



PCS Aviation Review

Protecting jobs | Protecting the planet

Civil aviation, climate change and PCS environmental policies: an investigation into how to balance the interests of PCS members in the aviation sector with PCS's wider environmental policies

Caroline Molloy and Roger Sealey May 2013



Public and Commercial Services Union | pcs.org.uk

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Contents

List of tables	6
List of figures	6
Foreword	7
Executive summary	8
Introduction	10
Section one The problem	11
The consensus around climate change causes	11
The need for prompt action	11
Transport is having a growing impact on climate change	12
The increase in UK transport emissions is due to the increase in aviation emissions	12
Why has aviation grown so fast?	14
The impact of deregulation	14
The impact of short and long haul flights	15
Demand in aviation forecast to keep rising?	16
Aviation emissions projected to rise until 2040	17
Aviation and the economy	18
Employment in aviation	18
The need for a sustainable model of emissions reductions by sector	19
Section two Solutions	21
A. Technical and procedural developments	21
Different fuels	21
Different aircraft design	22
Different routing	22
Other operational regulation	23
B. Regulation and infrastructure	23
i. Financial/tax mechanisms:	23
Emissions trading scheme	23
Air passenger duty	25
Fuel taxes	26
Aviation taxes – possible ways forward	26
ii. Airport infrastructure, capacity constraints and expansion	26
The ‘capacity crunch’	27
Why is Heathrow experiencing a ‘capacity crunch’?	27
Imposed capacity constraints	27
The industry arguments for expansion	28
Hub-and-spoke	28
Expanded capacity and/or better use of existing capacity?	29
There are a number of options which are being considered	30
Dual hubs	31
Non-Heathrow South East alternatives	32
Outside the South East	32
Where next for airport capacity?	33
C. Climate jobs	33
D. What will make it happen?	36
Encouraging use of other forms of transport	36
Encouraging ‘integrated’ transport	37
Appendix one Aviation review working group	38
Appendix two Radiative forcing	39
Appendix three PCS bargaining on the environment	41

List of tables

TABLE 1 Structure of the industry 2008–11

TABLE 2 Employment in Civil Aviation July–Sep 2011

List of figures

6

FIG 1 Average Global Temperatures, 1880–2011

FIG 2 Global CO₂ excluding LULUCF, in Gg CO₂ eq. 1990–2010

FIG 3 Total Greenhouse Gas Emissions for Transport and Storage 1990 to 2010 thousand tonnes of carbon dioxide equivalent

FIG 4 Total Greenhouse Gas Emissions for Transport and Storage 1990, 2000 and 2010, thousand tonnes of carbon dioxide equivalent

FIG 5 Total Greenhouse Gas Emissions for Air Transport Services 1990–2010, thousands tonnes of carbon dioxide equivalent

FIG 6 Greenhouse gas emissions in Transport and Storage 2010

FIG 7 GGE by Transport Type in 2010

FIG 8 Change in passenger demand due to Low Cost Carriers

FIG 9 UK Air Transport Movements '000s 1950–2011 Take-off and landing

FIG 10 UK Residents Visits Abroad by Purpose – International Passenger Survey, ONS

FIG 11 Projected range of constrained ATM demand to 2050

FIG 12 Range of UK aviation CO₂ forecasts

FIG 13 Estimated emissions of Greenhouse Gases by National Communication source by end-user category, 1990–2010 Million tonnes CO₂ equivalent

FIG 14 HM Treasury/HM Revenue & Customs, Overview of Tax Legislation and Rates, 20 March 2013

FIG 15 Comparative aviation tax rates for a family of four in 2011

FIG 16 Major global airports (selected)

Foreword

In March 2010, campaigners celebrated as High Court Judge Lord Justice Carnwath ruled that expansion of Heathrow airport was inconsistent with UK climate change policy and government targets to cut carbon emissions. He observed however that “I find myself unable wholly to support the position taken by either party” and ordered the government to undertake a further policy review. The point of highlighting this judgement is not to draw parallels with our own Aviation Review, but to emphasise the complexity of the issues around the question of airport expansion whether environmental, economic, industrial, political or legal.

In seeking to address the contradiction of national and group policy around a third runway at Heathrow, and following the 2010 Aviation Group conference motion, the NEC endorsed the establishment of a working party in July 2010. This comprised the AGS, NEC members, Aviation Group Secretary and President, and members of the GEC. To help with the review we also enlisted the support of Caroline Molloy and Roger Sealey, academics who have worked within the trade union movement and have expertise in environmental policy and transport policy respectively.

The review has taken longer than expected but hopefully, when members read this report, it will be evident it is due to the extent of the analysis and consultation that has taken place with PCS members and reps at national and group level. Whilst we have been in earnest talks

to try and align the group and national positions, it is perhaps pertinent that we are presenting this to the Aviation Group at a time when the third runway debate has been re-opened by this Con-Dem government in the form of the Airports Commission.

