

A Soft Landing: Creating a Sustainable Market in Aviation

Aviation Policy Paper

Policy Paper 71



Contents

Introduction	3
The Liberal Democrat Approach	4
Airports and Runways	10
What the Industry can do	13
Creating an alternative	14
Conclusion	17
Annex 1	18

Introduction

1.0.1 Aviation brings many benefits to the economy, for example, the industry directly provides jobs for over 180,000 people in the UK, and contributes some £10.2 billion to the gross domestic product. Aviation provides considerable economic and cultural benefits, not only in allowing people to travel and broaden their horizons, but by allowing goods to travel and enriching people's lives.

1.0.2 However, the sector faces a major challenge: the growth of emissions of greenhouse gases (GHG). The International Panel on Climate Change (IPCC) estimates that as a consequence of human emissions of GHG, the climate will warm by between 2 and 5 degrees by 2050. This would increase the likelihood of extreme weather events such as droughts and floods. It will shift rainfall patterns, and put at risk water resources, agriculture and food supplies, habitats, and species. Whilst the climate has changed in the past, what is different this time is the rate of change. Species simply cannot adapt this quickly.

1.0.3 Aviation currently accounts for only around 4% of UK carbon dioxide. However, the effect of emissions at altitude, and the anticipated doubling of air passengers over the next few years will undoubtedly lead to a considerable increase in both the actual quantity of GHG and the overall share of aviation as a contributor towards global climate change. We must act to hold back the growth of GHG from aviation.

1.0.4 In many respects aviation does not pay its full way. It is exempt from a

range of taxes on other sectors, and the cost of damage to the environment and to communities is not reflected in the price of a ticket.

1.0.5 The Kyoto Protocol commits signatories to cutting emissions of GHG by 5.2% of 1990 levels by 2012. However, international aviation and maritime emissions were excluded from the Kyoto Protocol under Article 2.2. Responsibility for regulating emissions from international aviation has been left to ICAO, which has no powers of enforcement. Domestic aviation is covered under the Kyoto Protocol and currently accounts for about 0.5% of the UK's carbon dioxide emissions; but the Kyoto Protocol places limits only on carbon dioxide emissions, not the emissions of oxides of nitrogen and water vapour. These gases, when emitted at high altitudes, cause more damage than they do at ground level, resulting in greater 'radiative forcing' from aviation than might be expected from its carbon dioxide emissions alone. In other words, these emissions act as more powerful greenhouse gases when released into the atmosphere at a high altitude than if they are released at ground level.

1.0.6 This paper looks forward to the policies we need to follow to achieve a 60% reduction in emissions by 2050. Much of the focus of the paper is what can be achieved towards this target in the current or next parliament. By taking action now we believe that the aviation industry can plan for a more sustainable future.

The Liberal Democrat Approach

2.0.1 Liberal Democrats seek to balance two types of freedom: peoples' freedom to travel and the freedom to live without the environmental impacts, including climate change, local air quality and noise. We must also balance the freedom for the present generation to travel with the freedom for future generations to travel. Irreparable environmental damage and increasing scarcity of resources are issues we must face today. This means that the *unlimited* freedom to fly is one we need to question because of its long-term costs to the environment.

2.0.2 In Policy Paper 58, *Conserving the Future*¹, Liberal Democrats committed to a 60% reduction in CO2 emissions by 2050 and set our overall policy approach for achieving that goal. We believe that aviation must take a fair share of this reduction and now propose to apply the approach outlined in that paper to this sector.

2.0.3 Liberal Democrats believe that aviation should be incorporated into the Kyoto Protocol, and the proposed 60% cut in carbon dioxide (CO2) emissions needs to apply to the economy as a whole, including aviation. Whilst we would seek to achieve reductions at least cost across the economy, much of the reductions must come from within aviation as well. Liberal Democrats also seek to ensure that, following the polluter pays principle, the damage

caused is reflected in the ticket price and we aim to achieve this through market mechanisms.

2.0.4 The Government's White Paper, "The Future of Air Transport", states that "*UK air travel has increased five-fold over the last 30 years. Half the population now flies at least once a year. And freight traffic at UK airports has doubled since 1990...All the evidence suggests that air travel will continue growing over the next 30 years. But if we want to continue enjoying its benefits, we have to increase capacity*"². Indeed, the Government is planning to allow a doubling and doubling again in aviation.

2.0.5 We have very little faith in the government's passenger forecasts (see Annex 1) which would be equivalent to every person in the UK flying around 10 times a year. In consequence, 'a predict and provide' approach adopted by the Government to runways poses serious threat to future environmental sustainability. There has to be a limit on new capacity, and we believe we are at, or close to, that limit.

2.0.6 Labour's 'predict and provide' approach - will only store up problems for future generations. By sticking its head in the sand, the government is increasing the risk of a shock to the system, as world resources –including the climate's ability to absorb greenhouse gases - cannot cope with the unrestrained demands we put upon it.

1

http://www.libdems.org.uk/documents/policies/Policy_Papers/58ConservingtheFuture.pdf, and http://www.libdems.org.uk/documents/policies/Policy_Papers/transport.pdf

2

http://www.dft.gov.uk/stellent/groups/dft_aviation/documents/page/dft_aviation_031518_hcsp

2.0.7 Liberal Democrats would adopt the following principles to address GHGs from aviation:

- Aviation, like all other sectors of the economy, must play a part in helping to achieve a 60% reduction in GHG by the year 2050.
- Action to reduce emissions in one sector of the economy must not result in rises elsewhere.
- ***The international competitiveness of the UK aviation industry should not be reduced***
- The sector should be treated fairly in comparison to other sectors, though at the same time the industry should pay its costs, including external costs and receive no subsidy (direct or hidden) from the tax payer (except on a very limited number of lifeline routes to remote areas of the UK where rail is not a realistic alternative).
- Any mechanism must lead to long term lowering of emissions with genuine, year on year reductions.
- Any mechanism for reducing GHG must be cost effective – in other words, it must be able to lead to the greatest reductions at the lowest price.
- Action must not lead to damaging social and economic consequences.

