At the same time, we are determined to work openly and constructively with our colleagues in Westminster to ensure that Scottish interests are always taken into account in negotiations from the earliest possible stages - whether it be about broader, strategic issues - such as the EU Reform Treaty - or more specific issues such as the European Institute of Technology (EIT) or the European Qualifications Framework (EQF).</i>
	5-23	Building A Bridge: Scottish Executive Report on Communicating Europe to its Citizens: The report draws on Scottish experiences since devolution to feed into the Commission's thinking on how to communicate European issues better. Looking at how the Executive and the Scottish Parliament have engaged people in the political process since 1999, the report suggests a number of ways in which the European institutions and Scottish public institutions can work together in future to allow European policy initiatives to be better communicated and better understood.
	5-24	<i>INDEPENDENCE: IN OR OUT OF EUROPE? AN INDEPENDENT SCOTLAND AND THE EUROPEAN UNION - This paper considers these issues. It first discusses whether Scottish independence would mean the dissolution of the United Kingdom as a matter of constitutional law. It goes on to consider the position under international law (and also to ask what relevance has domestic law in deciding this issue). Following the conclusion that Scottish independence would be a case of secession, not of dissolution, it discusses what consequences that would have for Scottish membership of international organisations, in particular the European Union.</i>

	5-25	<i>Jim Murphy MP - Kosovo could end Scotland's European dream - Scotland's nationalists have always affected breezy insouciance about Europe, asserting that an independent Scotland would automatically remain an EU member state. Not necessarily. Legal analysis by University College London's Constitution Unit suggests that Scotland would not automatically inherit membership. Nationalist lawyers rely on the Vienna Convention, designed to clarify post-colonial states' adherence to treaties that their former masters had signed. But the convention is weak; only 21 countries have signed it, none of them major states, and only five from the EU. Furthermore, the convention does not apply if it would radically alter the Treaty of Rome – which admitting Scotland to the EU must do, not least to give it voting rights in the Council of Ministers and European Parliament.</i>
	5-26	<i>School of Public Policy [UCL] -Independent Scotland's membership in EU cannot be taken for granted. - The report suggests that, in practice, EU entry would not be decided by law but by politics. Entry would have to be negotiated...and agreed by all members states. Some maybe uncomfortable with either Scottish secession and/or continues membership in the EU. For instance, Scotland may be regarded as setting a prejudicial precedent for other separatist movements in EU member states.</i>
LETS	5-27	'As many as 40,000 people belong to LETS, and more are joining all the time.'
	5-28	'Mary Fee, from LetsLink UK, says the popularity of such schemes has surged..."When economies collapse, people will inevitably turn to barter," she explains. "This is what happened when the Soviet Union collapsed, this is what happened in Argentina.'
2008 UK Deficit	5-29	'For the year as a whole, the UK's deficit on goods and services fell to £46.1 billion, compared with a deficit of £46.6 billion in the previous year.'
UK Balance of Trade	5-30	'The United Kingdom is the world's fifth-largest trading nation, highly dependent on foreign trade. It must import almost all its copper, ferrous metals, lead, zinc, rubber, and raw cotton and about one-third of its food. The United Kingdom's major export commodities are manufactured items like telecommunications equipment, automobiles, automatic data processing equipment, medicinal and pharmaceutical products and aircraft. Main export partners are USA, Germany, France and Ireland.'

Community Impact of 2008/09 Recession	5-31	‘With the UK now officially in recession, new consumer research from Mintel Oxygen shows that over 5 million adults have already been 'Hard Hit' by the economic downturn and are seriously struggling to make ends meet. However, even more people say that the slowdown has had little impact so far - more than a quarter are 'Comfortable and Confident'.’
UK Economic Forecast	5-32	‘The IMF’s latest projections for the year, released earlier this month, show global GDP growing just 0.5 per cent, while world trade is expected to contract 2.8 per cent.’
	5-33	‘In 2009, a negative carryover and the contraction in domestic demand through the year will lead to a contraction of around 1%, followed by a gradual recovery in 2010 to annual growth of around ½%. This scenario is subject to downside risks relating to the length and severity of financial market problems, which remain highly uncertain but are crucial in view of the scale of household indebtedness and the typically strong growth contribution of the UK's financial sector.’
	5-33	‘In 2009/10 and 2010/11, the deceleration in corporate profits will weigh down on tax revenue, with no significant improvement in the contribution of the financial sector. Personal income tax receipts are also expected to slow sharply, mirroring lower employment and a deceleration in earnings, while the contraction in real consumption expenditure and low inflation depresses indirect tax revenue. Social transfers are forecast to continue growing at a high rate, in part due to a weak labour market. Interest payments in 2010/11 are expected to increase by a third compared to 2007/08, mirroring a surge in government debt. The general government gross debt ratio is forecast to rise by more than 15 percentage points, to over 60% by 2010/11, driven by the primary deficits and government capital injections to the banking sector.’
	5-33	‘The central outlook envisages a marked fall in private consumption in 2009 and 2010, driven by more restrictive borrowing conditions and lower household wealth.’
	5-33	‘Fixed investment is set to fall sharply in both 2008 and 2009 on account of a restrictive borrowing environment, as well due to a weak demand outlook in both the housing market and business sector. Faced with easing capacity pressures, business investment will fall until end-2009 before recovering, while housing investment will be cut in response to house price falls, low turnover and a weak and uncertain demand outlook.’

	5-33	'public finances are expected to continue deteriorating, with the deficit ratio forecast to reach 6% in 2009/10 and 6½% in 2010/11.'
Changing Nature of Local Economies	5-34	'In Britain, another type of critical infrastructure is under threat from the inexorable rise of monopolistic retailers, whose model of expansion is the US-style suburban dead zone fed by the out-of-town, big-box retail park. Vibrant, diverse and independently owned local economies provide the social and economic glue that holds communities together.'
European Investment in Sustainable Communities	5- 35	I am very happy to be here today to talk about Sustainable Communities. This is a subject that exactly coincides with the European Investment Bank's (EIB's) role. The EIB's role helps to create sustainable communities by lending for investments that contribute to this objective,
Global distribution	500-1	A low carbon economy has to be serious about the cost of the global distribution of goods
Tax on Pollution	500-1	Regulation can drive towards sustainable communities e.g. personal carbon or credit tax, 3 tons to 0.6 tons by 2050; make people pay for the right to pollute!
Making Consumers Aware of the Cost of Energy	500-1	Metering in houses (e.g. kilowatts consumption) will help people get more knowledge of what things cost-good example is Green Street by British Gas
Economic change	500-3	In economic terms, pull / push models were discussed. It was noted that structural impacts and national and international political /economic priorities will be key drivers for change - as will grass root demand for radical change within communities and the need for more social cohesion, resources and the need for cooperative models etc

	Economic measures and well-being	5000-1	<p>“The Commission on the Measurement of Economic Performance and Social Progress” (CMEPSP). The Commission’s aim has been to identify the limits of GDP as an indicator of economic performance and social progress, including the problems with its measurement; to consider what additional information might be required for the production of more relevant indicators of social progress; to assess the feasibility of alternative measurement tools, and to discuss how to present the statistical information in an appropriate way. In effect, statistical indicators are important for designing and assessing policies aiming at advancing the progress of society, as well as for assessing and influencing the functioning of economic markets.</p>
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## Education

Subject	Source	Excerpt
	6-1	<i>Fit For Purpose - The Third National Conference on Social Enterprise and Health Improvement</i> Storytelling Centre, Edinburgh
	6-2	<i>Sustainable Development and Wellbeing - Forward Scotland's initial discussion paper looking at the role that wellbeing plays in sustainable development. This paper explores the relationship between the pursuit of sustainable development and wellbeing. The paper seeks to determine what is understood by wellbeing in relation to sustainable development and concludes with observations as to how the advancement of wellbeing can contribute to the culture that is needed to drive sustainable development in Scotland.</i>
Narrow Aims of Higher Education	6-3	'Over prioritisation of economic interests regarding the role and purpose of higher education is restricting how quality is defined and understood in the higher education sector. By viewing learners simply as future workers, a premium is being placed on the development of specialist and technical knowledge to support growth of the economy and to enhance the competitiveness of individuals within it, to the detriment of the wider knowledge, skills and understanding which higher education could and should provide.'
	6-3	'This paper highlights the urgent need to rethink the purpose of higher education to take account of its transformative potential and to redefine quality in higher education accordingly. It calls for a higher education mandate which serves a dual purpose of enhancing both personal and collective well-being, recognising the learner's role as a member of a family, community and society as well as a future worker.'