We are not trying to reach a position that wholly supports one side of the union in the airport expansion debate but address the terms of the group conference motion to balance “the commitment to protecting jobs with a more environmentally-friendly policy towards unchecked expansionism”. This report therefore forms the basis of an ongoing discussion between the group and the national union, where we will further explore support to the group – on organising in the sector, on bargaining and, on campaigning efforts in defence of member’s jobs, pay, and conditions.

The review to date has also highlighted where we need to be working across the trade union movement both through the TUC, and at a European level, to develop and promote an alternative based on opposition to government’ austerity programmes. An alternative that rigorously defends member’s interests, with strong well-organised trade unions at its heart, and which sees aviation as part of a public – integrated and sustainable – transport network.

Chris Baugh
Assistant General Secretary

Executive summary

8

Climate change is a matter of deep concern to all PCS members including those in the Aviation Group. There is broad consensus around the fact that climate change is primarily driven by human activity. In the UK, the fastest growing share of climate emissions over the last 20 years has been due to the growth in transport, and most particularly aviation emissions, although such changes are driven in turn by an increasing reliance on a globalised model of production.

In aviation, although the deregulation-driven expansion of the low cost carriers has driven a dramatic expansion in passenger and flight numbers, particularly in relation to short haul leisure flights in Europe, long haul flights (including a high proportion of business flights) make up a larger proportion of the UK's climate impact – and one which is growing even faster, and has been less affected by the economic downturn.

To date, the only government policy which has been aimed directly at this sector is the extension of Air Passenger Duty to business flights.

The current direction of policy is driven primarily by capacity constraints (in particular, a shortage of runway landing slots in the main hub airport, Heathrow). This policy is the product of a free market approach, and its interplay with local political concerns (for example, around aircraft noise) and industry concerns.

Such an approach is unlikely to deliver necessary reductions to aviation emissions in a timeframe that would (alongside other measures, domestically and internationally) sufficiently protect the planet from devastating climate impacts. If there is no shift in direction, exponentially more costly and disruptive measures will become necessary a few years from now. In the case of aviation over-reliance on capacity constraints to reduce aviation expansion, also has environmental disbenefits, for

example, through increased burning of fuel as airplanes are 'stacked' whilst waiting for scarce landing slots.

A dual hub approach to airport capacity, could be a way of better using the existing capacity, balancing the need for a realistic but not excessive assessment of aviation growth and its position in the economy, alongside other policies. However, the Government's policy of breaking up the airport operators, significantly hinders the likelihood of the airport operators working co-operatively together to manage capacity issues in a way that best balances environmental and economic concerns, due to competition issues.

Similarly, the fragmented and largely privatised nature of wider public transport provision hinders moves towards an integrated transport policy that could encourage shifts towards more sustainable transport and the protection of high quality jobs within the sector. It is a fundamental paradox of the market-led approach to aviation that the EU and its member states are pressing the case for the Single European Sky while at the same time deregulating the industry in the name of increasing competition. PCS believes that this paradox is unsustainable and will only impede efforts to improve the environmental impact of the industry.

Other policy measures will also need to be considered, both domestically and internationally. By re-focusing aviation policy towards planning for sustainability, both the PCS and the UK will also be in a stronger position to influence international aviation policy.

The principle financial measures currently in place to manage aviation demand, Air Passenger Duty (in the UK) and the EU Emissions Trading Scheme (internationally), are under sustained attack from the industry. The defence of such policies could be strengthened by a commitment to using



the revenues for investment in green transport jobs, which would also have significant benefits for local infrastructure, commuters, and quality of life, which would be in line with PCS policy.

Operationally there is significant scope for increased air traffic control measures, and better ground level management, to reduce fuel wastage and therefore climate change emissions. There is also significant scope for improved technology, most notably larger planes, to have similar benefits. However neither such policies will be driven sufficiently with the current free market based approach. Greater regulation, international co-operation and indeed public ownership, are vitally important if the aviation industry – and the transport sector more widely – is to become more environmentally sustainable.

The current focus and direction of the aviation industry, in particular air traffic control and airport ownership, is not conducive to activities aimed at improving the environment. A publicly owned ATC industry is key to placing a higher value on environmental as well as safety issues, and achieving vital environmental improvements. PCS will be in a strong position to achieve such vital but fundamental shifts in policy, if it can grow its influence in the sector by organising on the basis of a realistic assessment of the industry and its challenges, something this report aims to set out.

Introduction

PCS Aviation members rely for their livelihood on a highly resource intensive industry. The aviation industry underpins much of the current economic system, including business life, consumption of imported goods, and leisure in the UK. So PCS members will need to be able to be involved in discussions in how the industry can change, and how green jobs can be shaped, so that members have real choices about the future of their industry.

10

This report aims to give PCS and its members the evidence based arguments to put to the employer, and to have discussions with other PCS members and other union members, both at the workplace level, nationally and internationally. It covers both short and long term practical steps that can make a real difference, including the main operational, regulatory, and technical solutions available. This will need to form part of an approach that recognises the vital role of the union in protecting the interests of workers and also the wider public interest.

