

YOUR ENVIRONMENT EXTRA

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THE 5



things that will save THE PLANET

Results from a poll of 25 experts



‘The overall message is clear. It is in our gift to stop harming our planet. We understand the problems we have created and how to begin undoing the damage. So let’s do it.’

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REASONS TO BE CHEERFUL, 1 TO 50

by Sir John Harman



Sir John Harman is Chairman of the Environment Agency

We've seen plenty of 'How you can save the world' lists over the years. There's nothing wrong with them – lots of good tips on how to live a greener life, from hippos in toilet cisterns to hanging out the washing.

But cynics will say they're being sold a dummy. How are a handful of greener gestures from a few conscientious souls really going to save the planet?

So here's a slightly different tack. What are the 50 things that really could save the planet? (Or, to be more precise, will save the planet. Environmentalists can't possibly afford themselves the luxury of pessimism otherwise we'd never get out of bed in the morning.)

We put this question to a range of leading environmentalists – from businesses, NGOs, the media, think tanks and our own organisation. Then we added up the results.

They are a revelation. A genuine mix of the political, technological, philosophical, social and domestic. There are plenty of things you'd expect to see in there, but not necessarily where you'd expect to see them. And there are some surprises, too.

But the overall message is clear. It is in our gift to stop harming our planet. We understand the problems we have created and how to begin undoing the damage. So let's do it.

The 50 things that

What will it take? We put this question to 25 experts. They came back with an amazing list of stuff – from the profound to the practical to the downright peculiar. And interestingly, not one of them said it's too late...

Our panel of experts

- **Donna Armstrong**, Schools & Community Programmes Manager, Global Action Plan
- **Professor Chris Baines**, BBC Radio 4 broadcaster and environmental consultant
- **Martin Bigg**, Head of Process Industry Regulation, Environment Agency
- **David Boyle**, Associate, New Economics Foundation
- **Paul Brown**, former *Guardian* correspondent and author of *Global Warning*
- **Ian Christie**, Associate, New Economics Foundation
- **Richard Cookson**, writer and contributor to Channel 4's *Dispatches*
- **Mark Everard**, Principal Scientist, Environment Agency
- **Julie Foley**, Head of Sustainable Development, Environment Agency
- **Mark Funnell**, Editor, *Your Environment*
- **Matt Georges**, Climate Change Policy Team, Environment Agency
- **Chris Goodall**, *Independent on Sunday* and author of *How to live a low-carbon life*
- **Judy Jones**, former *Observer* correspondent and freelance writer
- **Tony Juniper**, Director, Friends of the Earth
- **Dr Chris Luebke**, Director for Global Foresight and Innovation, Arup
- **Natasha Martineau**, Science Manager, Environment Agency
- **Saskia Merriman**, Environment Lead – Corporate Citizenship, Accenture
- **Emer O'Connell**, Strategic Communications, Environment Agency
- **Penney Poyzer**, television broadcaster and writer
- **Fred Pearce**, *New Scientist* Environment Editor
- **Jonathon Porritt**, Chairman of the UK Sustainable Development Commission
- **Nick Reeves**, Executive Director, CIWEM
- **John Sauven**, Greenpeace UK Director
- **Gerard Stewart**, Risk and Forecasting, Environment Agency
- **Dr Robert Watson**, Chief Scientist, Department for Environment, Food & Rural Affairs
- **Noel Wheatley**, Head of International Relations, Environment Agency

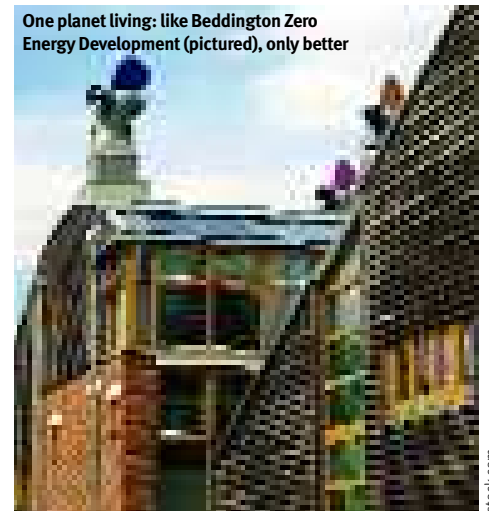
How the poll worked

Each contributor could nominate up to five things in the following categories:

- Consumer and domestic
- Groups and networks
- Ideas and belief systems
- Policies and agreements
- Science, technology and education

We then added up the nominations. Our panel of *Your Environment* staff and colleagues then decided the positions of things that received an equal number of nominations.