These principles are now discussed in detail:

2.0.8 60% reduction in carbon dioxide emissions by 2050

Some sectors will achieve a bigger reduction than others. For example, the electricity-generating sector has considerable scope to reduce GHG emissions by moving to renewable sources and away from fossil fuels. The ability to reduce GHG emissions is larger in this sector than in others. Any mechanism for reducing emissions must be flexible enough to take these differences into account. However,

aviation must take its fair share of reductions, and cannot leave other sectors to make all the cuts.

2.0.9 No rises in other sectors

Different sectors will achieve reduce emission reductions at different rates. However, a mechanism should not be introduced if all it does is transfer to other industries the emissions otherwise produced. Suppose for example that liquid hydrogen became a realistic option as a fuel for ground based vehicles. The only by-product of burning hydrogen is water vapour. This would certainly see a reduction in the GHG emissions directly from vehicles. However, if the energy sources for producing hydrogen are fossil fuels, there is no overall gain for the environment, unless the carbon extracted can be sequestered rather than being released to the atmosphere, and unless the use of hydrogen allows a big gain in efficiency. In other words, the apparent creation of a clean fuel source can in reality simply be the transfer of GHG from one sector to another. If a mechanism for reducing emissions simply leads to a transfer, it has failed.

2.0.10 Ensure that the international competitiveness of the UK aviation industry is not reduced.

A mechanism to reduce greenhouse gas emissions that applied only to the UK aviation industry without applying to foreign competitors might not lead to a real reduction in emissions. But it may reduce the size of the British aviation industry at a time when it is cleaning up its act and make foreign firms, not constrained by GHG reduction mechanisms, cheaper by comparison. The outcome would be to reduce jobs and prosperity in the UK. There would be no environmental gain. Therefore, Liberal Democrats would seek to secure EU and international agreement for our proposed policy framework.

2.0.11 The sector should be treated fairly in terms of taxes and benefits.

All sectors of the economy should be treated equitably and fairly unless there are over-riding social, economic or environmental reasons or where the strategic national interest is concerned. As with other sectors of the economy, we do not believe that aviation should be the target for special taxes simply for the purposes of general revenue raising by the government.

2.0.12 Nor, of course, should aviation be the recipient of special privileges. Aviation is not required to pay many taxes that other sectors pay. There is no tax on aviation fuel (and no hydrocarbon fuel duty as there is on road fuel) and no tax on the emissions (and no Climate Change Levy as there would be on any other commercial site).

2.0.13 The aviation industry arguably has significantly higher external costs than other sectors and the market price of aviation would be more realistic if these costs were reflected in ticket prices and freight charges. We believe aviation should be self-supporting and expect no subsidy from the taxpayer other than on lifeline routes to remote areas in the UK where there are no realistic public transport alternatives.

2.0.14 Any mechanism must lead to long term lowering of emissions with genuine, year on year reductions.

Any mechanism for GHG reduction must show that it will lead to a long term and sustained cut in GHG emissions. The introduction, for example, of Airport Departure Duty in 1994 by the Conservatives (as a measure to help balance the Government's books!) has not led to any long-term reduction in emissions.

2.0.15 Policies must not lead to damaging social and economic consequences.

Many parts of the country rely in part on aviation for access to their markets or to bring visitors. People should be able to travel and the ability to see, experience and understand other parts of the world can only help to improve ourselves and the society in which we live. In addition, many poorer countries rely on aviation to export goods to us. Without that ability to trade, those countries will be poorer, and our quality of life and the choices we have, will be less. The role of aviation, not just in terms of the travel benefits to individual citizens, but as a service provider to other industries, needs to be recognised.

2.1 Market Mechanisms

2.1.1 In March 2003, the Department for Transport and HM Treasury published a report 'Aviation and the Environment: Using Economic Instruments',³ This estimated the monetary values of external costs relating to climate change, local air quality and noise. The report estimated the climate change costs associated with aviation, using an illustrative value for the cost of carbon of £70 per tonne (rising by £1 per year in real terms). This is the social cost of carbon, and not the cost for saving a tonne of carbon through, for example, emissions trading. The cost of carbon emissions associated with UK passenger aircraft was estimated at £1.4 billion in 2000, rising to over £4 billion in 2030.

2.1.2 Realistic pricing would help bring demand more into line with a realistic and sustainable level of aviation below the sky-high level the government have predicted. Liberal Democrats believe that market mechanisms are the most effective route to achieve our goals at the lowest price. They push our existing market economy

³ http://www.hm-treasury.gov.uk/media/8C8/60/Aviation_Environment.pdf

to achieve the outcomes we believe are beneficial, give consumers the choices they want and ensure the cost of the environmental effects of goods and services are reflected in their price.

2.1.3 Information

A pre-requisite for any measure to reduce emissions through economic instruments is information. People need to know the impacts of the choices they make. When they buy a fridge it has a label on it to tell them of the electricity use and thus the cost and carbon emissions can be calculated. Labelling will soon be extended to cars, houses and even electricity. By extending the principle to airline tickets, we will be able to demonstrate to individuals the actual damage to the environment caused by their decision to take that flight.