The background to this report

In July 2010, following Motions A116 of the 2008 ADC and 2010 Aviation Group Conference, the National Executive Committee (NEC) agreed to set up an internal working party, chaired by Chris Baugh, Assistant General Secretary, to investigate how to align the protection of

PCS members working in the aviation industry with the unions' environmental policies around aviation and climate change as determined by the annual delegate conference (ADC). In particular ADC motion 116/08 which includes:

- That market forces alone cannot be allowed to determine the most environmentally viable and best means of transport
- Opposition to the building of a new runway at Heathrow
- Campaign for domestic high speed train network with fullest connection and use of the European rail network
- Travel on the railway network, national and international, to be priced so that all can use them
- Campaign alongside rail and other unions for the railways to be brought back into public ownership.

The Working Party included lay representatives from the Aviation Group as well as NEC members and full time officers – See Appendix One for the full list of members who have participated in the Working Group since its inception. It focused on:

- National union support to the Aviation Group
- Key industrial Issues
- The 'one million climate jobs' campaign
- How to balance the defence of members in aviation with PCS environmental policies.

Section one The problem

THE CONSENSUS AROUND CLIMATE CHANGE CAUSES

Since industrialisation, we have been using resources (including the fossil fuel that powers our aircraft) far quicker than the planet can replenish them, meaning fuel is becoming increasingly scarce and expensive.

We are also burning fossil fuels at a rate far faster than the planet can deal with. Burning fossil fuels releases Carbon Dioxide (CO₂) and other gases. These gas ‘emissions’ remain in the earth’s atmosphere for decades, trapping the sun’s energy – which is why they are known as ‘greenhouse gases’. The mainstream scientific consensus is that it is this phenomenon that is primarily responsible for the rising temperatures that we see.

Since the 1970s, each subsequent decade has become hotter – a 3.5 per cent increase in thirty years – and 9 of the 10 hottest years on record have occurred in the twenty-first century. The planet is now close to 0.8 degrees Celsius warmer than it was a century ago.

As the planet warms, the sea expands, water levels rise, and polar ice and glaciers melt, all leading to increased flooding. Also

as the planet warms, the extra energy causes more extreme weather, including stronger storms, hurricanes and floods, severe heat waves, droughts, and unpredictable weather shifts. Global food production is already experiencing the impacts.

THE NEED FOR PROMPT ACTION

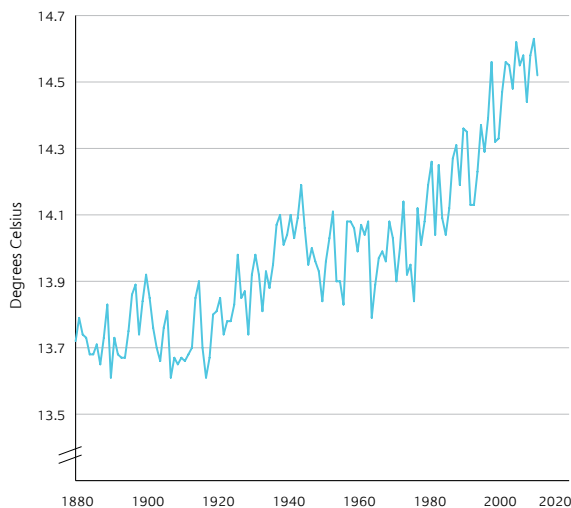
Scientists have warned that if we continue burning fossil fuels at current rates, long before it runs out, we will very soon reach a ‘tipping point’ when dangerous climate change becomes unstoppable. The UN is committed to keeping climate change to below 2 degrees, which is the point at which climate change impacts are thought to be devastating.

Mainstream scientific and economic consensus is that we have very little time – maybe just a few years – to begin to retool our jobs and economies away from reliance on fossil fuels, before dangerous climate change becomes at worst, unstoppable, and at best, eye-wateringly expensive and difficult to address.

It is clear that climate change requires international action, and the UN has been leading international attempts to regulate emissions and address the impacts of climate change since 1992, through a series of treaty negotiations including the Kyoto Protocol. Trade Unions through their global union federations e.g. the International Transport Workers’ Federation, have had observer status in these negotiations.

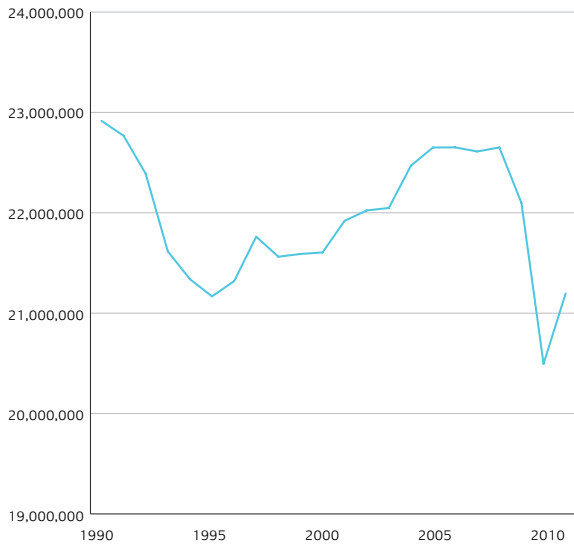
As the last round of negotiations moved towards replacing the expired Kyoto Protocol with a new treaty, in Doha in February 2013, international governments agreed with previous targets to restrict climate change to a two degree rise. However they gave themselves until 2015

FIG 1 Average Global Temperatures, 1880–2011¹



¹ NASA GISS <http://www.earth-policy.org/indicators/C51>

FIG 2 Global CO₂ excluding LULUCF, in Gg CO₂ eq. 1990–2010²



to finalise a deal and until 2020 to begin to implement it.