Sustainable Education	6-4	<p>The National Framework is outlined on teachernet website. It aims to introduce eight doorways through which schools may choose to initiate or extend their sustainable school activity. The eight doorways are outlined as follows:</p> <ol style="list-style-type: none"> <li>1. <i>Food and Drink - fresh, locally-sourced, ethically-produced, health, environmentally aware.</i></li> <li>2. <i>Energy and Water - Eco-efficiency measures can help schools to reduce their need for energy and water.</i></li> <li>3. <i>Travel and Traffic - Walking and cycling - reduce accidents, help the environment</i></li> <li>4. <i>Purchasing and Waste - sustainable consumption and a philosophy of 'reduce, reuse and recycle'.</i></li> <li>5. <i>Buildings and Grounds - Sustainable design principles, sustainable technologies, sustainable interior furnishings and sustainable environmental management provide a living working example of sustainable living.</i></li> <li>6. <i>Inclusion and Participation - inclusive, welcoming atmosphere that values everyone's participation and contribution.</i></li> <li>7. <i>Local Well Being - community projects = empowerment and confidence in making a difference.</i></li> <li>8. <i>Global Dimension - Focus on global issues such as climate change and global poverty, aid children's awareness of such issues.</i></li> </ol>
	6-5	<p>This source published by LT Scotland summarises the content of the Sustainable Development and Sustainable Development Education legislation, strategies and action plan. The source discusses by defining Sustainable Development and outlining Scotland's SD Strategy - Choosing Our Future - Scotland's Sustainable Development Strategy (2005). This strategy identified the following four areas for immediate attention:</p> <ul style="list-style-type: none"> <li>• <i>Sustainable consumption and production</i></li> <li>• <i>Climate change and energy</i></li> <li>• <i>Natural resource protection and environmental enhancement</i></li> <li>• <i>Sustainable communities</i></li> </ul> <p>Furthermore, a dedicated section entitled 'Learning to make Scotland sustainable' was included. The section set out the key education outcomes of the sustainable development strategy. These key outcomes are:</p> <ul style="list-style-type: none"> <li>• <i>Learning for sustainable development is a core function of the formal education system.</i></li> <li>• <i>There are lifelong opportunities to learn (sustainable development knowledge, skills and attitudes).</i></li> <li>• <i>The sustainable development message is clear and easily understood.</i></li> </ul>

	6-5	<p>Section four of the aforementioned document outlined Sustainable Development Education in Schools.</p> <p>Sustainable development education is also included in the HMIE Pre-inspection Profile for schools. This means that schools are now asked;</p> <ul style="list-style-type: none"> <li>• <i>Does your school have an SDE Policy?</i></li> <li>• <i>Have you carried out an audit of SDE in the curriculum and activities beyond the classroom?</i></li> <li>• <i>Is SDE in the school's Development Plan?</i></li> <li>• <i>Have staff received training in SDE?</i></li> <li>• <i>How are parents and the community involved in SDE?</i></li> <li>• <i>Has your school received any relevant awards?</i></li> </ul>
	6-6	<p>This source from the Scottish Government Publications Webpage outlines the principles to consider and the process to follow, in order to achieve a sustainable school. The document is significantly large and is compiled into four sections. Firstly there is the introduction, followed by the Glencoe Workshop. Thirdly there is a case study section which is followed up by further information. Most importantly the document highlights the reasons why not all schools being built are built in a sustainable fashion. Furthermore, it highlights some key issues to think about when building schools and significantly, it outlines the process of delivering a well designed sustainable building. See source for more information.</p>

	6-7	<p>The eco schools Scotland webpage states:  <i>Interest and involvement in Eco-Schools has increased rapidly over the past few years, largely because involvement in the programme was adopted in late 2001 by the Scottish Executive as a performance measure for one of their national priorities in education, National Priority 4 - Values &amp; Citizenship.</i></p> <p>The Eco-Schools team provides support and advice to schools and local authority staff on how to get involved in the programme. This is achieved through networking meetings and training sessions.</p> <p>There is a valuable eco schools Scotland guide published in October 2008. The guide is broken down into chapters. The first is a welcoming introduction, followed by a chapter entitled 'The Seven Elements' which incorporates information on the eco committee, the environmental review, the action plan, monitoring and evaluation, the curriculum, involvement of the whole school and wider community and the eco code. Following this is the nine topics (litter, waste minimisation, energy, water, health and well being, transport, biodiversity, school grounds and sustaining our world). There is then a section on eco schools and the secondary sector, followed finally by a section entitled eco schools and the journey to excellence.</p>
	6-8	<p>The source discusses the series of measures that the Scottish Government has recently unveiled to make schools more environmentally friendly.</p> <ul style="list-style-type: none"> <li>- <i>A design consultant from the Carbon Trust will be assigned to work with each council to help develop green features in schools</i></li> <li>- <i>Two development officers will work with existing schools to identify public funding, such as the low-carbon buildings programme, and private finance for renewable energy facilities.</i></li> <li>- <i>Sanderson's Wynd Primary School in Tranent near Edinburgh is leading the way in sustainable design with its use of daylight-responsive lighting, a wind turbine and solar photovoltaic panels on the roof.</i></li> </ul>

	6-9	<p>Sust.org is Scotland's dedicated web site to sustainable design in architecture and the built environment.</p> <p><i>"The Sust. initiative was developed by The Lighthouse in collaboration with the Architecture Policy Unit at the (then) Scottish Executive in 2002 in order to raise public awareness of sustainable design and the contribution it can make in delivering a sustainable future, and improve an understanding of sustainable design for those commissioning new buildings. Sust. Phase II was launched in September 2004."</i></p> <p>The website provides advice, tools and techniques, education, guidance, professional training and support and events and activities to promote sustainable architecture in Scotland. The case studies section is particularly valuable. Here a number of examples of sustainable buildings that already exist in Scotland are identified and subsequently discussed.</p> <p>Examples include: Bo'ness, Fairfield Perth, Glenalmond Street Housing, Natural Power, Alexander Graham Bell House, Morgan Academy, The Green Boulevard - Hassalt and Loch Lomond.</p>
	6-10	<p>The source is derived from the Sustainable Development Commission. It discusses a consultation for Sustainable Schools for pupils, communities and the environment. The Government's aim is for all schools to be models of sustainable development for their communities by 2020. As they contribute 15 per cent of public sector carbon emissions and 2 per cent for the whole of the UK<sup>1</sup>, there is an obvious opportunity for schools to become more energy efficient.</p>
	6-11	<p>The Morrison's Let's Grow scheme aims to get children excited about food. It encourages children to follow a healthier lifestyle by learning all they need to grow fruit and vegetables in the school environment.</p> <p><i>Pupils' families, carers and friends will be able to collect Morrison's Let's Grow reward vouchers from their local Morrison's. Let's Grow vouchers are redeemable for free gardening equipment including everything from seeds and spades, to composting bins and planters.</i></p> <p><i>Let's Grow also provides teachers with access to a whole range of free teaching resources, designed by the National Schools Partnership and covering Key Stages 1-4. They include learning about the advantages of eating a healthier diet, environmental themes, and will encourage children to debate and be creative.</i></p>

	CIFAL Findhorn	6-12	<p>This source discusses the role of CIFAL Findhorn as the United Nations Institute for Training and Research affiliated training centre for Northern Europe. It offers a series of regional, national and international training events that focus on sustainable solutions to the many and varied challenges of climate change. Seminars are offered in either Scottish big cities or in Findhorn Ecovillage. On 21st January 2009 the Scottish Government and CIFAL Findhorn hosted a seminar at the Royal Society of Edinburgh . The one day event attracted a wide cross section of participants from Scotland's major educational institutions -a total of 70 delegates including representation from schools, colleges, universities and community learning networks.</p> <ul style="list-style-type: none"> <li>• It was announced that over 35 of Scotland's universities and colleges have signed up to the Universities and Colleges Climate Commitment for Scotland.</li> <li>• Additionally, over 35 of Scotland's universities and colleges have signed up to the Universities and Colleges Climate Commitment for Scotland. In addition to this there is the Eco Schools Programme. With over 3,000 schools and pre-school centres registered with the Eco Schools Programme, Scotland is one of the best performing countries in terms of eco schools.</li> </ul>
	EAUC – The Environmental Association for Universities and Colleges: Education for Sustainability	6-13	<p>The EAUC is committed to encouraging the integration of Education for Sustainability across the further and higher education curriculum in ways which link teaching, estate management, and the wider ecosystems that staff, students and local communities are part of. This website provides a bank of resources for those in education to tap into. Topics within the resource bank include Biodiversity, Communication and Management, Community, Energy and Water, Environmental Management Systems, Construction, Procurement, Transport, and Waste. Furthermore the source contains links to case studies which other educational institutions can learn from. These case studies include a brief summary, they then outline the main problem, the approach, the goals, the obstacles and solutions, the performance and results and finally they details the lessons learnt from that particular project. An example is the EAUC case study for Holistic Sustainability at St Andrews University.</p>

Sustainable Development in Scotland's Colleges	6-14	<p>This source summarises the key aims and objectives of The Scottish Government's 2006 publication - Learning for Our Future: Scotland's First Action Plan for the Decade of Education for Sustainable Development</p> <p>Aim and Objectives</p> <p>By 2014 people in Scotland will have developed the knowledge, understanding, skills and values to live more sustainable lives.</p> <ul style="list-style-type: none"> <li>• Bring initiatives together rather than adding to confusion and overload</li> <li>• Pool experience, skills, ideas and expertise</li> <li>• Develop shared approaches and a common language</li> <li>• Provide support to practitioners throughout the sector</li> <li>• Spot new opportunities</li> <li>• Highlight and celebrate the good work that is already going on</li> <li>• Learn from each other</li> </ul>
	6-15	<p>Practical Education is a website which provides tried and tested ideas for teachers. The source provides information on climate change, a sustainability handbook, and a programme called STEP - The Sustainable Technology Education Project. "STEP aims to increase people's awareness of sustainable technology, enabling them to recognise the economic, environmental and social impacts of their own technology choices."</p>
	6-16	<p>This source provides information on the Sustainable Development Education Network. It is the Scottish network for organisations and individuals involved in sustainable development education. The network has two arms; the Policy Network ,which enables members to keep informed about policy development, and jointly lobby government to ensure that sustainable development education is included in all relevant government policies, and the Action Network, which helps practitioners stay in touch with each other, keep up to date with the latest information and resources and share good practice. The Policy Network meets every six weeks to share information and ideas. The Action Network sends out a monthly e-Bulletin containing all the latest information on SDE news, events, training and resources.</p>