2.1.4 Pollution charge

Currently, passenger flights pay £1 billion a year as airport departure duty (APD). No duty is paid on fuel and tickets are, as with other forms of public transport, zero rated for VAT. The environmental benefits of APD are negligible. An aircraft that is filled to capacity, and therefore more efficiently used, pays more duty than a half filled plane. Freight pays no duty at all even though it is often carried in the same plane. The duty is not always quoted by airlines when advertising ticket prices. APD therefore encourages airline operators to avoid transparency in their ticketing arrangements.

2.1.5 Liberal Democrats would abolish APD and replace it with a pollution charge more closely related to the actual emissions (and therefore the environmental damage) caused by a specific flight. The charge would show those incurring it that their activities have an environmental consequence that carries an economic cost. Whilst the charge would be paid by aircraft operators, we would seek to require that

any billing to freight customers or ticketing for passengers will indicate an estimate of the contribution towards the cost of pollution of the flight in question.

2.1.6 We propose that the charge would be paid by the operator of both passenger and freight aircraft, based on the amount of pollution produced by the aircraft during the journey. It would, therefore, be based on the actual level of emissions. The more fuel-efficient an aircraft is, and the lower the noise pollution created, the lower the charge would be.

2.1.7 APD currently applies only to passengers. This means the burden of aviation taxation falls on the travelling public and not on freight. This is an unreasonable burden. Our pollution charge would apply to all commercial aircraft whether they carry passengers, freight or both.

2.1.8 The pollution charge paid by the industry would be the equivalent of the cost of the environmental caused to the UK by aircraft flying from UK airports. The most recent government estimate puts this figure at £1.5 billion. The pollution charge will therefore raise £500 million in its initial implementation than APD. The uses to which the revenue would be put will be addressed in our forthcoming policy paper on taxation.

2.1.9 Emissions trading

Liberal Democrats support incorporating aviation into the EU Emissions Trading Scheme (EU ETS) as a market-based mechanism through which aviation could cut its CO₂ emissions. The first point at which this would be possible is 2008, the start of the second phase of EU ETS. There is however strong concern that this date will be missed and aviation may not be included until 2012. This will mean a further four years without measures to

tackle emissions making the problem all the more pressing and difficult once aviation has begun carbon trading.

2.1.10 The real danger is that aviation's successful inclusion in the EU ETS may be seen as a sufficient commitment by the industry to reducing its environmental impact, so other policy measures would no longer be pursued. There are many well-founded doubts that, in the short-term, inclusion in the EU ETS would have insufficient impact on aviation's emissions. Once in the trading system, only those emissions above the cap will be traded in the early years. Initially they are only a small proportion of the sector's overall emissions. As a result, the impact on price, and therefore on emissions, would be minimal in the first years of operation. In addition, we need to press EU ETS to ensure it takes into account the actual effect of emissions. A tonne of CO₂ emitted at high altitude has a GHG impact about two and a half times the impact of the same quantity released at ground level.

2.1.11 In the medium to longer term, emissions trading can play a significant role in achieving a 60% reduction in CO₂ emissions by 2050, provided there is no increase in the permitted level of emissions.

2.1.12 When aviation enters EU ETS Liberal Democrats would retain the pollution charge, recognising that it will have to be adapted to the changed circumstances of aviation's having to purchase some of their emissions. The system will have to be kept under review to ensure the sector does not have to pay twice or is unfairly treated compared to other sectors.

2.1.13 **Setting a target**
The projected rise in aviation emissions is unsustainable (see annex). Our ideal scenario is to contain emissions within their existing levels as an initial target.

Any target set needs to take into account existing circumstances and will need to be reviewed to assess the impact of events and circumstances.

2.1.14 **Assessing the impact and considering further options.**

The impact of global climate change should not be underestimated. We will need to keep options under review to monitor effectiveness. Liberal Democrats propose to build a system of measures for aviation – and indeed any sector of the economy and society generally – that is flexible and can respond to changing circumstances, new technologies and international agreements. The baseline from which we operate is: what is the most effective and cheapest route to tackling global climate change that is fair to the passenger, operator and especially the planet?

2.1.15 In addition to the measures proposed above, Liberal Democrats would seek to ensure negotiations continue at an EU and international level on the option of a duty on aviation fuel. The Kyoto Protocol allows for the introduction of such a duty. If international agreement is reached, our system will be flexible enough to ensure its introduction without unreasonable burdens on aviation whilst ensuring there are the maximum benefits to the environment.

2.2 General Aviation

2.2.1 “General Aviation” is that part of the flying world involving light aircraft - usually two, four or six seat piston-engined aircraft - flown mainly by “Private Pilots” on business or pleasure. Even though most flights are between small airfields at low level, such aviation contributes £5bn annually to the UK economy. Unlike the large commercial aircraft sector, General Aviation aircraft pay the same fuel

duties as car drivers do. However, due to their small capacity, relatively low performance and low operating altitude, these light aircraft generate a very small environmental footprint. In fact, UK General Aviation's *total* daily fuel usage is equal to the amount used by a single Boeing 747 in the first four hours of a transatlantic flight.

2.2.2 Liberal Democrats will work with organizations like the Aircraft Owners and Pilots Association, the Permit to Fly Association, and the British Gliding Association, on issues affecting light aviation, including navigation charges, regulatory requirements and airspace changes. We will assess the cost and safety benefits of less bureaucratic regulatory regimes – including those successfully operated by the American Federal Aviation

Administration. We support a “U.S.” style Private Pilot’s “Instrument Rating,” in order to make the qualification more relevant and to improve safety.