This delay has been estimated to cost an additional £3.1 trillion³ to the inevitable costs of dealing with climate change, and many fear it may leave effective action until too late, unless domestic governments and groupings like the EU do more.

As Dr Riahi, head of the International Institute for Applied Systems Analysis in Austria, said:

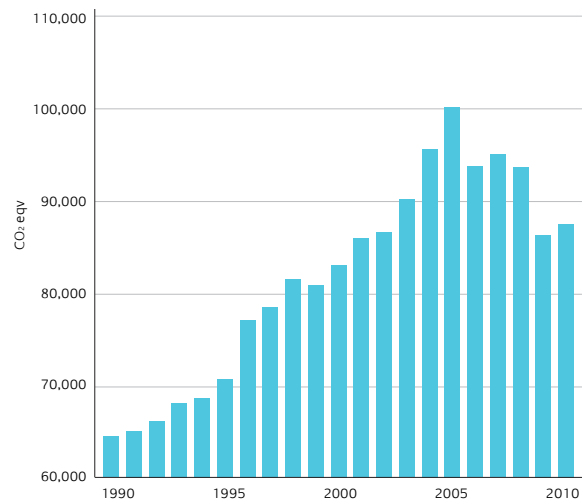
“With a 20-year delay, you can throw as much money as you have at the problem, and the best outcome you get is a 50/50 chance of keeping the temperature rise below two degrees.”

Despite the Kyoto Protocol, there has been an increase in global CO₂ emissions. Although in 2008–09 there was a decrease in CO₂ this was most likely due to the global recession.

TRANSPORT IS HAVING A GROWING IMPACT ON CLIMATE CHANGE

Over the last 20 years, whilst all other sectors of the UK economy have reduced their CO₂ emissions, by an average of 23% overall transport emissions have increased.

FIG 3 Total Greenhouse Gas Emissions for Transport and Storage 1990 to 2010 thousand tonnes of carbon dioxide equivalent⁴



Greenhouse gas emissions from the ‘transport and storage, information and communication sector’, increased by 64 per cent (though it has declined slightly from its 2005 peak). This sector now makes up 13.2per cent of all greenhouse gas emissions, up from 8 per cent in 1990.⁵ Separating out Greenhouse Gas Emissions (GGE) from the Transport and Storage sectors only, we see that this sector increased by 33 per cent between 1990 and 2010, see figure 3.

THE INCREASE IN UK TRANSPORT EMISSIONS IS DUE TO THE INCREASE IN AVIATION EMISSIONS

Between 1990 and 2010 UK greenhouse gas emissions from road freight declined by 21 per cent, and emissions from water transport remained fairly constant, but GGE for air transport services increased by 103 per cent (though they have declined slightly from their 2007 peak).

By 2010, air transport made up nearly half of all Greenhouse Gas Emissions from the transport sector.

As other sectors of the UK economy will reduce their reliance on fossil fuels

² unfccc.int/ghg_data/ghg_data_unfccc/time_series_annex_i/items/3814.php
³ www.independent.co.uk/environment/climate-change/fiddling-while-rome-burns-the-3trn-cost-of-climate-delay-8449863.html
⁴ www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcn%3A77-224120
⁵ www.ons.gov.uk/ons/rel/environmental/uk-environmental-accounts/2012/rft-greenhouse-gas-emissions.xls

(decarbonise) over the coming decades, aviation emissions are likely to make up an increasingly large proportion of UK emissions – up to 15–20 per cent by 2050 if current trends continue unchecked.

Shipping, too, has problematic impacts, not just emissions but its other impacts on marine life and its all-too common reliance on poor employment practices. The latter issue provides a good example of the way that unions working together internationally can address seemingly intractable problems, for example through the ITF-led port inspection regime.

When thinking about transport policies and their impact on the environment,

people’s working lives, and employment, we must not forget the importance of private vehicles. The figures above are for the ‘transport sector’ and thus do not include emissions from private vehicle use, which in fact makes up just under half of all transport GGEs. Despite aviation growth, the major contributor to transport greenhouse gas emissions remains road transport (70 per cent of all transport greenhouse gas emissions).

To address this, and to create more green jobs, will also require policies on freight integration, car parking and travel to work.