	<p>Learning For Our Future: Scotland's First Action Plan for the UN Decade of Education for Sustainable Development</p>	<p>6-17</p>	<p>This source outlines Scotland's First Action Plan for the UN Decade of Education for Sustainable Development.</p> <p>"The Action Plan explains the actions which the Scottish Executive and our partners are taking to achieve those ends. We want to see a Scotland where:</p> <ul style="list-style-type: none"> <li>• Learning for sustainable development is a core function of the formal education system</li> <li>• There are lifelong opportunities to learn</li> <li>• The sustainable development message is clearly understood"</li> </ul> <p>Schools:</p> <ul style="list-style-type: none"> <li>• Ambitious, Excellent Schools Programme</li> <li>• Eco Schools Programme</li> <li>• Web based directory for outside education</li> <li>• 2006/2007 LTS and SNH will identify sources and materials that can be made available to teaching staff.</li> </ul> <p>Higher Education:</p> <ul style="list-style-type: none"> <li>• Universities – Funding Council</li> </ul> <p>Lifelong Learning:</p> <ul style="list-style-type: none"> <li>• Conference – Involving People in Sustainable Development</li> <li>• WWF – Footprint Approach</li> </ul> <p>Communities:</p> <ul style="list-style-type: none"> <li>• The Executive will provide funding of £100,000 for the next three years to develop, support and evaluate community initiatives in this area.</li> </ul>
	<p>Tide – Schools contributing to a sustainable community</p>	<p>6-18</p>	<p>This source suggests that school have an important role with respect to promoting the future of sustainable communities.</p> <p>"Schools can play a pivotal role within a sustainable community. By educating young people in a way that empowers them to take active roles in their local communities, to be able to make informed choices and to critically evaluate what they see and hear, they gain a sense of responsibility for the sustainability of their communities and the planet. This will be essential for the future. However, by itself this is not enough. Predicted time-scales for the consequences of global warming, over-exploitation of resources, growing tensions and conflicts in the world, all make it essential that other generations change the way they view and interact with each other and the environment. Learning does not stop when people leave school. Schools have a part to play: providing a role model of sustainability; providing a focus and resource for life-long learning for sustainability for the whole community."</p>

Findhorn Foundation - Community News – Inner City Meets EcoVillage	6-19	<p>This source details community news on the Findhorn Foundation website.</p> <p>“In early June the Findhorn Foundation and Community were excited to host 24 boys aged 12 to 15 from Rokeby School, a multicultural, multifaith inner city school in east London. The school was on the verge of being closed down three years ago but students and staff have worked extraordinarily hard to turn it around. A new building is planned for 2009/2010 and the boys were clear that they wanted their new school to be eco-friendly, to have a strong place in the local community and to be based on a new respect policy that they had created.</p> <p>Their week at Findhorn was spent engaged in educational sessions which included learning nonviolent communication techniques and how eco-technologies work, visiting a local school, sharing with each other in circle time, eating and socialising with the community and working in the Foundation’s maintenance and garden teams.”</p>
Education Qualifications	60-1	<p>For young people today, obtaining educational qualifications is a necessary stepping stone for social mobility....but the realisation that this is not one in which they are likely to succeed hits many young teenagers at secondary school—a fifth of whom across Europe leave school with no or very low qualifications. KJ009</p>
Change in Skill Set Needs	600-3	<p>Education, multi-skilling and up-skilling is key to effecting change.</p>
Educating the Public about Sustainability	600-3	<p>An ageing population must be prepared to stretch itself to meet developing societal demands. Education will play a vital role in an ageing society.</p>
WISE: Wales Institute for Sustainable Education	6000-1	<p>“Objective: demonstrating that environmentally sound buildings and business practices are possible &amp; comfortable</p> <ul style="list-style-type: none"> <li>• Low embodied-energy construction materials such as earth and hemp</li> <li>• Bio-composite, natural fibre technologies using hemp and lime</li> <li>• Energy efficient glazing for maximum natural day lighting and passive heat gain</li> <li>• Minimal energy requirements</li> <li>• Solar water heating integrated into a district heating system</li> <li>• Semi-transparent PV technologies used to provide both energy and shading</li> <li>• Biomass combined heat and power linked to the district heating system and grid</li> <li>• Biological, zero energy input sewage treatment systems</li> <li>• Green transport systems using sustainable fuel sources</li> </ul> <p>WISE will provide comprehensive research and laboratory facilities and a focused research environment, as well as access to CAT's reed bed system, sand filters and composting programme and will offer Msc's and short ed. courses”</p>

Employment		
Subject	Source	Excerpt
Sustainable Development and Employment	7-1	This source touches on the potential that sustainable development has with regard to the creation of employment: <i>"While genuine trade-offs do exist, employment creation and environmental sustainability are not necessarily mutually exclusive objectives, and can often be made compatible. In industrialised countries, businesses are increasingly coming under pressure from consumers to improve the environmental characteristics of their products and processes. Thus, insofar as foreign firms tend to employ cleaner technologies in their production processes, FDI may have positive implications for the environment. For developing countries, new profitable and employment generating activities in environmentally sustainable sectors may be less common. Nonetheless, research and development in ecological technologies, ecotourism, natural resource management, organic agriculture, environmental public work schemes as well as infrastructure creation and maintenance do provide opportunities for decent work that protect and restore the environment."</i>
	7-2	<b>SUSTAINABLE WASTE MANAGEMENT AND JOB CREATION</b> This source discusses the job creation possibilities that waste management has. It suggests 'joined up thinking' to analyse the data available so that job creation possibilities can be quantified. Furthermore, it argues that we ought to take our inspiration from America: <i>"The US Environmental Protection Agency has a Jobs Through Recycling (JTR) programme which aims to stimulate economic growth and recycling market development by providing assistance to businesses and entrepreneurs processing recycled materials or manufacturing recycled-content products."</i>
Expansion of Green Collar Job Sector	7-3	'Plans to create up to 16,000 environmentally-friendly "green collar" jobs over the next ten years have been unveiled by the Scottish Government.'
	7-3	'The jobs would be created in fields such as energy generation, energy efficiency and transport, Scotland's secretary for finance and sustainable growth John Swinney said.'

Well-being and Employment	7-4	In the Work & Income section of this report, the source finds a strong relationship between an individual's well-being and his status of employment. Unemployment had a negative impact on mental health, while employment was more positive, except in cases of stress or long hours. Economic well-being was also supplemented, however, by the well-being associated with the number of hours available for leisure. Other qualitative indicators of well-being related to job security and financial security.
Social Capital	7-5	'We can no longer assume that a growing market economy is likely or desirable. But we can grow the core economy – the abundant wealth of human and social resources that are largely neglected by today's welfare system. These resources are embedded in the everyday lives of every individual – time, wisdom, experience, energy, knowledge, skills – and in the relationships between them – love, empathy, watchfulness, care, reciprocity, teaching and learning. They make the world go round. They are mainly unpriced and unvalued. In large part, they have been deployed by women – not because they belong naturally to women, but as a result of long-standing gendered divisions between paid and unpaid labour. To grow the core economy, employment policies, income support, childcare, and family support must be re-designed to nurture these resources by valuing them and supporting their development.'
	700-1	Quality of our natural heritage is high, income distribution is variable, lower differential or higher happiness?
Effect of Recession on Employment	7-5	'Nearly 2 million people lost their jobs in 2008, the largest fall in employment since 1992.'
Effect of Commuting to Work	7-6	'Reducing work commute stress is a potential direct benefit to employers. Employees who have had a long, stressful commute are likely more tense and less able to concentrate on work. Their home-life can deteriorate due to such stresses, with unfortunate impacts on their work. Long stressful commutes through harmful air pollution can leave an employee groggy and require a period of rest before much useful work is possible. Air pollution can harm employees' health, increasing worktime losses and medical costs to employees and employers.'

Long Distance Commuting in Scotland	7-7	<p>This report considered the effect of hypothetically removing all traffic from Scotland's roads during the peak commuting hours in the morning. The effect was as follows:</p> <ul style="list-style-type: none"> <li>• 34% decrease in Carbon Monoxide emissions</li> <li>• 27% decrease in Hydro-carbons (HC) emissions</li> <li>• 13% decrease in NOX emissions</li> <li>• 10% decrease in PM10s</li> <li>• 21% decrease in CO2 emissions</li> </ul> <p>The report found that economic factors associated with long-distance commuters were as follow:</p> <ul style="list-style-type: none"> <li>• people are making long-term location choices to be able to access a wide range of jobs and services</li> <li>• jobs are less secure and people are less willing to move simply to reduce the cost and convenience of getting to any one job</li> <li>• jobs have become increasingly specialised making them harder to fill with local people</li> <li>• families do not necessarily relocate to the workplace of the main worker</li> <li>• high property prices in Scottish cities often prevent people living closer to their work.</li> </ul> <p>'Cultural trends indicate that many people have become accustomed to looking for work further from home and focus group findings suggest that long distance commuters maybe resigned to their situation and see a long commute as a 'fact of life'.'</p>
	700-1	Dormitory towns..'commuting can kill communities'
Working from Home	700-2	Where are the developments that enable people to work from home
		Home working has to over come the 'presence is productivity belief' among many managers
		Could we build community business centres for home working?
		Home working needs to recognise the importance of the need to socialise-social networking sites could help here
	700-3	Localisation of opportunities e.g. reduced need to travel to work, homeworking, access to retail and leisure etc