One planet living: like Beddington Zero Energy Development (pictured), only better



will save the planet

50. Eco-chic

I'm not a plastic bag, Howies, Thom Yorke – green is pretty hip right now. And, ignoring some of the hypocrisy and muddled thinking, that must mean it's finding new devotees. Of course the more its coolness becomes mainstream, the less cool it becomes. But so long as it's here to stay, from high street to Hollywood, we'll settle for that.

49. Winter woollies

'We need to stop the inexorable rise in home temperatures in the winter,' says Chris Goodall. 'This is a cultural issue; how do we persuade people to adapt to the seasons by adjusting the number of layers, not the setting on the thermostat?' How about a brisk winter walk around the block – it makes 18°C in your living room seem pretty toasty.

48. Going with the floe

If we must have 'climate engineering' technofixes, then forget about seeding oceans with iron and deflecting sunlight via space shields, says Ian Christie. 'Instead, replace lost polar albedo and lost ice cover by creating artificial floating reflective "flocs" (which will help the polar bears too)'.

47. Eden more

So iconic, so many visitors, so vital for rare plant species – so let's see more inspiring centres of eco-learning built around the globe. And, like the Eden Project, make them functional, useful places, not just somewhere to gawp and get the t-shirt.

The Eden Project: not just somewhere to gawp and get the t-shirt



46. Looking to the East

'Import cheap renewable energy technology from China,' says Penney Poyzer. 'We need to encourage this kind of positive trade.' Quite right, as long as it's manufactured greenly. In YE14, Jonathon Porritt even conceived of a world 'where China and India will be leading us on a journey to a more sustainable future'. And why not.

45. One planet living

Basically we're talking eco-communities, with a little help from World Wide Fund for Nature and BioRegional. Imagine tomorrow's new housing developments all

resembling Beddington's Zero Energy Development with all the glitches smoothed out. No waste, no carbon, no hassle. Bring it on.

44. Not wasting energy

'All waste incinerators to be linked to CHP [combined heat and power] for local electricity and heating,' says Ian Christie. If we are going to burn our rubbish, then we should reap the benefits. In South East London one such incinerator was designed to supply community heating to 10,000 homes. It never happened, although the plant can generate up to 35MW of electricity.

43. Observing Protocol

Jonathon Porritt urges us not to forget the Montreal Protocol – ‘still securing the phase-out of ozone depleters and greenhouse gases, and absolutely relevant as an exemplar of what we could be doing on other issues.’ Wise words – a few days after Jonathon sent this, top UN environment officials highlighted how mutually supportive the Protocol is with climate change goals.

42. Best things? Small packages

‘Packaging has become a blight on society and requires regulation to control its use and to encourage much less of it,’ says Nick Reeves. It’s a viewpoint the supermarkets have some sympathy for – many have committed to making voluntary reductions. Are the days of the gratuitous cardboard sleeve numbered? We certainly hope so.

41. The currency of carbon

‘Without a global carbon price, the planet is finished’ says Chris Goodall. ‘Getting agreement is going to be ferociously difficult, but at an international level getting everybody to agree to a figure of about \$60 a tonne of CO₂ is the world’s major public policy challenge. With this price, it should make sense for every fossil fuel power station around the world to capture its carbon. It would need to be very much higher to get substantial changes in motor and aviation fuel use.’

40. Small is beautiful

In an era when everything is super, extra, hyper and mega, it’s time we stopped belittling little. ‘For most services, there is very little evidence of any economies of scale coming from huge and energy inefficient buildings,’ says Chris Goodall. ‘Schools of 3,000 pupils need to be replaced with ones of 300. Hospitals need to be smaller and more under the control of their local communities with only rare diseases treated in regional centres.’ Penney Poyzer reminds us that EF Schumacher would surely have agreed.

39. Net gain

If the internet can spawn a social revolution (think Facebook and MySpace),



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why not an environmental one? ‘Green blogs and websites, such as the US-based *Treehugger* site, are a rapidly expanding phenomenon that shares information on every aspect of greener living and working,’ says Penney Poyzer. ‘Local groups can easily share information – such as car sharing networks – and develop local trading schemes that encourage sharing of resources and skills.’

38. Spreading the word

Let’s not keep a grasp of green all to ourselves – if you love the planet, set your knowledge free. Tony Juniper says Government can do plenty more to ‘mainstream sustainability ideas across all functions of national administrations’. And he has a cracking suggestion for going global with the spread of

sustainability – use ‘officially-sponsored sustainability excellence academies’ to share best practice.