2.3 Consumer Protection

2.3.1 The Civil Aviation Authority is actively considering a levy of £1 on each airline ticket to pay into a fund to protect travellers who are stranded when their airline operator collapses. Liberal Democrats support this proposal on the basis that it gives greater confidence to travellers, especially those on low cost airlines where the company is more vulnerable to economic pressures due to much tighter margins.

Airports and Runways

3.0.1 The aviation industry has expanded tremendously in the past half century. Government forecasts predict a nearly trebling of the number of air passenger journeys by UK citizens to over 500 million by the year 2030 (see Annex for further discussion). The issue the nation faces is whether or not to plan for the expansion of runway capacity to meet constantly rising demand. Liberal Democrats seek to make the best use of the existing runways rather than to build new ones.

3.0.2 Nevertheless, emissions from aircraft in the vicinity of airports contribute only part of the overall damage caused to the environment. Car travel to airports also adds to congestion and emissions. Liberal Democrats believe the airport operators themselves can make a significant effort to reduce the need to travel by private car to airports. The Heathrow Express is an example of what can be done. We would, however, look to encourage better public transport access to the UK's airports through the planning system. Liberal Democrats would draw up a planning strategy which places a requirement for any developments within existing airports to be accompanied by plans for an increase in the use of public transport to the airport concerned by travellers and staff alike.

3.0.3 Liberal Democrats believe the scale of road construction should be reduced and support new build only when there are over-riding economic, social and environmental reasons. . Whilst some new roads remove traffic from the heart of towns and villages, others tend to generate additional traffic simply by being there. Their construction creates more capacity on the road system. We apply the same

approach to the expansion of runway capacity in the UK.

3.0.4 The biggest UK market for air travel lies in the South East. Not surprisingly, the greatest pressure is on Gatwick and especially Heathrow. The air flight capacity of the South East is governed by the availability of suitable runways in the region. Liberal Democrats believe that for the foreseeable future, and at least until 2030, limits on air flight capacity in the South East in particular should be set by limiting the amount of runway space to a level that is roughly equivalent to what is currently available. This is why we have opposed a second runway at Stansted and the third (and short) runway at Heathrow.

3.0.5 Outside the three main airports serving the capital, airports generally are not operating up to capacity. Though we make a presumption against new runway capacity, we do not rule it out. There are circumstances in which some runway expansion would be sensible, for example to facilitate some point to point air travel which avoids the need for large numbers of people to travel to the South East national airports.

3.0.6 The effects of this approach, especially in the South East, are two fold. Firstly, it would push the aviation industry to maximise the current capacity and to use it more efficiently and imaginatively. Secondly, as with emissions trading, it would set a limit on a polluting activity beyond which the industry cannot go. By effectively imposing a cap on aircraft movements, we will create a leaner market without the need for heavy state regulation and intervention.

3.1 Night flights and Runway Alternation

3.1.1 Scrapping restrictions on the operating hours of runways would considerably increase the capacity of Heathrow in particular. Liberal Democrats believe night flights should be phased out gradually.

3.1.2 Runway alternation is in use at Heathrow. Under this system, for a few hours in a row, one runway is used only for landing whilst the other is used only for take off. The runways are then swapped over. The aim is to give those living in the take off paths periods of less noise. Ending this would increase the capacity of Heathrow but would also bring unacceptable noise pollution on a continuous basis to much of South West London. Liberal Democrats would retain the existing system of runway alternation.

3.1.3 One of the consequences of creating what is effectively a cap on capacity at the three main airports serving London would be the growth in the value of airport slots – the landing and take off slots for aircraft. Liberal Democrats would develop the market that allows the aviation capacity to be more effectively traded. The specific measures that we propose are set out below.

3.2 Slot auctioning

3.2.1 Demand at Gatwick and especially at Heathrow has already given slots at these two airports a monetary value. Indeed, they are prime economic assets. The allocation of slots is by a ‘grandfather rights’ system. Under this, a slot remains (subject to certain rules) with the company that held it previously. Slots were not bought by the operators, but were given by the state, often years ago, when the airports were in public ownership.

Although rules exist for the allocation of some slots to new operators, established operators have a significant commercial advantage as well as effectively a hand out from the state. The system is also anti-competitive and provides the holders of grandfather rights with a significant financial benefit according to the scarcity value of the slots involved.

3.2.2 Nevertheless, a slot does not appear on the books of the owner. The open trading of slots is not permitted. There is however a grey market in which airline operators swap slots or trade them. This is an area that needs major reform. The allocation and trade of slots is a matter handled at the EU level. Liberal Democrats would lobby for the necessary reforms. Our aims are as follows:

- We will create an open market that recognises existing slots as economic assets belonging to the existing holder. They will appear on the books of a company and will be openly traded.
- New slots will be auctioned.

3.2.3 The capital raised from auctioning new slots and a share of the capital raised from the sale of existing slots will go into a fund which will be used by airport operators for investment in public transport, especially for rail and bus links to airports.

3.2.4 We believe that the market for slots may need some limited regulation to prevent a small number of airline operators from buying up the vast majority of slots. Some remote parts of the UK rely on aviation as their only realistic form of travel to and from the capital. Areas such as the Highlands and Islands have sparse populations unlikely to be able to maintain a large and profitable market for air travel. The lifeline airlink to London however is vital to the local economy and we need

to ensure the society of the area is not damaged by being largely cut off from the rest of the UK. In such circumstances we believe it is reasonable for the government to own a small number of slots and to licence specified operators to use the slots to run lifeline flights.