Well-being and Employment	7-8	In the <i>Work &amp; Income</i> section of this report, the source finds a strong relationship between an individual's well-being and his status of employment. Unemployment had a negative impact on mental health, while employment was more positive, except in cases of stress or long hours. Economic well-being was also supplemented, however, by the well-being associated with the number of hours available for leisure. Other qualitative indicators of well-being related to job security and financial security.
Human Capital	7-9	'We can no longer assume that a growing market economy is likely or desirable. But we can grow the core economy – the abundant wealth of human and social resources that are largely neglected by today's welfare system. These resources are embedded in the everyday lives of every individual – time, wisdom, experience, energy, knowledge, skills – and in the relationships between them – love, empathy, watchfulness, care, reciprocity, teaching and learning. They make the world go round. They are mainly unpriced and unvalued. In large part, they have been deployed by women – not because they belong naturally to women, but as a result of long-standing gendered divisions between paid and unpaid labour. To grow the core economy, employment policies, income support, childcare, and family support must be re-designed to nurture these resources by valuing them and supporting their development.'
	7-10	'But it is, of course, the benign 'flows' from our net stock of human capital that the focus should be on in any model of sustainable capitalism: good health that liberates people to fulfil their own and other people's aspirations; parenting skills; providing caring, nurturing, emotional support; creativity, works of art, novels and poetry, productive work of every kind; spiritual practice, compassion, humanitarian devotion; new ideas, design, innovations; the capacity for empathy.'
	7-10	'Although many individual business people will feel distinctly ill at ease about such a 'touchy-feely' way of looking at the role of business in the world today, it is important to bear in mind that the current, somewhat brutal and reductionist view of what makes for business success may not reign supreme for ever.'
	700-3	From a 'sustainability' stance it is the social and human capital within communities, and how people interact, that is the most important factor to consider.
Impact of Recession on Employment	7-9	'Nearly 2 million people lost their jobs in 2008, the largest fall in employment since 1992.'
	7-11	"It is now a dead cert that unemployment will rise above 3 million before the current crisis is over."
	7-11	'Meanwhile the Forum of Private Business (FPB) earlier this week highlighted that 61% of its members found employment law a significant barrier to growth.'

	7-12	‘The recession is creating a "lost generation" of young people who may never escape the trap of long-term unemployment, UK local authority leaders believe.’
	7-12	‘The Local Government Association (LGA) made the announcement following an investigation which found 38,000 people aged 18 to 24 were made redundant between October and December - about a quarter of the total for the entire UK.’
	7-12	‘A further quarter of redundancies affected men over 50 who would struggle to find employment in a recession.’
Scottish Employment Figures	7-13	‘Today's labour market statistics show unemployment in Scotland rose by 8,000 over the last year - compared to an increase of 369,000 for the UK as a whole over the same period.’
	7-13	"While today's statistics show no-one can doubt the seriousness of the current economic situation, we are maintaining in Scotland a higher employment rate, lower unemployment rate and higher economic activity rate than the UK average."
	7-13	"The budget passed by Parliament just last week supports our economic recovery programme, including a massive infrastructure investment programme and £230 million of accelerated capital spending in the next financial year, supporting nearly 5,000 jobs."
	7-13	‘The Scottish Government has front-loaded the 2007-13 European Structural Funds programmes to provide a direct stimulus to the Scottish economy, including skills training. Almost £100 million has been allocated to projects under the European Social Funds programme, with a further £100 million from the European Regional Development Fund. £51 million has been allocated to Community Planning Partnership employability and regeneration projects over the next two years. These projects will support economic development, increase turnover and create new jobs - particularly important in the current economic climate.’
Effect of Commuting to Work	7-14	‘Reducing work commute stress is a potential direct benefit to employers. Employees who have had a long, stressful commute are likely more tense and less able to concentrate on work. Their home-life can deteriorate due to such stresses, with unfortunate impacts on their work. Long stressful commutes through harmful air pollution can leave an employee groggy and require a period of rest before much useful work is possible. Air pollution can harm employees’ health, increasing worktime losses and medical costs to employees and employers.’

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	7-15	The report found that economic factors associated with long-distance commuters were as follow: <ul style="list-style-type: none"> <li>• people are making long-term location choices to be able to access a wide range of jobs and services</li> <li>• jobs are less secure and people are less willing to move simply to reduce the cost and convenience of getting to any one job</li> <li>• jobs have become increasingly specialised making them harder to fill with local people</li> <li>• families do not necessarily relocate to the workplace of the main worker</li> <li>• high property prices in Scottish cities often prevent people living closer to their work.</li> </ul>
	7-15	'Cultural trends indicate that many people have become accustomed to looking for work further from home and focus group findings suggest that long distance commuters maybe resigned to their situation and see a long commute as a 'fact of life'.'
	7000-10	In Atlanta USA the average commute time is 2 hours by car each day. This is not a sustainable way of life for the planet nor is it sustainable in terms of well-being.
Impact of Employers on Communities	700-1	Loop system operates for sustainability e.g., investment or technological (broad band) influence occurs (e.g., Dunstaffnage) bringing incoming educated workers, brings local projects, families with children, populates local primary school, so crofting might die but replaced by sailing, tourism, mussel farming so communities can change and look quite different from those of the past. Most societies are the same over generation so important to see what can trigger this type of change e.g., Diageo's current plans for axing the bottling plant in Kilmarnock could change that community forever
	700-1	Technology, inward investment and in migration means that change happens in communities-educated people make things happen in communities..doctors, academics
Working from Home	7000-1	Most managers find that productivity increases with a flexible working schedule including the ability for employees to work from home
Misconceptions about working from home	7000-2	Companies are concerned that productivity will drop, employees with shirk responsibilities, more needs to be done to inform businesses of the benefits of homeworkigg for both employees and businesses

	7000-2	Workers and businesses need to work closely together to best accommodate both parties, workers need to understand they will not always get to work from home and may have to compromise by attending meetings etc.
	7000-7	Many people think that working from home means you work from your home in its current state. In fact, having a dedicated workspace, filing system, and phone/fax line are crucial, companies need to supply home-workers with these tools.
Company benefits of working from home schemes	7000-2	average productivity of an individual working from home is 20%
	7000-2	"Since 2000 we have taken £500m off our real estate costs. Our return rate after maternity leave is 99% compared to the UK average of 40%, which saves us between £4m and £5m in recruitment costs. Overall, our staff turnover is 3% in an industry where 17-18% is the norm." People also travel less. "In one year alone we used 12m litres less fuel, saving £10m and 54,000 tonnes of CO2."
Drawbacks to working from home	7000-3	Drawbacks include: being isolated, the inability to differentiate workplace injuries from home ones, expectations of 24/7 availability, and working in an ergonomically unfavourable setting.
	7000-4	Poor ventilation, risk of fire from overloaded electrical systems not designed as an office.
	7000-4	Employees who work from home are often afraid to ask for necessary equipment for their jobs for fear of losing their work from home privileges.
Technological Advancements aid working at home	7000-5	Increasing bandwidth speeds, secure sites with increased encryption
	7000-6	'real-time' technologies offer the flexibility to hold virtual meetings where people can contribute even if they are not in the same location. File sharing and teamworking websites also aid home-working

		7000-8	<p>Increasing use and availability of broadband and high speed internet, videoconferencing etc will increase the potential for homeworking, rural sustainability, new leisure services and telecare.</p> <p>Consumer perceived future use of broadband</p> <p>Downloading DVD quality film/TV on demand- 61%</p> <p>Video calling to friends/family over the internet - 46%</p> <p>CCTV home surveillance via broadband - 42%</p> <p>High definition gaming services - 19%</p> <p>Telecare implications/independent living for older people</p> <p>By the year 2010, the Department of Health aims to have telecare devices in all UK homes that need them.</p> <p>They will range from personal health monitors for the chronically sick, to devices that alert social services to an elderly person in difficulty.</p> <p>Scottish Govt Home alarms scheme- The alarms, which could include reminders to take medicine, are wired up to an emergency call centre.</p> <p>Homeworkers may boost the economy</p>
	Cycle to work government initiatives	7000-9	<p>The UK government is already encouraging people to cycle to work by offering tax-free bike rebates which allow people to get a tax-free bicycle/helmet/accessories.</p>

## Communities & Additional Information

Subject	Source	Excerpt
	8-1	<i>£40 million care funding gap-A £40m funding gap must be addressed if free personal care for the elderly in Scotland is to be sustained in the future. The study of flagship policy by Lord Sutherland also called for the reinstatement of £30 million a year in attendance allowance by Westminster.</i>
	8-2	<i>EU Ministers strike a deal for sustainable communities (2005)- Sustainable communities are described as well as how the goal of creating sustainable communities was developed and how they plan to inform future European regional policy to deliver places where people want to live and work, now and in the future.</i>
	8-3	<i>The London Summit: What is the Summit for? The London Summit brings together leaders of the world's advanced and emerging economies, including the G20, and representatives of international financial institutions to work cooperatively to restore stability and stimulate global economic growth. This website contains information on 'coordinated actions to revive the global economy', 'reforming and improving financial sectors and systems', and 'principles for reform of international financial institutions (IFIs)'.</i>
	8-4	<i>Sustainable Communities Summit 2008- The 2nd annual Sustainable Communities Conference and Exhibition, brings people and organizations that are actively involved in building Sustainable Communities together. It advocates a holistic approach to community and development, taking economic, social and cultural trends into consideration. This conference will address the impact of the latest Government legislation and strategies initiated to support the development process.</i>
	8-5	<i>2009 set to be a green year- People across Scotland are getting ready to make the new year a greener one by resolving to do their bit to help the planet. Recycling, walking and being more energy efficient top the list of Scots' greener resolutions.</i>
	8-6	<i>Scotland's Global Footprint; measuring the environmental impact of our lives- Footprinting is a mechanism to measure the global impact of ones everyday choices. It has shown that if everyone lived as people in Scotland, three planets would be needed to survive. Thus, the article outlines the steps necessary to live with in the environments limits.</i>