In the UK, aviation GGEs now account for 6 per cent of total UK emissions (3 times

FIG 4 Total Greenhouse Gas Emissions for Transport and Storage 1990, 2000 and 2010, thousand tonnes of carbon dioxide equivalent⁶

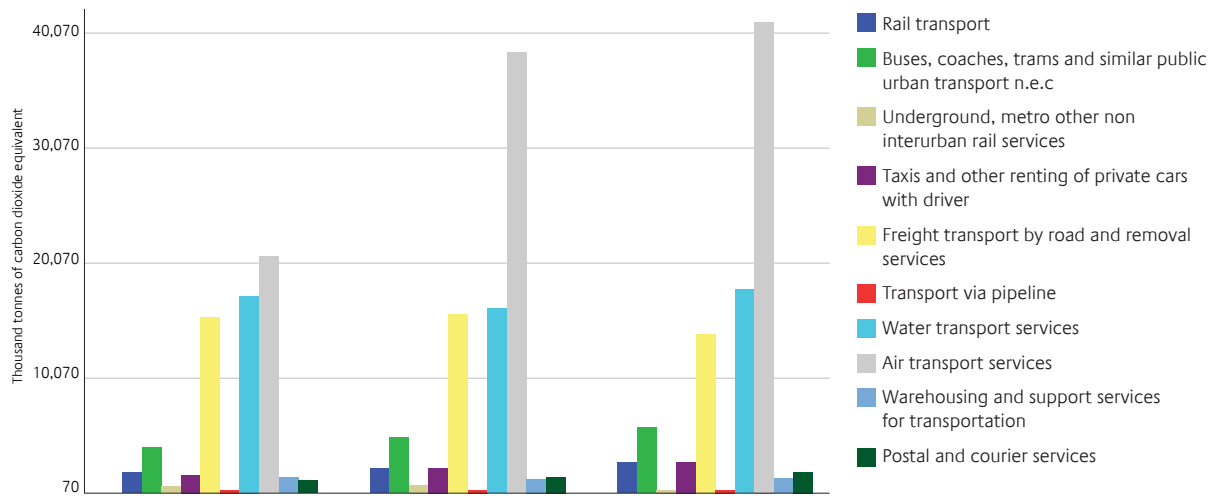
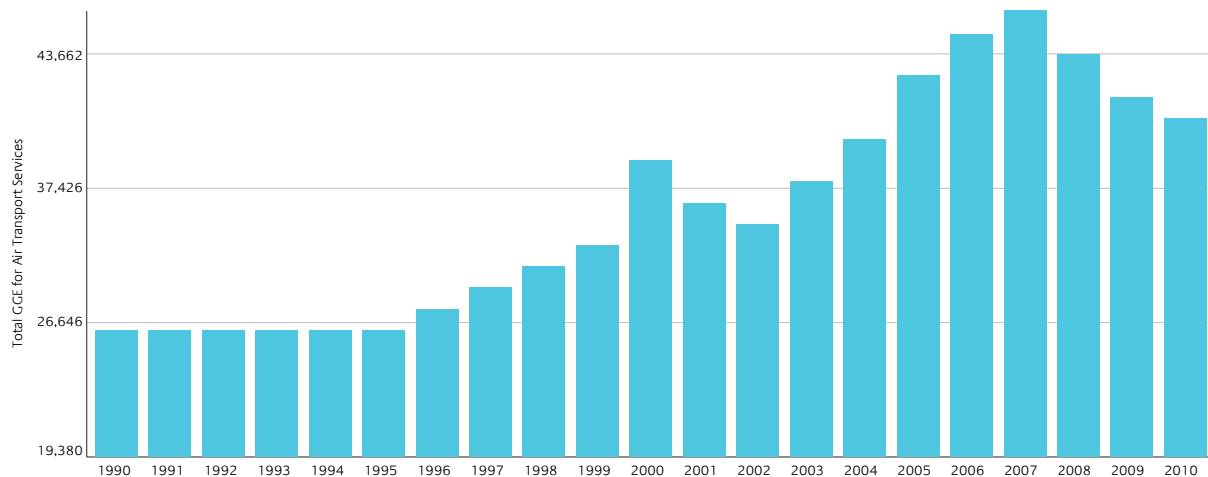


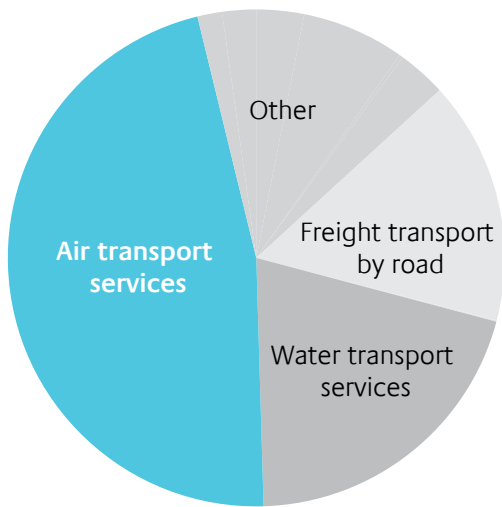
FIG 5 Total Greenhouse Gas Emissions for Air Transport Services 1990–2010, thousands tonnes of carbon dioxide equivalent⁷



⁶ www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-224120

⁷ assets.dft.gov.uk/statistics/tables/env0201.xls – by industry

FIGURE 6 Greenhouse gas emissions in Transport and Storage 2010⁸



14

higher than the global average of 2per cent). As shown above, this is around half of the transport sectors GGE.