3.2.5 Airport slots only have a value where demand outstrips supply. Outside Heathrow and Gatwick, slots will have no economic value. Auctioning them would therefore prove to be a pointless exercise. This may change over time. A cap on runway capacity in the South East may, in the

3.3 “Single till”

3.3.1 The “single till” regulation helps to distort the aviation market in the UK. It results in more demand for those airports by airline operators which then works against the interests of smaller operators. The regulation refers to the landing charges an airport operator can require an airline company to make for using airport facilities. The income has to be partially balanced against that received by the airport operators from other commercial activities, particularly from rents paid by retailers on their outlets at the airport. The effect is that a rise in rental income drives down the airport charges. Rents are highest at the busiest airports simply because of the number of customers passing through.

foreseeable future, reverse the unfavourable attitude of many airline operators towards Stansted. Out of necessity, demand for slots at Stansted could rise to the point at which it outstrips supply. And at that point a market in slots at the airport begins to develop. Likewise, the same development could occur at Manston in Kent. Some people will travel to regional airports and we accept there will have to be some increase overall in land based travel as a result. There will however be less need for people outside London and the South East to travel to that part of the country to make use of international flights.

Lower landing charges provide an additional incentive to airlines to use the busiest airports. This in turn attracts more customers, driving retail rents higher and landing charges lower. This is a spiral that needs to be broken if trading in runway capacity is to operate effectively.

3.3.2 Liberal Democrats would, therefore, scrap the “single till” regulation and enable airport operators to set economic levels for landing charges. The market itself would not become entirely unregulated. BAA is a near monopoly provider of airport services in the South East and some degree of regulation may be needed to take into account the lack of an equivalent commercial competitor.

What the Industry can do

4.0.1 In response to a framework of internalising external costs, especially the external costs of climate change, the aviation industry has a number of possible responses we would work with them to develop.

4.0.2 In the near-term, the greatest improvements can clearly come from better use of the existing stock of aircraft.

- On average only 78% of seats on international flights, and 65% on domestic flights, are filled. If higher load factors can be achieved, reductions in environmental impact per passenger-kilometre would follow.
- Reductions in impacts of around 10% are generally regarded as feasible by reducing stacking - delays in landing - and allowing aircraft to fly on more optimal routes. Particularly in Europe, the fracturing of air space between different national air traffic control systems and the use of different technologies are a barrier. Europe-wide action is needed to optimise the use of European air space by harmonising air traffic control technologies and procedures
- The impact of a plane depends very much on its non-CO2 emissions and where they occur. For example some types of aircraft are five times more polluting than others.
- According to the Royal Commission, Contrails –which form a significant portion of the Global Warming impact of aviation- only form in a narrow band of the atmosphere. Our understanding of

the science of aviation and the upper atmosphere, combined with weather forecasting, should soon be such that forecasters can help pilots to avoid flying in these altitudes.

4.0.3 Liberal Democrats believe that there is a role for government in helping the industry, through high quality climate and atmospheric science, understand and mitigate its own impacts, as well as co-ordinating at EU level, where appropriate to better manage airspace. One example is supporting the development of cleaner technologies. We would take a more hands on role through Research Councils, working in partnership with the aviation sector, to carry out research into more efficient aircraft and technology ACARE has set a target of a 50% reduction in fuel burn per passenger kilometre, and a 50% reduction in noise from new planes by 2020 for improving the environmental performance of the whole industry, covering engines, airframes and operations. Much of the technology development is being carried out within the EU-funded EEFAE programme. There is a great deal of research into blended wing bodied (BWB) aircraft which could have dramatic improvements in fuel economy.

4.0.4 However, even with deployment of the most promising future technologies, if demand is unconstrained by capacity then, in absolute terms, the net effect of the aviation industry on the environment is set to increase.

Creating an alternative

5.0.1 Liberal Democrat proposals would place an effective cap on flights within the UK, and especially in the South East. Therefore, airline operators will need to look for effective alternatives to short haul, especially for passengers transferring to international flights. A move towards rail travel as an alternative to short haul would help tackle the level of aviation emissions – the highest emissions take place during take off. It would also help to free up capacity for the more profitable long haul flights for which there is no realistic alternative.

5.1 Rail alternatives

5.1.1 The building of the Channel Tunnel, and especially the opening of the dedicated high speed link through Kent, have provided the country with an alternative means of travelling to much of Western Europe. By linking in directly with the European rail network and its high-speed connections, we have an environmentally cleaner mode of transport. The opening of the international rail terminal at Kings Cross/St Pancras in 2007 will be a further stimulus to high-speed rail travel. This is a development welcomed by Liberal Democrats and we hope that direct services to the North will develop.

5.1.2 Carbon dioxide emissions and fuel use per passenger-kilometre are typically at least an order of magnitude lower for rail than for air travel. For relatively short journeys within the UK or to nearer parts of continental Europe, the environmental impacts of air travel are disproportionately high. These are precisely the journeys for which efficient rail travel should be available.

5.1.3 Forty per cent of the 7.5 million flights a year in the EU are now less than 500 km. As many as 18% of passengers are carried on domestic flights. Encouraging a shift away from the use of air transport over such distances, and even those on shorter European flights, could reap considerable environmental benefits as well as relieving pressure on major airports. If further improvements were made to the UK's high-speed rail networks, however, there would be an even greater incentive to opt for rail rather than air travel.