		8-7	<i>Climate Challenge Fund Awards, Round 3- The award of a total of £4,376,541 to 24 projects in the third round of grants from the Scottish Government's Climate Challenge Fund was announced to help Scotland play a leading role in the international fight against climate change.</i>
		8-8	<i>Class 22- Sustainable Development- Greener Scotland is one of the Strategic Objectives of the Scottish Government- to improve Scotland's natural and built environment and the sustainable use and enjoyment of it. This section covers sustainable development in Scotland, including how policy is delivered through the Greener Scotland Strategic Objective.</i>
		8-9	<i>Men are from Mars women care about Earth - The failure to successfully address gender inequality may well lie at the heart of our failure to progress towards sustainable development. Women are consistently reported as being more concerned about the environment and social equity than men but are not found in any great number in the key decision making roles.</i>  <i>Our report, Making the Connections: Gender and Sustainable Development looks at gender issues and introduces a proposition that if more women were in positions of decision making their different attitudes to sustainable development would have led to radically different conditions today.</i> <i>One of the key principles behind sustainable development is that of social equity.</i>
	How to promote change in the population	8000-16	In order to promote change it is important for a leader to emerge in a community who is passionate about the issue and willing to fight for change. This leader could be a government official, but oftentimes it is a community member who sees a need for change.
	Ideology into Policy	8-10	<i>Artek's approach to sustainability: Attitude, Actions and Applications - Sustainable development arises from adherence to a sound ethical approach in all activities, and it is conducive to good aesthetics in design. Sustainable design is a multisensory experience that engenders a sense of well-being, safety and a promise of beauty.</i>

	Politics	8-11	<i>Sustainable Development Commission: change of status - The Sustainable Development Commission (SDC) is the Government's independent adviser and 'watchdog' on sustainable development, reporting to the Prime Minister, the First Ministers for Scotland and Wales and the First Minister and deputy First Minister for Northern Ireland. In the 2005 UK sustainable development strategy, Securing the Future, the Government committed to reviewing the status of the SDC to assess whether it might be better equipped to fulfil its 'watchdog' role as an executive rather than advisory body. The outcome of this review was that it would, so from February 1st 2009 the SDC will be established an executive NDPB, in the form of a company limited by guarantee. This change has been made with the agreement of Ministers in the Devolved Administrations.</i>
		8-12	<i>Climate Change Bill - The Government's blueprint for tackling climate change has been published. The draft Climate Change Bill, the first of its kind in any country, and accompanying strategy, set out a framework for moving the UK to a low-carbon economy. It demonstrates the UK's leadership as progress continues towards establishing a post-Kyoto global emissions agreement</i>
		8-14	<i>Community Grants Worth £500,000 Awarded - Following an overwhelming response to the Community Environmental Renewal Scheme (CERS), Forward Scotland is delighted to announce that Ministers have now revealed the names of the successful applicants in the second round of the 2007-2008 scheme. The grant scheme, managed by Forward Scotland on behalf of the Scottish Government, will invest £500,000 in 16 local communities (affected by quarrying) to help improve and sustain their environments.</i>
		8-15	<i>Communities and their assets - During 2007/08 we began to investigate some of the issues that can enable or hinder communities to have a greater degree of ownership of assets in local areas. For many buildings and land offer a tangible opportunity to contribute in their community. Many assets are held in trust for the public by public bodies including local authorities whilst others can only be realised when purchased from private owners.</i>
	Less Emphasis on Converting Existing Communities	8-16	"Of the housing we'll be living in, halfway through this century, three-quarters of it is already built....Unless you do something about the existing stock, putting up a few eco-towns amounts to a tiny fraction of the total housing we will require."
	Focus on Green Buildings	8-17	'When it comes to environmental concerns, there has been altogether too much fragmented talk of buildings. We have consistently failed to recognise that buildings are situated in wider landscapes that desperately need greater attention.'

		8-17	Source discusses the ‘Softer Side of Sustainability’, which addresses sustainable communities in a holistic fashion, creating not only environmentally-friendly buildings, but also a sense place, identity and belonging.
	Eco-Town Disruption to Existing Communities	8-18	Source discusses a new environmentally-friendly community proposed for Kilnhill Wood in Scotland, designed to live according to modern green principles within the ancient tradition of living and working in a forest. Local opposition, however, protests that it means the woodland will be taken away from them and replaced by a community apart from the existing community.
	Eco-Towns Risk “Ghetto Effect”	8-19	‘Detractors such as the architect Sir Terry Farrell have warned that creating villages from scratch risks repeating the "ghetto effect" of the post-war new towns.’
		8-19	‘Douglas Blyde, who filmed the BBC Three documentary We Love Milton Keynes? while living there, feels that purpose-built towns are too corporate. Amenities are laid on, but what's missing is the "warm-heartedness" of a place that has grown over time. "Everything is so proscribed, there's no way to get through the glass and steel of the place."’
		8-19	‘He [Tim Dixon, of Oxford Brookes University's School of the Built Environment] argues that a solution is right under the planners' noses - the houses that stand empty in towns and cities up and down the country. Amenities are already there; a sense of place also.’
	Corporate Social Responsibility	8-20	In this Financial Times Source, Daniel Vermeer and Robert Clemen suggest that this economic downturn will produce more integrated, strategic and value creating sustainability efforts in many companies. <i>"Public perception and trust of large corporations have been seriously damaged. The downturn will keep pressure on companies and executives to rebuild that trust and they must show a renewed commitment to do business in ways that go far beyond adherence to legal requirements, incorporating decision-making and reporting procedures that respect all stakeholders."</i> <i>"the outlook for eco-efficiency is decidedly mixed, continuing in most companies, but focusing on lower-key and lower-cost measures."</i> <i>"Consumers continue to demand green products, and in some cases demand is growing"</i> <i>"Changing economic and regulatory environments will lead more companies to adopt corporate strategies that include sustainability as a core issue. In their simplest form, such strategies will focus on helping a company's customers to cope with their own sustainability issues."</i>

	8-20	<p><i>"Adopting a phrase from John Ehrenfeld's Sustainability by Design, we see sustainability as flourishing within limits. Companies that are able to grasp the system within which they operate and the limits and requirements the system imposes will be the ones to flourish in the future business environment."</i></p>
	8-21	<p>Source highlights the concern that sustainability will be put on hold whilst attention is focussed elsewhere with regard to the credit crunch.</p> <p><i>"Environmentalists and other campaigners fear that sustainability and wider corporate social responsibility (CSR) issues are falling off the boardroom agenda as businesses tighten their belts in the face of turbulent stockmarkets, the credit crunch and a looming economic slowdown. And they worry that CSR could be seen by business as a fad whose time has come and gone."</i></p> <p><i>"But there is a strong argument that when times get hard that is just when CSR can help a company differentiate itself from competitors and thrive" (Craig Bennett)</i></p> <p><i>90% to 95% of CSR is just hot air. It is PR in the positive sense of internal PR that motivates staff and makes them feel good about the company they work for but that's all."</i></p> <p><i>This is just the kind of thinking that has Friends of the Earth reaching for the green panic button.</i></p>

8-22

The Grant Thornton (2008) International Business Report is entitled 'Corporate Social Responsibility: a necessity not a choice.

The introduction states that not only are MNCs carrying out CSR initiatives, but increasingly privately held businesses are becoming more and more socially responsible.

**1. What is driving CSR?**

65% - recruitment/retention of staff

63% - cost management

56% - Brand building

44% - Tax Relief

40% - Saving the Planet

39% - Investor Relations

38% - Government Pressure

**2. Implementing CSR:**

71% - Actively promoted workforce health and well-being

67% - Provided apprentices/work experience

65% - Donated to community causes/charities

64% - Actively promoted diversity/equality at work

62% - Allowed flexible working

59% - Improved waste management

57% - Improved energy efficiency

55% - Participated in community activities

41% - Changed products/services

35% - Helped other businesses improve performance

32% - Sourced local or ethical products/services

*"Corporate social responsibility is no longer the domain of the large corporate and is now a necessity rather than a choice. Those privately held businesses adopting ethical business practices quickly and efficiently will survive. These are the businesses who will secure the skilled workers and the contracts with the large multinationals. Those failing to act now face an uncertain future."*

		8-23	<p><i>Dow Jones Sustainability Index:</i>  <i>"Launched in 1999, the Dow Jones Sustainability Indexes are the first global indexes tracking the financial performance of the leading sustainability-driven companies worldwide. Based on the cooperation of Dow Jones Indexes, STOXX Limited and SAM they provide asset managers with reliable and objective benchmarks to manage sustainability portfolios."</i></p>
		800-4	<p>Greater private sector involvement in sustainability issues should be encouraged. This will mean supporting longer term aims than short term profitability. Wider stakeholder involvement coupled with tax advantages linked to the achievement of defined sustainable objectives is required.</p>
		800-4	<p>Middle management "technocrats" should more fully appraise politicians and Senior Managers in private enterprise of policy implications of actions taken and considered.</p>
	Demographic Changes Declining/ Ageing Population	8-24	<p>The Economic and Social Research Council (ERSC) has conducted research into demographic change within Scotland with regard to its shrinking and ageing population.</p> <ul style="list-style-type: none"> <li>- <i>Between 1995 and 2001 Scotland's population fell by 1 per cent, while the UK population rose by 2.8 per cent and the EU average rose by 2.2 per cent. In this period no other EU country experienced a population decline.</i></li> <li>- <i>Outward migration is not a factor in declining population. Total in- and out-migration is about 70,000 per year (in each direction) with a net loss of just 2000 people.</i></li> <li>- <i>in 2002 the median age of the population was 39, four years older than in 1991.</i></li> <li>- <i>Just 51,270 births were registered in Scotland in 2002, the lowest figure since civil registration began in 1855: 24 per cent less than in 1991 and 43 per cent less than in 1951. Projected demographic trends suggest that Scotland's population will both decline, and decline faster, than any other EU country over the next 25 years. The number of people aged 65 and older is expected to rise by about 60 per cent from some 800,000 in 2002 to about 1.3 million by 2042. The number aged under 15 is expected to fall by about 30 per cent from 800,000 in 2002 to 620,000 by 2042.</i></li> </ul>