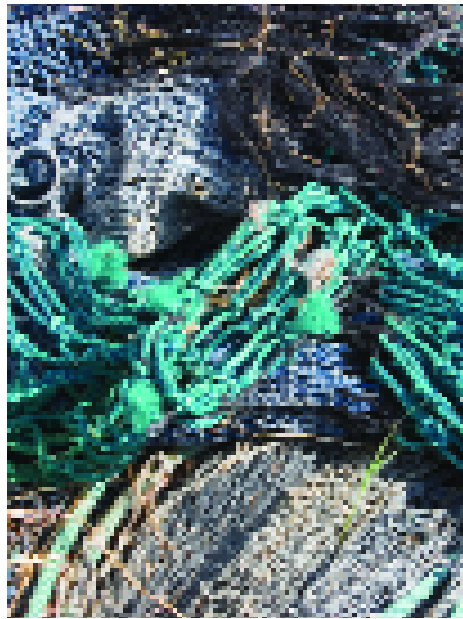
37. Gobbling green algae

Nothing like a bit of primordial soup to calm things down, say Chris Goodall and Paul Brown. ‘Isaac Berzin, a rocket scientist at Massachusetts Institute of Technology, is using algae to clean up power-plant exhaust,’ explains Paul. ‘He bolted onto the exhaust stacks of a 20 MW power plant rows of clear tubes with green algae soup inside. The algae grew happily, gobbling up 40 per cent of the carbon dioxide for photosynthesis. The algae is harvested daily and its oil extracted to make biodiesel for transport use, leaving a green dry flake that can be further processed to ethanol, also a transport fuel’.

- Consumer and domestic
- Groups and networks
- Ideas and belief systems
- Policies and agreements
- Science, technology and education



On yer bike: zero-emissions, and brings you closer to nature – we love it



Net gain: banning damaging fishing equipment will help our seas recover



Package deal: it's time we did away with all unnecessary boxes, cartons and seals

36. Bringing it home

People will only start to really care about climate change when its impacts are plonked on their kitchen table, says Penney Poyzer. 'Local impacts, rather than global pictures are what will enable people to focus on what they need to plan for,' she says. Judy Jones suggests a version of Google Earth, showing how people's environment could change, might do the trick – 'so that anyone can tap in their postcode to access forecasts of what their local area might actually look, sound and feel like'.

35. Toughening up

What do most of us do when our toaster or TV packs up? Chuck it. A new one's far cheaper than a repair job. Tony Juniper and

Chris Goodall have had enough – it's time to make things that last, and then look after them. 'Durability and longevity must become more valued,' says Chris. 'We must see the goods that last as more beautiful than those that do not.'

34. Power to the people

'Those who feel environmental impacts tend not to be the ones making decisions about them,' says Matt Georges. Give ordinary folk more say in how their local environment should be improved and they'll take much more care of it themselves. And it doesn't have to end there. 'All UK Government-funded science and technology research councils' work should be driven by inputs from citizens panels,' says Judy Jones. This would mean a 'community led approach, not a top down, imposition of target-driven corporate organisations with huge budgets to burn.'

33. Counting the carbon

'Every family should be asked to consider its carbon footprint and how it can be reduced by means of a personal carbon footprint allowance,' says Paul Brown. David Miliband floated just such an idea last year, recommending personal swipe cards to store our carbon points on. And the points can be traded, says Paul, 'so that old age pensioners on low incomes that do

not travel anywhere can financially benefit from those wishing to use cheap air travel.' Clever stuff. And fair.

32. Sea change

The UK Government is considering better ways to look after our seas right now. They're badly needed, says Ian Christie, and could become a model for the EU and beyond. Part of the solution will lie in outright fishing bans – for 'particular zones and on vulnerable species' and 'on most damaging net types and deep dredging equipment.' Some of the damage could be repaired by those responsible, argues Chris Baines. 'Oil and coal should be taxed at source, through the relatively small number of extraction companies, and the tax hypothecated to reverse marine pollution. At present this is an environmental issue that falls between national jurisdictions.'

31. Pedal power

The bicycle has never been a more potent icon of environmentalism. And it's not just the zero-emission ride to work that gives it a special place in our affections. It's a great way to explore places, to get to know your environment better. You won't hear much birdsong or catch site of many fluffy things (unless you count dead ones) thundering down an A-road at 50 mph.