All of these figures understate the impact of climate change caused by aviation, which is around twice as damaging when released in the upper atmosphere – an effect called ‘radiative forcing’ (see appendix two). So the accepted percentage of UK ‘climate change impact’ caused by aviation, is up to 13per cent.

WHY HAS AVIATION GROWN SO FAST?

Between 1950 and the early 1990s the growth in UK air traffic movements (ATM) was increasing slowly and steadily. The industry was highly regulated, with no real competition between national carriers. A web of bilateral air service agreements between states shaped the industry, with specified routes and airports, agreed aircraft types, fares and frequencies, and designated carriers. In effect, capacity on the majority of routes was artificially restricted, fares were high as a result, and entry into markets by non-flag carrier airlines was virtually impossible.

THE IMPACT OF DEREGULATION

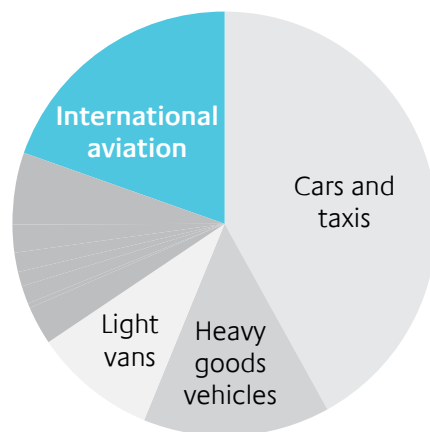
The EUs deregulation of the air transport industry in the late 80s and early 90s, to some extent was stimulated by rising demand as air travel became more commonplace. In turn, it ushered in a period of unprecedented growth in air transport especially for the new Low Cost Carriers (LCCs) such as Ryanair and easyJet in the UK and the rest of Europe.

The UK led the way for deregulation in Europe. Liberalisation between Ireland and UK in the mid-1980’s created the conditions for the emergence of the first European low fares airline, Ryanair, which brought competition to the duopoly⁹ that had existed for years between the national airlines, Aer Lingus and British Airways (BA). Once the EUs third liberalisation package¹⁰ was introduced in 1993 Ryanair was able to start services between the UK and continental Europe. Ryanair was soon followed by the establishment of easyJet, which commenced flights between the UK and continental Europe in 1996.

The United Kingdom is now the most developed market for low fares services, with several low fares airlines having established operational bases here.

Liberalisation and the advent of low fares airlines forced the traditional flag carrier

FIG 7 GGE by Transport Type in 2010¹¹



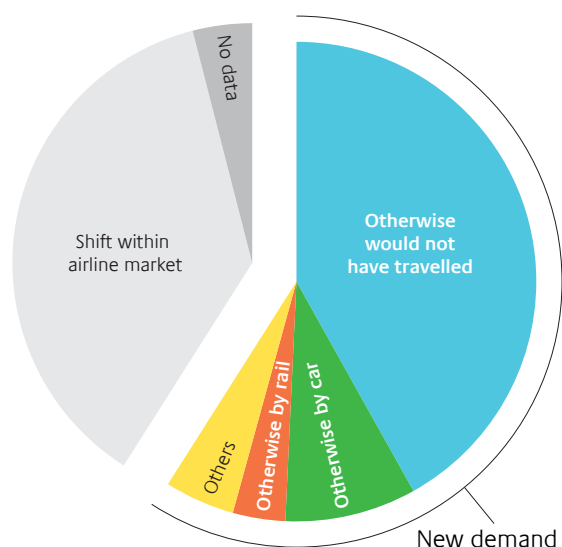
⁸ www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcmm%3A77-224120

⁹ A market situation in which there are only two suppliers

¹⁰ In 1993 the third package of measures, including the common licensing of carriers and freedom of access to the market, was introduced. All carriers holding a community license were allowed to serve any international route within the European Union. Finally, carriers were given almost full freedom to set fares. In 1997, as part of the third liberalisation package, all carriers holding a community license were given the right of cabotage, i.e. the right to operate domestic routes within the whole of the EU.

¹¹ Department for Transport statistics Table ENV0202 (Historic)

FIG 8 Change in passenger demand due to Low Cost Carriers¹²



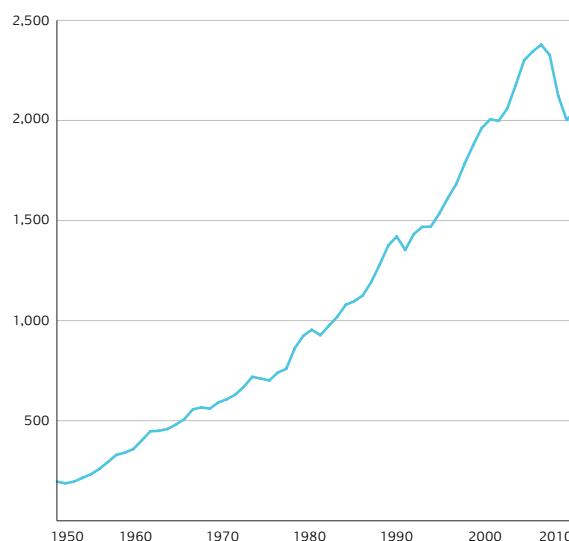
airlines to respond with lower air fares and more services. This created an increased demand for air transport, especially low fare travel. The vast majority of low fares passengers initially were new passengers, who either would not have previously travelled at all, or might have taken another mode of transport.