	Demographic Changes Religion	8-25	Source is from National Statistics Online. In 2001 the census collected information about religious identity. Just over three-quarters of the UK population reported having a religion. More than seven out of ten people said that their religion was Christian (72 per cent). After Christianity, Islam was the most common faith with nearly 3 per cent describing their religion as Muslim (1.6 million).
		8-26	Religious Decline in Scotland: New Evidence on Timing and Spatial Patterns <i>"The 2001 population census in Scotland—the first to include questions on religion—provides important evidence on religious mobility and the effect of local context on religious disaffection. The trend toward disaffiliation dates from before World War II, but religious decline has been especially steep since the 1960s. While there are important geographical variations in religious adherence, the absolute size of the swing to no religion has been quite uniform across the country."</i>
		8-27	This source from the Scottish Government analyses religion in the 2001 census. - <i>Just over two-thirds (67%) of the Scottish population reported currently having a religion. More than six out of ten people said that their religion was Christian (65%): 42% Church of Scotland, 16% Roman Catholics and 7% Other Christian.</i> - <i>For the majority of religions, over 90% of people report the same religion of upbringing as their current religion. However there are some exceptions, namely, Other Christians, Buddhists, Jews, and those responding that they have another religion.</i> - <i>Muslims have the youngest age profile with 31% aged under 16 years. This is followed by Sikhs (27%) and those with no religion (24%).</i> - <i>Over a quarter (27%) of those belonging to the Church of Scotland and 30% of Jews are of pensionable age or above. Similarly, 23% of Other Christians and 17% of Roman Catholics are within this age group.</i> See attached graphs for more detail.
	Demographic Changes Immigration	800-5	Migrants/new blood into communities
	Technological Breakthroughs	8-28	<i>Wind Turbine Technology - This book reviews advances in aerodynamics, structural dynamics and fatigue, wind characteristics, acoustic and electromagnetic emissions, commercial wind power applications, and utility power systems that use wind power plants</i>

	8-29	<i>Dynamic modelling of a wind turbine with doubly fed induction generator - Paper which studied the impact of wind turbines on electrical power system behaviour. This paper looks at modifying the current wind turbine concept with a doubly fed (wound rotor) induction generator. Therefore,, the penetration of wind turbines in electrical power systems will increase, they may begin to influence overall power system behaviour and it will no longer be possible to run a power system by only controlling large scale power plants. It is therefore important to study the behaviour of wind turbines in an electrical power system and their interaction with other generation equipment and with loads.</i>
	8-30	<i>Reliability, Availability and Maintenance aspects of large-scale offshore wind farms, a concept study - The DOWEC projects aims at implementation of large wind turbines in large scale wind farms. part of the DOWEC project a concepts study was performed regarding the achievable reliability and availability levels. The main cause for the high O&amp;M costs is the rather frequent need for an expensive external crane vessel. A second design round is necessary to reconsider the reliability levels adopted for almost all concepts. Furthermore a more "farm like design approach" is needed to reduce major maintenance cost and increase availability.</i>
	8-31	<i>Aerodynamics of horizontal-axis wind turbines - This paper provides an overview of recent research and development pertaining to the aerodynamics of the horizontal-axis wind turbine rotor. But before discussing aerodynamics in some detail, they provide a brief overview of the size and nature of the wind energy industry and the types of rotors commonly in use today.</i>
	8-32	<i>Wind Energy - The Evolution of wind turbine design analysis - This article traces the evolution of wind turbine design analysis, examines the factors which have influenced this evolution and assesses the current state of the art. The article concludes with a discussion of the remaining areas of uncertainty and the likely future developments of wind turbine calculation methods.</i>
	8-33	<i>Engineering Challenges for Floating Offshore Wind Turbines - Current fixed-bottom technology has seen limited deployment to water depths of 20 m. As the technology is advanced into deeper water, floating wind turbine platforms may be the most economical means for deploying offshore wind turbines at some sites</i>
	8-34	<i>Wind turbine floated to deepwater (BBC) - This article highlights the use of deep water turbines just off-shore of the Moray Firth. If the pilot scheme is successful, a further 200 wind turbines will be commissioned and placed just off the Moray Firth.</i>
	8-35	<i>Tuvie Design of the Future - Various designs concerning the design of the wind turbine. The aim is to make the concept more visual pleasing and easy to adapt to existing structures - such as telegraph poles. Various designs for industrial and household use.</i>

	8-36	Wind Energy in the Twenty-First Century: Economics, Policy, Technology and Changing Electricity Industry - Great strides have been made over the last two decades in improving the technology, reliability, cost-effectiveness and overall understanding of wind energy. However, in spite of these improvements, significant barriers remain which must be overcome before wind energy can achieve substantial adoption within the general electricity market.
	8-37	Prospect of hydrogen technology using proton-conducting ceramics - This paper reviews possible hydrogen devices using a proton-conducting ceramic and describes the prospect of hydrogen technology utilizing these devices. Solid-state protonic devices can be classified into two categories: the devices utilizing electromotive force (EMF) and the ones utilizing preferential transport of protons. Galvanic cell type hydrogen sensors and fuel cells belong to the former, and hydrogen pump, steam electrolyser and membrane reactors to the latter. Various kinds of modifications can be derived, in principle, from these devices. In this paper, the working principles of these devices and status of the development are reviewed touching the future prospect of applications. In addition, the recent studies and the possibilities of protonic devices for nuclear fusion process in the future are introduced.
	8-38	<i>The Times - A technology hotter than the sun - "Looking beyond the energy needs of the next couple of decades, a new technology is beginning to appear on the horizon. Nuclear fusion promises the prospect of abundant carbon-free electricity - if only some epic technical hurdles can be overcome." - "Previous attempts have consumed more energy than they create, but it is hoped that HiPER could change that. Set to be built in Oxfordshire in the next few years, the facility would place Britain at the cutting edge of nuclear fusion research. "A lab in California is due to answer 'yes' to the question of whether we can build a miniature sun here on earth in two years' time," says Professor Mike Dunne, a director at the Rutherford Appleton Laboratory, which is expected to host the HiPER project. "Whether we can harness it to make power is what we are trying to answer. I'm confident we can."</i>
	8-39	<i>The Times on Sunday - Hunting the holy grail of fusion - Professor Mike Dunne, of the Rutherford Appleton laboratory, is seeking a £500m grant from the European Union to build a machine that will, he hopes, finally achieve fusion.</i>

		8-40	This 15-page January 2009 update and expansion of "Forget nuclear" in RMI's Spring 2008 Solutions Newsletter adds the latest data, expands the discussion of capital-cost escalation, and includes June 2008 cost comparisons by pre-eminent financial advisors Lazard. It summarizes why nuclear power cannot in principle deliver the climate-protection or energy-security and reliability benefits claimed for it.
		8-41	<i>The New Scientist - Nuclear fusion project gets the green light - an international team of physicists based in Europe is now preparing to give it a go. If their attempt to develop nuclear fusion works, it could provide a limitless and clean source of energy that promises to end reliance on the fossil fuels that are causing global warming. The consortium, led by Mike Dunne of the Rutherford Appleton Laboratory in Oxford, UK, hopes to develop commercial nuclear fusion using lasers to crush together isotopes of hydrogen - deuterium and tritium - to create helium. This releases neutrons and huge amounts of energy.</i>
		8-42	<i>Hero - The future is fusion - This article highlights how unrealistic the Government is being towards our energy needs. Both advocates of Nuclear and Renewables have bemoaned the latest Energy White Paper - in which belittles both industries and places the emphasis on Gas to supply out needs. This article places the future of energy needs squarely at the door of Nuclear Fusion and Fission.</i>
		8-43	<i>The European Fusion Development Agreement [EFDA]-Joint European Torus [JET] - This website answers questions concerning Europe's approach to Nuclear Fusion. There are too many articles and references - there are 40 journal articles located at the following url.</i>
	Adults using technology	8000-15	30% of adults don't use internet and 40% of those have no interest in using it.
	Decreased Consumption	8-44	'In the third quarter of 2008 expenditure on goods fell by 0.8 per cent.
	Glasgow's definition of Sustainable Development	8-45	Sustainable development is best explained as taking a common sense approach to the way that we live our lives by balancing out the social, economic, environmental and ethical aspects of each decision that we make. We have to think carefully about the impacts of our choices to ensure that we minimise harm and maximise the benefits in these areas for Glasgow and elsewhere, now and in the future.
	B+ Q CSR	8-46	DIY chain B&Q has launched their One Planet Living® Awards for 2009, offering UK and Ireland-based groups the chance to net a first prize worth £10,000 to improve their local environment.