30. Youth of today

Penney Poyzer wants us to stop dissing teenagers and instead help them get to grips with their environment. 'The education system does not provide our young population with the skills necessary to face the world now – let alone a world that will be very different as they approach their middle years,' she says. Ian Christie has a cunning plan for what he describes as disaffected urban youth: 'sponsored reconnection to nature programmes and radical urban greening plans.'

29. Sharper teeth

Here's an entry we couldn't possibly comment on – what Tony Juniper describes as 'fully resourced environmental protection agencies with sufficient powers to make a far bigger difference'. Paul Brown is on the same wavelength, wanting us and others to publish details of all infringements, enforcement notices and levels of pollution. 'This "naming and shaming" is done but not enough,' he says.

28. Backing biodiversity

People need to wake up to wildlife, says Mark Everard. 'Without it we have no life, health, profitability or quality of life. It ain't just altruism about fluffy bunnies!' Tony Juniper says we need to back up the hearts and minds stuff with some good old fashioned legislation and calls for 'clearer binding targets to be incorporated into the Convention on Biological Diversity'.

'If nations can't agree to big binding CO₂ targets, look instead to the cities'

27. Caring for the community

Chris Goodall recalls the words of an Anglican bishop. 'He said that a satisfying life is one at the heart of a community. More of our time needs to be spent locally, more of the things we buy should come from the people we live among. People needed to be rooted in a physical location, not transient consumers moving from place to place.'

Penney Poyzer puts her finger on exactly why. 'The spirit of co-operation is what makes our communities strong; it is the glue that enables groups of people to share work, to make the most of resources and above all to care for each other.'

26. Going to town

If nations can't sign up to big binding CO₂ targets, look instead to the cities. Ian Christie says that if they step up the pace promoting radical climate action, they could 'out-do national governments and pressure them into showing real leadership'.

It's something we may already have witnessed in the US and, as John Sauven points out, it can be done through networks. 'By sharing the best practise initiatives on reducing greenhouse gas emissions and learning from each other, the C40 Climate Leadership Group of cities has the opportunity to act as a catalyst for change globally. Given that 75 per cent of greenhouse gas emissions come from our cities this initiative is crucial.'

Youth of today: stop dissing them and start engaging them



Love it or lose it: wildlife species like the hedgehog, now on the endangered list in the UK, need our help



- Consumer and domestic
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25. Flood lines

Summer reminded us that floods, like we've never known before, are here to stay. So we'd better get used to dealing with them. Nick Reeves thinks that making a little more room for them will go a long way. 'Designate flood plain as "Blue Belt", he says, 'a planning device to protect flood plain from inappropriate development and to protect people and property from flooding.'

Nick also implores us to ditch the decking. 'Domestic gardens account for around 500,000 hectares of green space and are important for absorbing water run-off.' Penney Poyzer has a rather different solution in mind – 'the floating Dutch house, a clever solution that is half house, half boat! When sea levels rise, so do the houses as they are built on a platform that can rise up to two meters.'



Floats our boat: these Dutch houses rise and sink with water levels, defying the impacts of flooding

24. Earth mothers

Gaia, hippies and home made clothing? Well, not exactly. A 'stronger spiritual connection with the Earth', as Tony Juniper describes it, doesn't have to be an organic muesli-crunching experience. It's about working with natural systems, rather than against them.

'In a modest way this has been the theme of the wildlife gardening movement over the past 30 years,' says Chris Baines. 'But it needs to extend to all land and water management, to waste management and to energy production'. Chris Luebke calls it permaculture – 'living and designing in cooperation with nature, putting back more into the Earth than we take.'



Grow your own: even if it means taking over a portion of the local park to do it

23. Growing your own

'Growing your own food, foraging for wild food in season and composting what's left will not only reconnect you with the land in which you live but will also have a massive impact on your carbon footprint,' says Donna Armstrong. 'Eating apples from New Zealand wrapped in clingfilm on a polystyrene tray when it is apples season in England is crazy!'

But what if we have nowhere to grow our own? Penney Poyzer with another brainwave. 'Central government should pass a law that requires that all public parks should allow a minimum of 30 per cent of land to be converted to public fruit and nut orchards and community held allotments producing organic produce for local sale.'

22. Driving down car emissions

Hammer the gas guzzlers? You bet, say Paul Brown and Julie Foley. And the converse should apply too. 'Small economical cars should have progressively lower taxes in accordance with their carbon footprint, and those using alternative fuels should be free of tax,' says Paul.