The LCCs tend to operate on a point-to-point business model, rather than the hub and spoke business model operated by the flag carrier airlines. Advocates of increased Low Cost Carriers such as the European Low Fares Airline Association¹³ (ELFAA) argue that increased connection between European cities has led to increased inward investment, tourism and related employment, as well as facilitating the movement of labour within the EU, from the accession countries in eastern Europe.

The recent financial crisis and associated recession caused the biggest fall in activity at UK airports since 1950.

Due to increasing load factors, the number of Air Transport Movements (flights) has grown more slowly than the number of passengers – 27per cent between 1999 and 2007.

FIG 9 UK Air Transport Movements '000s 1950–2011: Take-off and landing.¹⁴



THE IMPACT OF SHORT AND LONG HAUL FLIGHTS

Short-haul demand currently accounts for the majority of passengers (78per cent) but less than 40per cent of passenger-kms given relative distances of short and long-haul flights.

In terms of income, the Low Cost Carriers (mostly, short haul) have been the major beneficiary of the European deregulation of aviation. Between 1999 and 2004 this sector grew at an average of over 35per cent each year, and it was forecast that the sector would continue to grow strongly as the demand for low fare services increased.

But as flag carriers responded to the challenge from the Low Cost Carriers, long haul flights grew at an even faster rate. Long-haul flights account for the majority of UK aviation emissions, notwithstanding the fact that short-haul flights account for higher passenger numbers.¹⁵ The longer distances outweigh the fact that long haul flights are more efficient per kilometre travelled.¹⁶ Long haul flights account for more than 60per cent of 'passenger kilometres', the majority of UK aviation

¹² Source: NFO Infratest, 2002; Monitor Group Analysis

¹³ www.elfaa.com/documents/ELFAABenefitsOfLFAs2004.pdf

¹⁴ Transport Statistics GB 2012 Table avi0101

¹⁵ Meeting the UK aviation target – options for reducing emissions to 2050 Committee on Climate Change, December 2009: P62 <http://downloads.theccc.org.uk/Aviation%20Report%2009/21667B%20CCC%20Aviation%20AW%20COMP%20v8.pdf>

¹⁶ Short-haul flight - A flight of distance less than 3,700km. In practice flights between the UK and Europe in this document are considered as short-haul

emissions, and 80 per cent of European aviation emissions. Someone flying from London to New York and back generates roughly the same level of emissions as the average EU citizen does by heating their home for a whole year.

The relationship between short haul and long haul flights is a key feature of hub airports. However Heathrow, the UK's main 'hub' airport (see below) has a higher proportion of long haul flights, and a lower proportion of short haul flights, than other European hub airports. In the UK international aviation accounts for 94 per cent of emissions from civil aviation.¹⁷

In 2012, leisure flights from the UK shrank, and business flights grew.

One area to consider is whether PCS policy could differentiate between leisure flights (often short haul) and business flights (a higher proportion of long haul flights).

Percentages of domestic, European, North American and other long haul passengers in 2009:

- **Domestic:** 7.4 per cent
- **Europe:** 40.3 per cent
- **North Atlantic:** 22.3 per cent
- **Other long haul:** 30 per cent

DEMAND IN AVIATION FORECAST TO KEEP RISING?

The DfT measures and forecasts the number of passengers passing through UK airports ('terminal passengers') each year. The number of air transport movements (ATMs) is also measured and forecast – the CAA defines an ATM as a landing or take-off of an aircraft transporting passengers, cargo or mail on commercial terms (excluding 'air taxi' movements, and empty positioning flights, as well as private, aero-club, and military movements).

The DfT Passenger Airport Choice Model forecasts that demand at each modelled UK airport is predicted to grow, and that it will exceed capacity at some airports, whether in terms of terminal capacity to cope with

FIG 10 UK residents visits abroad by purpose – International Passenger Survey, ONS^{18a}

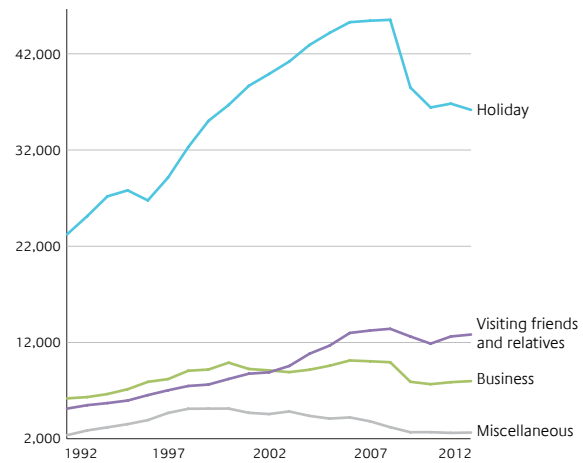
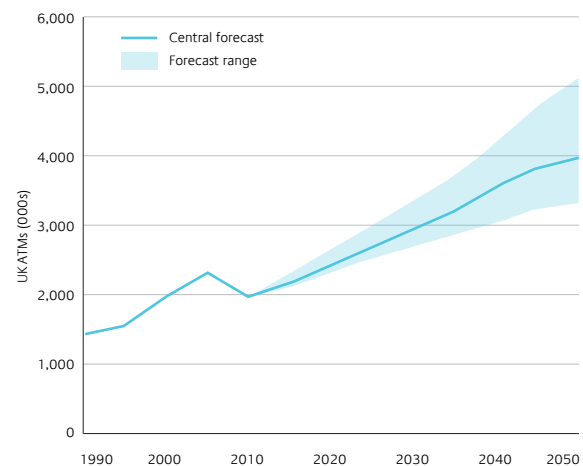