5.1.4 Where freight is concerned, there is even greater scope for modal substitution. CO₂ emissions for freight carried by rail are a factor of 20-100 times lower than for airfreight and in turn marine freight is a factor of 2 or more less damaging than rail freight⁴.

5.1.5 Liberal Democrats seek to create an alternative to short haul air travel in the form of a dedicated, high-speed rail network. We would apply the following principles:

- The final outcome must be lower levels of emissions of GHG to enable the UK as a whole to work towards its target of a 60% reduction by 2050;
- The cost of running the services will not be subsidised by the tax payer, though public sector direction and co-ordination may be needed in some form to get the initial investment to happen;
- The economic prospects of the UK must be improved by the establishment of the new network.

⁴ *The Environmental Effects of Civil Aircraft in Flight*, Royal Commission on Environmental Pollution, 2002

- The system must be integrated with other forms of public and private transport.

5.1.6 In creating a dedicated high-speed rail strategic links, we are looking at the creation of a new network. The Channel Tunnel Rail Link has been built from scratch and does not have to share with slow moving freight or commuter trains (though some high speed commuter trains will use the track). In most circumstances a new network of track would be built. It is of great importance that the network links in directly to mainland UK's main airports. This would reduce the pressure for flights into London to carry passengers transferring to long haul international flights. In other words, rail would act as the spoke to the airport hub.

5.1.7 Liberal Democrats believe that the building of a high-speed rail network should be a partnership between the public and private sectors but with ultimate direction and planning resting with the government. Given that under our proposals a limit on runway capacity would, in effect, place a cap on the number of flights from UK airports, there is a strong economic case for the aviation industry to invest in an integrated, high-speed rail network as well. With the auctioning of landing slots, the airport operators will have a source of capital that could be invested to create and expand the new network.

5.1.8 We believe the government should take a lead in planning the infrastructure and bringing the private sector together to build it. As long as the outcome is a fast and efficient network, the question of ultimate ownership is of lesser importance. At the same time, we are clear that any train services on the network must operate without a subsidy from the taxpayer.

5.1.9 We anticipate there will be close co-operation and many joint ventures between airline and train operators to provide through ticketing and other services.

5.1.10 In this paper we have looked ahead to the year 2050 when emissions will be reduced to 40% of the level they were in 1990. In that same year we envisage a point at which short haul domestic flights, other than to the more remote areas of the country, have disappeared and been replaced by travel by high speed rail.

5.2 The planning system

5.2.1 We have already touched on the planning system when discussing travel to airports by staff and customers. In *Planning for the Future* policy paper (March 2003) we looked at the need for a reformed planning system that handles major strategic planning applications more quickly. In such a system we proposed the creation within England of a planning system that would require the government to set out clearly policy on major infrastructure projects. When an application is submitted for a major project, it would be judged at a national public inquiry as to whether or not it fitted the government's stated policy. If it did fit, it would then be sent on to the relevant local authorities with what is effectively outline planning permission granted. Local planning authorities would decide the details of the application. We believe this is a much quicker system that is fairer and avoids applications becoming bogged down for many years in public inquiries which spend too long trying to work out what national government policy on a specific issue is.

5.2.2 We wish to develop this policy further with regard to aviation. Airports have, in terms of noise and emissions, a footprint much wider than the grounds

of the airport itself. We would want to avoid new housing developments in an area that is likely to be a future flight path which would be affected by noise and emissions. The planning system will therefore need to take into account

any future changes to and developments of airports that avoid the damage to people's lives of living under the flight paths of aircraft on their approach to or departure from airports.

Conclusion

6.0.1 Liberal Democrats support the freedom to travel. We also support the right of people to enjoy their lives free from the environmental consequences of other people's activities. Our policy proposals achieve the right balance between "freedom to engage in an activity" and "freedom for others from the consequences of that activity".

6.0.2 Liberal Democrats propose to:

- Draw aviation into the UK and IPCC emissions inventories, and ensure that the target for a 60% reduction in CO₂ (equivalent) emissions for the UK includes aviation.
- Wherever possible, use market mechanisms to ensure the costs to the environment of aviation are reflected in ticket prices and freight charges.
- Develop a system of labelling to inform consumers of the pollution caused by their flights.
- Replace Airport Departure Duty with a pollution charge covering both passenger and freight flights.
- Support the inclusion of aviation in the European Union Emissions Trading Scheme, at a level which reflects the impacts of emissions at altitude (while recognising that a pollution charge on emissions may also need to be retained).
- Monitor progress towards our target of a 60% cut in carbon dioxide emissions and allow our system to be flexible enough to take into account new developments and mechanisms such as internationally agreed aviation fuel duty if they can be shown to be necessary.
- Retain runway capacity at around the current level and permit the auctioning and secondary trading of airport slots.
- End the regulation that effectively means retail rents subsidise the charge an airline operator pays to land at the busiest airports.
- Work with the industry to promote research on improved efficiency and aircraft performance through Research Councils.
- Support the development of an alternative system of dedicated, high speed, strategic rail links with access to the main airports.