But we should also force manufacturers to make greener cars, says Chris Goodall. 'Better still, people should start to share low emission cars between households. It is absurd that huge weights of metal spend

95 per cent of their time sitting unused in the driveway.'

21. Tools of trade

David Boyle and Fred Pearce have the World Trade Organisation in their sights. David suggests turning it into 'a watchdog for making trade fairer and greener' whereas Fred recommends creating 'a World Environment Organisation' to counterbalance it. Tony Juniper says we should scrap environmentally destructive "free" trade agreements in favour of 'a new sustainable trade agreement'.

20. Home, sweet eco-home

You don't have to live in a BedZed (see entry no. 46) to live the green dream. In fact your current dwelling will do nicely. 'In the home, retrofit water and energy saving devices,' says Nick Reeves. And make it cosy. 'Rather than buying a cheap offset when you go on holiday by air, spend £100 improving your home insulation,' says Chris Goodall. 'It will have much more effect.'

Ian Christie says we could really make this happen if government provides incentives for cavity wall insulation. He'd also like to see increased use of straw, hemp, tyres and cob for buildings with high insulation performance.

19. Seeing woods for the trees

The rainforest – for many greenies, that's how it all started. But we still haven't brought the alarming rate of deforestation under control, which means we're still losing one of the big things regulating CO₂ levels. Tony Juniper says we need a new accord to do the job.

But according to Chris Goodall, it won't come cheap. 'The rich northern countries are going to have to pay for poorer countries to retain their forests,' he says. 'Without an economic incentive to keep trees, they will disappear.' And it will help if we stop buying products made out of wood from these precious forests. Ian Christie calls for a ban on all such timber imports.

18. Fewer people

Population growth – it's environmentalists' elephant in the room. But we ignore it at our peril, says Nick Reeves. 'Global population is now six billion and is projected to be 11 billion by 2050. Scratch the surface of any environmental problem and it reveals population growth, and the way we live our lives, as the root cause. The need for a population policy has never been more urgent. While governments continue to see big populations as an indicator of economic strength, with a place at the top table of the UN guaranteed, the population problem will escalate and lead to environmental catastrophe.'

17. Cell, cell, cell

Does our love affair with the motor car



'Does our love affair with the motor car have to come to a screeching halt? Not necessarily...'

have to come to a screeching halt? Not necessarily. Tipped by many to take over from oil, hydrogen fuel cells could be powering many forms of transport within the next decade. Inside each cell, there is a chemical reaction between hydrogen and oxygen that creates electricity. The only emission from this process is water.

Full speed ahead, then? Not quite. We have to produce the hydrogen in a way that doesn't involve using fossil fuels. Then we've got to get the stuff to the vehicles with hydrogen fuel cells, a massive infrastructure challenge.

But with the US serious about this technology and major car companies developing plenty of prototypes, fuel cell vehicles are on their way.

16. Bury the problem

Carbon capture and storage (CCS) involves trapping CO₂ and storing it underground, for example in porous rocks under the sea. Chris Luebke says this should be mandatory for all new coal-fired power stations, 'together with an aggressive programme to convert existing coal-fired power stations.'

Chris Goodall says that economics are holding this back. 'At the moment, CCS approximately doubles the cost of producing electricity from fossil fuels. A global price of carbon should eventually make it economic to invest in CCS facilities at all power stations. Without this, we really are in a mess.'

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15. Better biofuels

‘Conventional biofuels are a complete disaster, financially and environmentally,’ says Chris Goodall. ‘We are capturing only a fraction of the energy value of crops, and then we are using a lot of fossil fuels to process this energy into a liquid fuel. We may see cost competitive technologies for breaking up the cellulosic material of plants within ten years or so. This means that we will be able to use most organic wastes to make fuels much more efficiently.’

14. A surge in renewables

The winds of change may be blowing through our energy industry, but not hard enough. We have some of the world’s best renewable energy resources on our doorstep, including 40 per cent of Europe’s wind power.

But it’s the sea that really floats our panel’s boats. Paul Brown and Chris Goodall are particularly keen on undersea turbines to harness tidal power while Penney Poyzer says the UK’s potential for energy generated from waves around our coastline is ‘massive’.

And how about ocean energy conversion – ‘using the difference in temperature between surface ocean water and deep sea to extract heat and turn turbines’, says Paul Brown. ‘It’s being developed by the Japanese and is useful for all tropical countries with an ocean coast.’

13. Don’t care too much for money

It can’t buy you love, and it can’t buy you happiness either, according to many studies. So let’s stop seeing it as the one big measure of success. Instead, says Tony Juniper, we need a ‘new ecological economics in which the value of nature is reflected in how national accounts are calculated and which seeks to improve human wellbeing, not just increase GDP’.