		8-47	The SSCI encourages the creation of a number of very low or zero carbon communities and provides a platform to stimulate a rise in environmental and design quality standards within new developments and to showcase the architectural and design skills that exist in Scotland. The aim is to create places that will be inherently sustainable as a result of their enduring appeal.
	EU Initiatives on Sustainability	8-50	EU Sustainable Energy Week 2009 (9-13 February) saw stakeholders from all sectors come together to exchange views and best practice on sustainable energy. Many of the issues the week covered were highly relevant to local authorities, including innovations in energy efficiency, renewables, and energy use in buildings and transport.
		800-4	EU directives difficult to navigate through
	EU Sustainable Development Strategy	8-51	The overall aim of the EU Sustainable Development Strategy is to identify and develop actions to enable the EU to achieve a continuous long-term improvement of quality of life through the creation of sustainable communities able to manage and use resources efficiently, able to tap the ecological and social innovation potential of the economy and in the end able to ensure prosperity, environmental protection and social cohesion.
	EU Bristol Accord	8-52	The Bristol Accord will provide a new framework for EU Governments to deliver jobs, economic prosperity, social justice, and improved quality of life for Europe's 450 million citizens. It sets out eight key characteristics that will inform future European regional policy to deliver places where people want to live and work, now and in the future. Sustainable communities should be safe, fair, thriving, environmentally sensitive, well run, served, connected and designed.
	UK Policy	8-53	The Deputy Prime Minister launched the Communities Plan (Sustainable Communities: Building for the future) on 5 February 2003. The Plan set out a long-term programme of action for delivering sustainable communities in both urban and rural areas. It aims to tackle housing supply issues in the South East, low demand in other parts of the country, and the quality of our public spaces.
		800-3	There is united political consensus in the UK, if not in BRIC countries. All major parties recognise the need for change. Can change be accelerated through political leadership? For example through legislation and tax, which can change certain behaviours in the negative and incentivise others.
		800-3	A sense of direction requires consensus, but government initiatives are often perceived as good or bad depending on political persuasion
		800-3	The extreme positions and political power of some NGOs threaten the agreement of a societal consensus.

		800-5	Voters and interest groups not willing to accept major taxation changes to prevent certain behaviours e.g. fuel tax resistance
	Policy	800-5	“Smart” legislation e.g. cigarette ban, possible carbon allocation on an individual basis
		8000-15	In order to get the digital network (i.e. Broadband) to every area of Scotland it will happen this way: 1/3 the market will demand, 1/3 will need incentives (policy), and 1/3 remains a problem for delivering the technology.
	The Academy for Sustainable Communities	8-54	The Government has established the Academy as a national centre of excellence to improve the skills, knowledge and behaviours needed to deliver and maintain sustainable communities across the country. The establishment of a national skills centre was a key recommendation of the Egan Review of Skills for Sustainable Communities, to drive forward a new, integrated approach to skills development.
	Global developments largely determine rural Europe's future	80-1	...the future of Europe’s rural areas will largely be shaped by more or less autonomous global driving forces. Especially the development of (global) demography and macro economic growth outline the trends for rural Europe. These driving forces set the demand for food and fuel and will shape the opportunities and threats in EU regions. EU policies may not completely halt or reverse global trends, but can diminish the negative effects and anticipate future opportunities. EU policies on CAP and bio-energy do make a difference, particularly to issues such as farm income, farm structure and agricultural abandonment.
	Future policy challenge	80-2	Perceptions of rural area changing - now seen as valuable 'factory' for food, feed and renewable energy - alongside it's amenity and biodiversity value. Policy challenge is to achieve a 'rural renaissance' without damaging the unique features of the European countryside. Increasing linkage between agriculture, environment, energy and transport - will this be reflected in policy architecture?
	Future challenge	80-2	The challenges for rural regions now and in the years ahead are serious: many rural regions face problems of decline with out-migration, ageing, a lower skills-base, lower than average labour productivity, isolation, lack of infrastructure and difficulties with public service provision, particularly in the most remote regions.
	Dual Use of Facilities	8000-17	Many spaces within a community can be used for more than one purpose, thereby increasing efficiency. Examples are: Primary school/community hall and community composting, urban farm and allotments sharing the same land.

	Importance of the Local 'High Street'	8000-17	" The linear concentration of varied retail, social, cultural and commercial activities, plus flats and townhouses, along local 'high streets' offers a way of giving coherence and flexibility to mixed-use neighbourhoods...the high street is often along the edge of a neighbourhood, not through the middle"
	Communication with Public	800-5	Lack of targeted communication to effect material change e.g. waste disposal on a postcode lottery basis by local authorities
	Purpose Built Eco Towns	8-13	<i>Champions for Sustainable Communities - Forward Scotland is currently developing and looking for partners for Champions for Sustainable Communities. Originally launched in 2008 this is an award scheme that recognises the achievements of individuals across society who have lead the way in community development with the highest regard for sustainable development principles.</i> <i>Forward Scotland launched Champions for Sustainable Communities in 2008 receiving an overwhelming level of interest and nominations.</i> <i>It was clear that with open &amp; accessible awards and a network of supporting organisations that they struck the right chord with local people.</i> <i>In 2009 we aim to recognise achievement of a second group of inspiring individuals but need partners to take things forward.</i>
	Sustainable Communities - A Definition	8-48	'Sustainability' has no single or agreed meaning. 'It takes on meaning within different political ideologies and programmes underpinned by different kinds of knowledge, values and philosophy' (Huckle 1996: 3). A 'weak' view of sustainable development looks to continuing economic growth on terms that favour existing financiers and corporations (while maintaining the support of the majority of voters in countries like the UK). A strong view 'represents a revised form of self-reliant community development which sustains people's livelihoods using appropriate technology' (Huckle 1996: 4). The former would fit in with what we might now describe as the mainstream of politics in many northern countries; the latter represents a greener and more holistic vision. It echoes the concerns of E. F. Schumacher (1973) when he argued for a concern with appropriate scale, wholeness and connectedness.
	Sustainable Communities	800-1	Built environment needs to consider healthy/happy people..look at Malmo
		800-3	In defining the terms of the project considerable time was spent considering what was meant by 'sustainable' and indeed 'community'. There was an overwhelming view that these words were unhelpful and ambiguous . The following thoughts were offered as more helpful terms of reference.

		800-3	Scale and boundaries are very important when considering what sustainable communities is or could be. No one community is hermetically sealed and each must interact in local, national and international relationships. Consequently, there must be recognition that local problems may have national solutions.
		800-4	An alternative approach to defining sustainable community is to take it as the mirror image of a community that is not sustainable i.e. no/insufficient food, no/insufficient energy, no/insufficient transport and no/insufficient waste disposal. If we imagine the negative vision of what a community like this would be, we can imagine the reverse much more easily.
		800-5	Planning environment e.g. out of town supermarkets means an increased demand for car transport. Localised social, recreation and retail facilities. More “small” leisure facilities required and fewer large all encompassing ones
	Eight Components for Sustainable Communities	8-49	<p><b>Governance - Well run communities with effective and inclusive participation, representation and leadership.</b></p> <p><b>Transport and Connectivity - Well connected communities with good transport services and communications linking people to jobs, health and other services.</b></p> <p><b>Services - Public, private and community and voluntary services that are accessible to all.</b></p> <p><b>Environmental - Providing places for people to live in an environmentally friendly way.</b></p> <p><b>Equity - Fair for everyone in our diverse world and for both today's and tomorrow's communities.</b></p> <p><b>Economy - A thriving and vibrant local economy.</b></p> <p><b>Housing and the Built Environment - High quality buildings.</b></p> <p><b>Social and Culture - Active, inclusive and safe with a strong local culture and other shared community activities. (Academy for Sustainable Communities undated)</b></p>
	Interdependence of Communities	800-1	We need to appreciate the interdependence of communities and not focus solely on food not transport or health-that would be a lumpy and disproportionate response
		800-3	Contradictions between what is best for local/national/global interests – e.g. large cities are vital for a countries economic success and exist within their own global economic community
	Definition of Community	800-3	‘community’ is best defined as the geographic aggregation of people and not communities of interest, communities of identity.

		800-4	As humans, we are all part of many communities. These can be related to home, school, work or communities of interest, both of a geographic and non geographic basis.
	Focus on Community development	800-2	Built environment over the years has been wrong; we have built 2 bed flats in high rises around a Starbucks and assumed its a community. Building houses as investments is not building homes and making communities
		800-2	Do social networking sites enhance or destroy communities?
		800-2	How about communities sharing the responsibility for resources?
		800-2	Eco towns should be part of existing places like sink housing estates
		800-3	Different solutions for different communities e.g. for size and location
		800-3	Need to celebrate exemplar sustainable communities
		800-3	Top down approach with no buy in from local communities
		800-3	Existing structures unwilling to change, lip service to change demands
		800-5	Family as the basic unit with local provision of education, medical facilities, community policing etc
		800-6	“It is vital for our long term economic and social success that we create communities which provide new homes in the right place, of the right type and which contribute to reducing energy demand and impact on the environment”
	Street Redesign/Civic leadership	8000-14	The Hillsboro Street redesign project in Raleigh North Carolina USA incorporates many sound practices for making streets pedestrian and cyclist friendly as well as reduces traffic accidents through the use of roundabouts. This cause was championed by one civic leader that took on the task, raised private funds when the government would not contribute and implimented the \$10m plan.
	Building Design	800-2	Design of the built environment should make better use of space with playgrounds, gardens, vegetable patches, transport corridors, parking lots and suchlike features that make for an embedded community
		800-2	A lot of building and design is done on the cheap so buildings are depressing with poor colour schemes sheltering unhealthy folk

		800-5	Built environment/urban planning to reduce need to travel e.g. Malmo where there is less need for a car. Mixed land use with multiple tenure rather than zonal development e.g. city centres should include residential, leisure and retail facilities thus improving security/reducing vandalism etc
		800-5	Revitalised existing places and buildings
	Housing/ Building Standards	8000-11	“The Code for Sustainable Homes sets the pathway for all new homes to be zero carbon by 2016. But refurbishment of existing stock has a major part to play in meeting the UK's long term carbon reduction targets.”
	Housing/ Building Standards	8000-12	“Energy use in houses accounts for 30% of all carbon dioxide (CO <sub>2</sub> ) emissions in the UK.  The main considerations are: insulate well; ensure the building is well draught-proofed; provide adequate ventilation without heat loss.”
	Alternative Building materials	8000-12	“ <b>Wood</b> is natural, versatile, and beautiful. To be sure of sustainably-harvested timber, look for the FSC mark (see contacts). Chemical treatment is very rarely necessary - problems can be avoided by using good-quality seasoned timber, and designing a well-drained and ventilated structure.”
	Alternative Building materials	8000-12	“ <b>Straw</b> is abundant around much of the UK, and is of low value. Handy sized bales make building with them quick and easy, and the thickness of bales provides excellent insulation. “
	Alternative Building materials	8000-12	“ <b>Earth</b> can be used unfired in many ways, including rammed earth and cob building. Sub-soil from a local quarry will be a low-energy material.”
	Public Opinion/ Attitudes	800-1	Public apathy could hold back a sustainable community
		800-3	There was no doubt that “tipping point” in opinion and practice would occur. The question is whether systems, governments, resources and public bodies re geared up to maximise the opportunity when it arises (many cited the current recession as a perfect window to generate public and political debate about different models for the futures).