Annex 1

Forecast Passenger numbers and the impact on UK carbon emissions

Sources

The sources for this paper are predominantly

- The Government's White paper is at www.dft.gov.uk/aviation/whitepaper/
- The Government's air traffic forecasts at www.dft.gov.uk/stellent/groups/dft_aviation/documents/page/dft_aviation_503314.hcsp.
- The Royal Commission on Environmental Pollution's report on aviation: www.rcep.org.uk/avreport.htm
- The Sustainable Development Commission's work on aviation: <http://www.sd-commission.gov.uk/pubs/atwp/index.htm>
- European Energy And Transport Forum *Aviation & Climate Change: Fuel Taxation and Other Market-based Options Draft Forum Opinion*

The growth in aviation

- UK air travel has increased five-fold over the last 30 years. Half the population now flies at least once a year. And freight traffic at UK airports has doubled since 1990. According to the Government, passenger miles will grow at an average of 4.25% per annum. This is based on 'unconstrained forecasts of the underlying demand for air travel' up to 2030. DfT's highest and lowest growth scenarios are for growth at 4.9% and 3.6%. This will result in between 400 and 600 million air passengers using UK airports by 2030. By then, additional capacity required in the South East, would, according to the Sustainable Development Commission, be equivalent to 5 more Heathrows. This is based on the assumption that ticket prices are likely to fall by 1% p.a. in real terms.
- The tonnage of freight carried by air, landing or taking off at UK airports, rose by an average of 8.7% per annum between 1992 and 1998 and this trend is expected to continue at least in the short term.
- In 1992, 18% of the world's fleet were military aircraft and by 2015 they are estimated to amount to 7%. In the early 1990s, military aircraft consumed approximately one third of the fuel used by the commercial fleet. The performance requirements of military aircraft suggest that, compared to civil aircraft, they are likely to produce proportionately more emissions of some climate-changing pollutants, oxides of nitrogen in particular.

The passenger forecasts depend on a range of assumptions, and of course reality may be different. A range of factors may influence outcome. Some, including the Environmental Audit Committee of the House of Commons⁵, have raised doubts about the government's figures for air passenger growth, because they take no account of social and behavioural changes, for example, of the desirability of such an increase, given environmental pressures, the opportunity for terrorism, or the safety risks

⁵ www.publications.parliament.uk/pa/cm200304/cmselect/cmenvaud/623/623.pdf

associated with increased air traffic. And of particular importance, the forecasts assume a continuing decline in ticket prices of around 1% p.a. This assumption may not be compatible with long term oil prices which may rise steeply as world demand increases. Indeed, some believe we are close to the point of peak oil production, and production will gradually decline with scarcity of resource.

Such growth forecasts may have other unacceptable consequences. For example, ICAO forecast a 42% rise in noise at European Airports by 2020 if no action is taken.

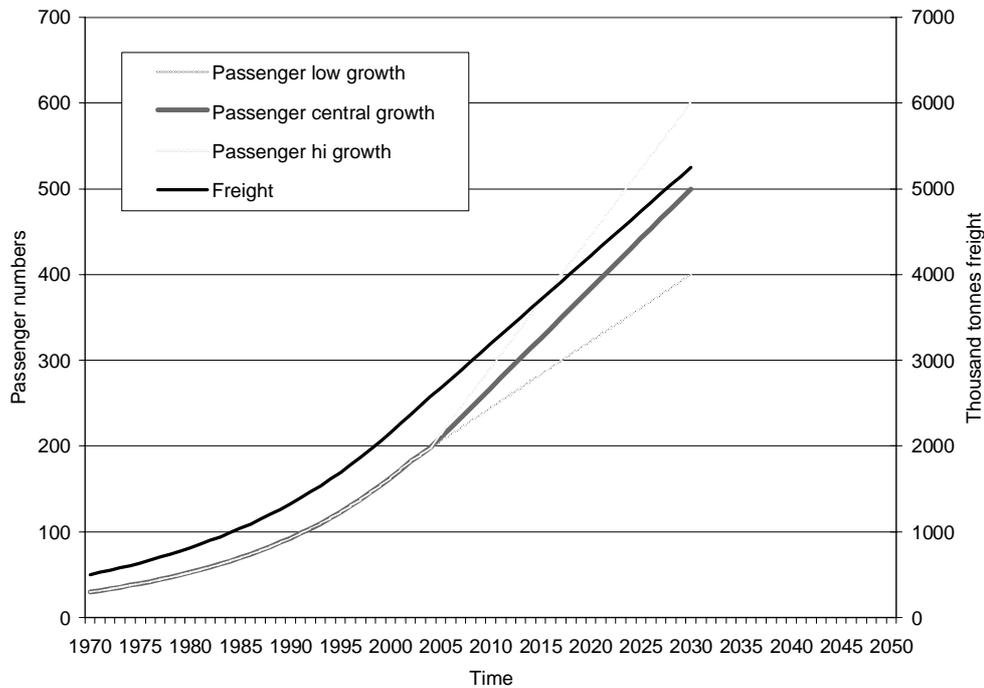


Figure 1 Growth in passenger numbers since 1970 and predicted to 2030

Greenhouse gas emissions

Based on the above increases in passenger numbers and freight, CO₂ emissions from aviation are expected to increase. However, the contribution to climate change from aviation is not simply down to CO₂ emissions. The Royal Commission on Environmental pollution⁶ has noted that the total contribution to climate change (the radiative forcing) of the basket of emissions from aviation, including water vapour, at altitude, was about 2.7 times that of the carbon dioxide alone.

Reduced emissions from aviation would be some combination of behavioural change (reduced journeys, modal switch) and technical change (more efficient aircraft, better system management, avoiding con-trail production by flying at different altitudes).