Nick Reeves agrees. ‘Economic benefits must be measured in terms of improved quality of life and care for the environment.’

If this sounds like wishful thinking, Fred Pearce predicts that such a shift will be forced upon us: ‘Catastrophic collapse of West Antarctic ice sheet and three-metre rise in sea levels triggers collapse of global insurance system and revolution in finance system on “sustainable” model.’ Grim, but effective.

12. Measuring up

When it comes to our energy consumption, with our electricity meters stashed away showing readings that don’t mean much without a calculator, out of sight is generally out of mind. That’s why Jonathan Porritt and others want us to have ‘smart meters – making the connection between electricity consumption, the bills we pay, and emissions of CO₂’. Penney Poyzer recommends forking out £60-80 on Electrisave – ‘it makes how much energy is being used tangible and it is quite addictive to see how many things you can switch off!’ Paul Brown says it would help if every house had an energy audit, including ‘subsidies for those not able to afford effective measures to reduce carbon emissions.’

11. Waste away

We’re getting a lot better at recycling in the UK, but we’re still pretty rubbish. That has to change. It would help if we encouraged markets for recycled materials, says Martin Bigg. It would also help if manufacturers had to take back more products at the end of their life, says Tony Juniper – recyclability would become part of design.

We also had two nominations for a zero waste culture – an excellent but longer-term aspiration – and a plug from Penney we couldn’t ignore. ‘If you are not a member of Freecycle, I urge you to join. It is simple. Say you have 20 white bathroom tiles you can’t bear to chuck out. You put them up on the site for free, someone locally wants them and comes to fetch them. Keeps usable items out of landfills.’



Waste away: recycling is good, reducing is even better



A fresh blow: with 40 per cent of Europe’s wind power, the UK needs to ramp up renewables

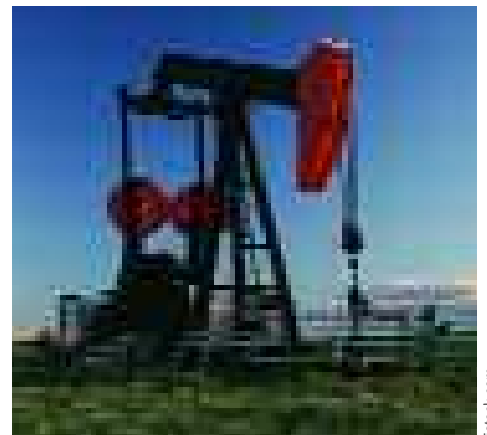
In the zone: transport needs to change, starting with our car congested city centres



Sam Toren/Alamy



Mark Boulton/Alamy



istock.com

10. Transforming transport

Not so much goodbye car and aeroplane as hello a bunch of irresistible alternatives.

For Paul Brown this means high speed trains replacing short haul air flights, and encouraging freight back onto the rails using taxes. For Ian Christie it's investment in new routes for light rail, trams and bicycles. And double decker alternative fuel buses in all UK cities over 100,000 people, to be funded via revenues from subsequent road pricing. And Julie Foley wants road user charging in congested urban areas.

Finally Chris Baines is fed up with waiting for buses, not knowing when one (or three) will arrive or where exactly they're going – all of which could be resolved by intelligent, real-time information displays.

9. Buying less, buying better

If we have to buy, buy well. 'For example,

only purchase products that are packaging free and that were made or produced under fair labour conditions,' says Nick Reeves.

Paul Brown takes this idea a step further. 'Fairtrade has now become a highly successful international network. This needs to be extended to look at the damage that some trading practices do to the environment. This is already taking place with international environment groups and aid agencies exposing the bad practices of businesses in developing countries. This must be expanded.'

And backed up by a new corporate accountability convention negotiated in the UN, says Tony Juniper – involving binding sustainability rules for businesses.

Or avoid new stuff and buy a second hand alternative, says Chris Goodall. Better still, don't buy at all. 'My hope is that we come to see consumption as slightly naff, something you only do when you have to,' he says.

Finally, let's hear it for co-ops. Penney Poyzer sees the future in a type of company 'democratically managed by members, with principles rooted in climate change and reduction of resources.'

8. Kicking the fossil fuels habit

'Our love affair with fossil fuels is killing the planet,' says Nick Reeves 'And it is set to continue as the arctic polar ice cap melts to reveal new sources of fossil fuels that will harm the planet further.'