	800-3	There is a need for a culture change, although it was noted such a change is easily achieved or socially constructed, and it takes time. This was illustrated through the length of time taken to effect a culture change in terms of smoking. From the original medical evidence that smoking was harmful, to finally, a smoking ban in public places took over 50 years. Will it take a similar time for people's attitudes to sustainability to change? Are there ways to accelerate the process?
	800-3	Social norming – although this “drip” process can be very slow
	800-3	Create a premium on leisure/free choice time rather than increased consumption.
	800-3	What does it mean to be wealthier in an era of sustainability? Will social status come from a person's eco-friendliness or will it still be high-end consumption (e.g. high-performance cars).
	800-3	Desire to be wealthier/richer/increased consumption dilemma versus need to conserve resources and concept of wellbeing
	800-3	The increasing value of 'time', and the perception that time travelling is time wasted – society must learn to value the journey.
	800-3	Community and human relationships central to happiness and wellbeing – not increased consumption
	800-4	Following on the theme of people centric, we need to have individuals motivated with a desire, higher aspirations and appreciation of the complexity of sustainability issues
	800-4	We need to make sustainability “sexy”. At present sustainability is linked with negative connotations i.e. do not drive cars, do not travel by air, do not keep the room temperature at the setting you want. We need to make sustainability positive so that the likes of Jeremy Clarkson and “mondeo man” will actively desire it.
	800-4	There is a need for two way flow of information. “Experts” telling us what is right is insufficient to achieve community buy in.
	800-4	Long timeframes for cultural changes/social awareness in many areas; how do we empower people?
	800-4	Convenience (throw away society) and apathy for implementing change rather than taking individual and collective accountability
Infrastructure	800-3	There must be an optimisation and increase of efficiency in the public infrastructure.

	Sustainable Communities	8000-1	Many sustainable communities are sprouting up, one example is the Eco-Community in Ireland called “The Village” this community contains many sustainable features such as solar and wood power, allotments for farming, and car sharing schemes. The community will also reach out to the wider public through an educational facility.
		8000-2	The new Zealand government is committed to better city planning moving forward to reduce the need for transport as well as make transportation systems more efficient in terms of planning.
	Healthcare	8000-3	<p>New technology will bring healthcare closer to the community</p> <p>In the next 10 years, the NHS will undergo radical changes. There are three main drivers behind these changes – the ageing population, increased patient expectations and advances in technology.</p>
	Ageing/ Population changes/ Housing requirements	8000-4	<p>SFF highlight 50% of Scotland’s population will be over 50 years old in the coming 20 years. Not a crisis but a challenge – many positive aspects. Needs - Co-housing schemes as in Denmark and United States (homes for life), a more asset-based approach to life (education, work and retirement), more elder care responsibilities. Dependency ratios of those with money and financial assets not supporting those without (wealth redistribution)</p> <p>Current Gov Strategy: access to opportunities for older people to make a continuing contribution; effective integrated services for older people; promoting and maintaining health and well-being; people living in accommodation and environments which continue to meet their needs and wishes as they age.</p>

Community Building	8000-5	<p>From Thought for today BBC Radio Scotland 15 Sept. It's a year ago today since our banking systems were very nearly engulfed following the collapse of the Lehman Brothers in America. And I bet I'm not alone in wondering what if our own government's financial bail-out had not happened and succeeded. Not only might the hole-in-the-wall have stopped talking to us. But our globalised food supply system could also have been thrown into chaos, because without the banks doing their bit you don't get the deliveries coming through. I've thought a lot about this recently while working with an Edinburgh University student seconded to my supervision. She went up to Stornoway and interviewed people about what happens when the Ullapool ferry fails to sail because of bad weather. She learned that the supermarket shelves quickly go bare, and it's not just panic buying. It's also because restocking is on a just-in-time basis, and so there's no slack to make up for any disruption in the system. For the sake of comparison she then went on to interview people who could remember the six week long seamen's strike in 1966, that forced Harold Wilson to declare a national state of emergency. Most people said they'd avoided hardship because crofting was still vibrant. They had their own potatoes, hens, sheep, and maybe a cow for milk or a fishing boat moored in the loch. But above all, they had an ethos of sharing. This gave the local economy the resilience by which it could stand up to knocks. But in contrast, today we have greater efficiency, but it's also a more brittle system – like the banking crisis could very nearly have taught us. The lesson is that economic efficiency is vital, but only if matched by the community resilience that makes for true security. That's why such principles as Fair Trade, farmers' markets and local entrepreneurship are all so important. They remind us that the economy should be not just about money, but also about the human handshakes that reflect right relationships ... for they're what counts when the ferry fails to sail.</p> <p>Tiree; The community skills, desire, energy are in place to make their community sustainable – what is lacking is capacity building and an overly bureaucratic public sector.</p> <p>Individuals, through leadership and beliefs can change communities .</p>
	8000-10	<p>One Australian eco-community, "the Chimney's" is the first mainstream eco-community of its kind. This community was commissioned by mainstream planning committees, yet embodies the best traits of eco-communities. The village will provide a variety of collective activities such as a lap pool, extensive walking/biking trails lined with fruit trees to provide some local produce, and energy efficient buildings.</p>

	Rural Services	8000-15	Rural communities especially need assistance in connecting with the services they use, especially the ageing population. How can we get services to them if they aren't connected to technology, as this is the way service delivery is moving.
		8000-15	The Scottish ambulance service cut service for non-emergency transport, what will this do to those in rural centres?
	Community Gardens	8000-10	"The green roofs do much more than process stormwater. They improve air quality and reduce noise, both of which benefit human health. The stormwater canal system is smaller scale, fitting well into the heart of the community. Augstenborg also showcases urban community gardens, which include a "rabbit hotel" allowing city kids to co-own animals. This all creates a sense of social belonging and community."
		8000-18	Not only for providing locally grown food, but for building social capital and collective spirit between people in low income areas, thus reducing crime and delinquency.
	Equalities	8000-6	<p>Equalities Human Rights Commission, Equality Measurement Framework to be launched later this month to provide indicators of progress on equality issues within Scotland</p> <p>Gender and sustainable development - The role of women in increasing economic growth, reducing poverty and helping to achieve sustainable development in all countries.</p>
	Spiritual/ Religious influence on issues of sustainability	8000-7	<p>Eco-Congregation Scotland is an ecumenical programme to help congregations understand environmental issues and make appropriate practical and spiritual responses. The programme is free of charge and very flexible, as each congregation has different opportunities for change.</p> <p>Small actions add up to big results. Hundreds of Scottish congregations have requested information, are already well on their way with environmental projects and have gone on to receive awards.</p> <p>From book: We are faced today with a turbulent world - be that caused driven by environmental pressures, financial meltdown, war, or simply those deep inner stirrings that prompt so many of us to seek grounding in a more meaningful relationship to nature and our fellow humankind. This book seeks to share the fruit of more than 3 decades' exploration of the community dynamics that can help to strengthen relationships between one another, with the natural environment, and through the inner ground of all being.</p>

	Examples of Sustainable Communities	8000-8	An eco-community in Senegal served as the site of a conference on sustainability. The community incorporated several sustainable components including narrow streets made of sand, compound style houses allow an extended family to live together around a central courtyard. Their use of streetlights is minimal and pollution is kept under control through the low need for cars as things are arranged in a walkable layout.
	Economic and social benefits of planting tree lined streets	8000-9	Creating tree lined streets provides many economic and social advantages for communities. These include: lowering energy costs for buisnesses/homes by providing more shade, reduces speed and accidents because drivers are better able to gage speed on tree lined roads, and reduces runoff from rainwater reducing flooding and storm sewer capacity.
	Additional Information on Community attitudes toward Sustainability	8000-13	<p>"Rekindling Community", "Hell and High Water" &amp; <a href="http://www.alastairmcintosh.com/articles/2000_discounting.htm">http://www.alastairmcintosh.com/articles/2000_discounting.htm</a> by Alistair McIntosh</p> <p>Review on "Hell and High Water":</p> <p>So we must begin by recognising that our ecological crisis is part of a crisis of what we understand by our humanity; it is part of a general process of losing our 'feel' for what is appropriately human, a loss that has been going on for some centuries and which some cultures and economies have been energetically exporting to the whole world. It is a loss that manifests itself in a variety of ways. It has to do with the erosion of rhythms in work and leisure, so that the old pattern of working days interrupted by a day of rest has been dangerously undermined; a loss of patience with the passing of time so that speed of communication has become a good in itself; a loss of patience which shows itself in the lack of respect and attention for the very old and the very young, and a fear in many quarters of the ageing process – a loss of the ability to accept that living as a material body in a material world is a risky thing.</p>