To meet a 60% reduction in CO₂ by 2050, UK emissions (not including aviation) of CO₂ would need to fall from 168MtC to 67 MtC⁷. Against this background, CO₂ emissions from aviation is forecast to increase from 4.6 to 17.4MtC. Taking into

⁶ www.rcep.org.uk/avreport.htm

⁷ MtC is Mega tonnes of carbon. Carbon is the main greenhouse gas, though there are many other contributors to the greenhouse effect. The effect of these other gases, such as methane, oxides of nitrogen, ozone, and even water vapour, can be converted to an equivalent amount of carbon in terms of its effect.

account the radiative forcing effect, this was equivalent to an increase from 11.5 MtC to 43.5 MtC. International aviation is not presently included emissions inventories, either in the UK, or through IPCC, because they are transnational emissions.

However, as the graph below shows, if we were to meet our 60% reduction target for the rest of the UK economy, allowing aviation to grow in this way would mean that the emissions from aviation would become a very significant proportion of emissions in 2050.

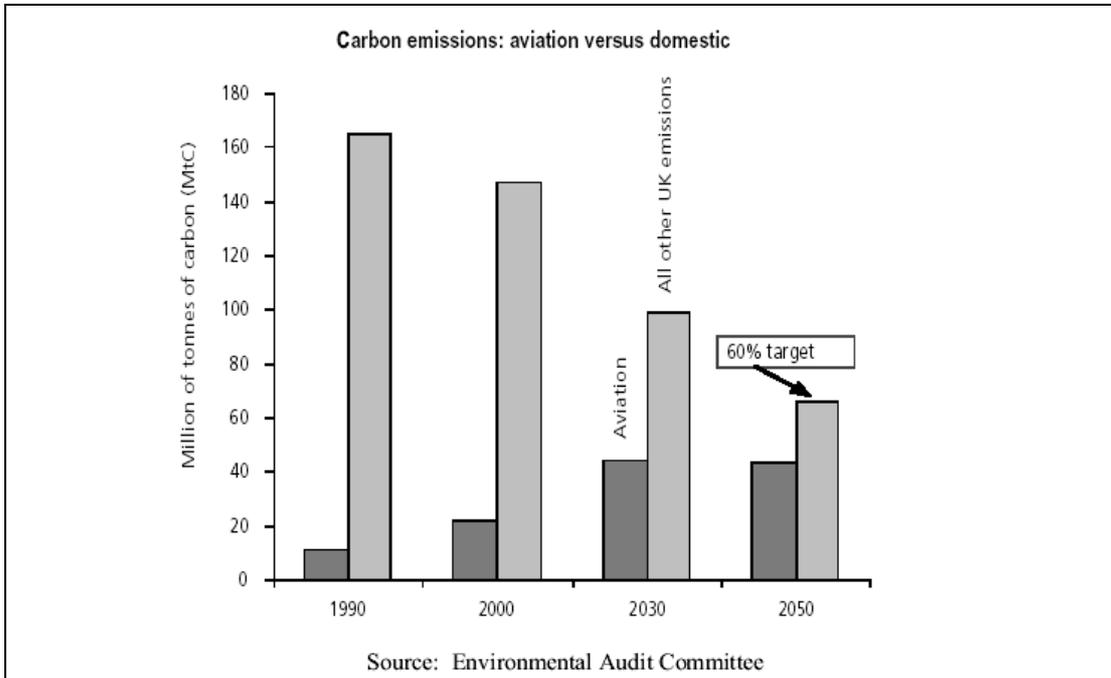


Figure 2 Emissions from aviation compared to the rest of the economy

Consideration of the impacts on the rest of the economy

Given the potential impacts on the rest of the economy, a number of alternative emissions scenarios for aviation need consideration, ranging from unconstrained growth to an 80% cut. The more emissions are cut in aviation, the less impact there would be on the rest of the economy.

This paper has been approved for debate by the Federal Conference by the Federal Policy Committee under the terms of Article 5.4 of the Federal Constitution. Within the policy-making procedure of the Liberal Democrats, the Federal Party determines the policy of the Party in those areas which might reasonably be expected to fall within the remit of the federal institutions in the context of a federal United Kingdom. The Party in England, the Scottish Liberal Democrats, the Welsh Liberal Democrats and the Northern Ireland Local Party determine the policy of the Party on all other issues, except that any or all of them may confer this power upon the Federal Party in any specified area or areas. If approved by Conference, this paper will form the policy of the Federal Party, except in appropriate areas where any national party policy would take precedence.

Many of the policy papers published by the Liberal Democrats imply modifications to existing government public expenditure priorities. We recognise that it may not be possible to achieve all these proposals in the lifetime of one Parliament. We intend to publish a costings programme, setting out our priorities across all policy areas, closer to the next general election.

Working Group on Aviation

Note: Membership of the Working Group should not be taken to indicate that every member necessarily agrees with every statement or every proposal in this Paper.

John Thurso MP (Chair)

Hugh Brown
Stuart Bonar
Peter Chapman
Jonathan Coles
David Fenton
Brian Friend
Lord Garden
Katie Gent
Roger Heape
Mark Hinnells

Susan Kramer MP
Tamsin Lishman
Ian McDonalad
Stephen Sharp
Arthur Thomson
Mike Turner
Andrew Warren
Peter Wilcock
John Williams

Staff
Dr Jonathan Wallace

Comments on the paper are welcome and should be addressed to:
Policy Unit, Liberal Democrats, 4 Cowley Street, London SW1P 3NB

ISBN: 1 85187 744 4

© November 2005

Further copies of this paper may be obtained, price £5 from:
Liberal Democrat Image, 11 High Street, Aldershot, Hampshire, GU 11 1BH
Tel: 01252 408 282 Email: libdemimage@ldimage.demon.co.uk
Printed by Contract Printing, 1 St James Road, St James Industrial Estate, Corby, NN18 8AL.

Cover design by Helen Banks