Mark Everard agrees, saying the addiction will only lead to a painful bout of cold turkey if we don't get the alternatives sorted out. This will include wars, as 'emerging economies out-compete us economically for black gold'.

One place to start these preparations is locally. Penney Poyzer takes her hat off to Transition Towns (see feature in YE16) – 'a way for rural and urban communities to work positively together to face a world beyond oil. It was "unleashed" in Totnes and we recently started a group in Nottingham. We are not wild-eyed survivalists, just ordinary men and women with an eye to a potentially difficult future.'

For Fred Pearce, kicking the habit means just that – he wants to see burning coal 'banned worldwide'.

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7. Flight plan

It's become the environmental battleground of our times, with protestors at Heathrow stealing the headlines for weeks in the summer and political parties ramping up their policies as far as they dare.

For starters we'll need to fly less. Again, trading could be the answer, says Chris Goodall. 'In the UK, I'd give everybody a voucher for perhaps 2,000km of air travel a year. If you want to travel more, you'd have to buy other people's vouchers.'

Or simply make it a good old fashioned case of the polluter pays – 'at least doubling the price of aviation fuel immediately with steep increases thereafter,' recommends Paul Brown. 'Additional airport taxes for short haul flights where alternative public transport is available would also be helpful,' he says.

Stopping airport expansion will also help – Ian Christie calls for an 'immediate moratorium' in the EU.

We'll also need to fly better. Tony Juniper says a new low carbon passenger aircraft design will help. The day of the eco-jet has arrived.



Stop winging it: we need to fly less and fly better

Michael Juno/Alamy

6. Making green cheaper

Death and green taxes – perhaps the only things we can be certain of in future. And what may be punitive to some are to others simply an incentive to do the right thing.

Taxes and incentives could phase out damaging technologies where better ones exist, says Matt Georges – light bulbs, cars and electrical goods being obvious candidates.

'Every product that reduces the nation's carbon dioxide footprint (for example insulation) should be zero rated for VAT and clearly labelled as such,' suggests Paul Brown. Making green stuff cheap and bad things expensive will mean that people will buy better whether or not they're interested in the environment, says Pete Bailey.

Other ideas to help us swallow any bitter little green pills include eco reward cards and employee incentives.

And how about this for a novel idea from David Boyle – local, city and regional currencies. 'They mean we use resources more efficiently,' he says – something people have already started doing in Totnes.



Bright idea: phasing out things like high-energy light bulbs is the way forward

'Death and green taxes – perhaps the only things we can be certain of in future'

Hot house: we need home owners to embrace solar power and other forms of clean energy generation



Mark Boulton/Alamy

5. My generation

The energy revolution starts at home, say our experts. It's what David Boyle describes as de-centralised energy – 'every lamp-post, every home, a net producer'.

But how? First of all, says Noel Wheatley, EC member states need to accept that electricity production and distribution can be owned separately – known in the business as 'unbundling'.

Then, says Paul Brown, we need small scale electricity generation that is cost-effective and works well, particularly wind turbines and solar panels. These must include combined heat and power and heat pumps, he says. Technology is moving fast in this area, so we shouldn't have long to wait.

Paul and Penney Poyzer argue that people need more help and incentives to

fit these kinds of appliances. The government should also invest properly in low income communities and train local people to construct and install low cost renewables.

Penney and Ian Christie say we should copy the Germans, who have made energy companies commit to purchasing domestically generated electricity from solar panels at four times the market rate.

This has resulted in massive take up by the public.

And we should embrace whizzy technology – like Power Paint. 'Scientists from New Mexico State University have used nanotechnology to create a film that uses plastic to form solar cells so thin, they can be applied like paint,' says Penney. 'This material can be formed around any shape. It could revolutionise the market.'

'The energy revolution starts at home – every lamp-post, every house a net producer'

- Consumer and domestic
- Groups and networks
- Ideas and belief systems
- Policies and agreements
- Science, technology and education

4. Beyond Kyoto

As a means of getting a large number of countries serious about reducing carbon emissions, the Kyoto Protocol was a landmark agreement.

But it's just a start, and a pretty modest one at that. Many of our panel of experts recognise that, when it comes to Kyoto's successor, it's crunch time.

Dr Robert Watson says it needs to be 'a long-term, equitable, regulatory framework to limit human-induced climate change to two degrees centigrade above pre-industrial levels'.

Ian Christie argues that this means agreeing tougher targets than most have so far envisaged – we need to aim at an 80 per

cent cut in CO₂ by 2050, and include USA, China, India and others. This has to be based on support from citizens, businesses, local authorities, NGOs and faith groups, 'with associated behaviour change pledges,' he says.

It also means using every mechanism available, adds Tony Juniper – including emissions trading, tax incentives, regulations and public awareness campaigns.

And what happens if the targets are too soft? Paul Brown warns that anything less than firm political commitment, and that means legally binding agreements, 'spells disaster for the Earth'.

'Anything less than legally binding agreements spells disaster for the Earth'



Power struggle: we need a successor to Kyoto that is brave and binding

3. Sun worshipping

So many of our panel singled out solar power as the big renewable energy winner of the future that we were compelled to give it its own entry.

In some cases, this would simply mean going large, says Jonathan Porritt. He calls it 'Concentrated solar power – in other words, very big solar panels'.

Paul Brown takes up the theme, saying we should be 'using giant mirrors in tropical and desert regions to direct the sun's rays onto a liquid so it boils and turns turbines to make electricity. This could power the whole of Europe from the Sahara desert.'

This kind of technology already exists – there's one such solar thermal power plant already operating near Seville in Spain and another in the desert of California.

But little will also go a long way, says Chris Goodall. 'Solar electricity has been held back by the very high cost of producing large slabs of silicon. Advances in nanotechnology seem likely to hugely cut the cost of the raw material. We can expect very thin layers of photovoltaic material to cover large parts of buildings at a reasonable price.' (Also see entry no. 5.)

Fred Pearce agrees, saying that mass production of construction material incorporating solar panels offers a 'viable global solution to built environment energy needs'.

'Giant mirrors could power the whole of Europe from the Sahara desert – this kind of technology already exists'



Time to reflect: we need more big solar energy solutions like this one in California, which drives steam turbines

- Consumer and domestic
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2. A leap of faith

The appeal comes through loud and clear from our panel – religious leaders need to make the planet their priority. ‘The world’s faith groups have been silent for too long on the environment,’ says Nick Reeves. ‘It is time that they fulfilled their rightful collective role in reminding us that we have

a duty to restore and maintain the ecological balance of the planet.’

Penney Poyzer puts it rather more graphically. ‘Organised religion of all denominations, PLEASE get your congregations to make caring for our rapidly decomposing, landfill site of a

planet the utmost priority,’ she says. Chris Goodall agrees, urging different faith groups to come together. ‘They need to form a coalition to encourage their followers to set an example to the rest of the population,’ he says.

Paul Brown argues that Christians, Muslims, Hindus and others already believe that it is morally wrong to damage the environment. The problem is that many people simply choose to ignore this.

And it’s not just religious leaders that need to do their bit, says Dr Mark Everard. ‘Human responsibility for the future of our world calls for a reverence for what is natural that is deep enough to provoke proportionate action to protect it.’ (Also see entry no. 24.)

‘It is time the world’s faith groups reminded us that we have a duty to restore and maintain the ecological balance of the planet’

Faith healing: religious leaders visit Greenland’s melting ice sheets to pray for the planet



Bye bye stand by: wastes the equivalent of two power stations of electricity



STAND BY

Andrew Buttenon / Alamy

1. Powering down

Let's face it, not many of us are likely to ditch the telly to help save the planet. So if we must have a wealth of white goods, a heap of hi-fi and a profusion of PCs, we have to cut their energy use down to size.

Tony Juniper sums it up nicely. 'All electrical products to embody the most energy efficient technology,' he says.

Penney Poyzer sees a world in which all white goods go to the top of the class, having to meet a minimum 'A rating'. Government could also encourage the super-efficient with a scheme that meant 'purchasers of A++ and Triple A rated appliances, eco kettle etc could claim back tax.' This could include things like induction hobs, which use around 50 per cent less electricity than a conventional hob. Ian

'So remember, when it comes to saving this lovely old planet of ours, less is definitely more'

Christie agrees, suggesting we vary VAT on consumer goods 'according to CO₂ emissions and energy efficiency rating'.

And it's goodbye to stand-by. It should be banned, say Penney and others. She tells us about a great little gadget called Bye Bye Standby, 'a brand new energy saving solution designed to reduce the daily energy consumption of electrical devices. With the equivalent of two power stations of electricity being wasted by equipment left on standby in the UK each year simple, gadgets like this can help. It costs £19.00 and can pay for itself in a year.' And while we're at it, 'ban patio heaters now,' says Ian Christie.

So remember, when it comes to saving this lovely old planet of ours, less is definitely more.



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