FIG 11 Projected range of constrained ATM demand to 2050^{18b}



the increased number of passengers, or runway capacity to cope with the increased number of flights. The latter is a more binding, or finite, limit.

For each route from each airport, the ATM Demand Model forecasts the size of aircraft, load factor, and frequency of operation used to meet forecast passenger demand, subject to demand, by applying relationships between passenger demand, aircraft size and load factors, and flight frequency.

Operational characteristics also come into play, including the hours of operation, aircraft separation requirements, air traffic

¹⁷ www.gov.uk/government/publications/final-uk-emissions-estimates

^{18a} www.ons.gov.uk/ons/rel/ott/travel-trends/2012/rpt-travel-trends--2012.html#tab-Trends-in-visits-abroad-by-UK-residents

^{18b} UK Aviation Forecasts, Department of Transport, August 2011 p59

control restrictions and in some cases planning. In calculating demand, daily and seasonal profiles are also considered – for example, airports with a high proportion of seasonal holiday use will have less effective capacity than airports that can make full use of runways all year round, and airports which depend heavily on premium business traffic can make relatively less use of their off-peaks.

The higher ATM forecast above assumes that the additional activity is taking place at smaller regional airports which still have some capacity, but where the ATMs are predominantly performed by smaller aircraft on short haul routes, resulting in a higher number of ATMs for a given number of air passengers.¹⁹

The model relies on historical statistics and assumptions that the future will be the same as the past. Any change in one of the variables will result in a different outcome, hence there is a lot of variability in the forecasts.

Notably, CAA, NATS and Eurocontrol traffic forecasts have dropped significantly since the economic crisis. Predictions of dramatically increased demand, are questionable.

The relationships are complex. It is to be

expected that at various points, growing demand alongside constraints in capacity will lead to more efficient use of scarce landing slots, both via further increased loading and by operating larger aircraft. But will such increased capacity, merely lead to further increased demand?

AVIATION EMISSIONS PROJECTED TO RISE UNTIL 2040

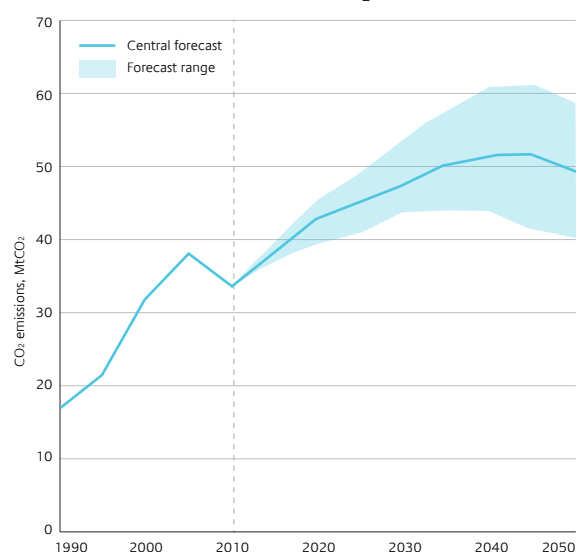
The Committee on Climate Change (CCC) has analysed both domestic and International Aviation emissions, and concluded that addressing emissions from aviation needs to be part of an effective strategy to tackle climate change.²¹

On current predictions of the expansion of the aviation industry, emissions are forecast to grow until 2040 (though with growth slowing by 2030) and to make up 35per cent of the UK’s allowable emissions by 2050 (UK government target is to reduce emissions by 80per cent overall by 2050, so if aviation continues to expand, it must reduce its emissions or even larger savings will be required elsewhere).

These predictions assume the main limiting factors to aviation growth are market maturity and airport capacity constraints rather than dramatic policy shifts, and that emissions are to some extent reduced by continuing fuel efficiency gains with aircraft design improvement and (it is anticipated) new generations of biofuels which will reduce the carbon intensity of emissions.

However as will be seen in the section below there are limitations to some of these assumed policies, and there are others which could be extended or given further consideration, including financial measures and improved operational management. The former could have significant impacts on workers in the aviation sector as a whole, but the latter presents significant opportunities.

FIG 12 Range of UK aviation CO₂ forecasts²⁰



¹⁹ Ibid 59

²⁰ Developing a sustainable framework for UK aviation: Scoping document, Department for Transport, March 2011: P84

²¹ www.theccc.org.uk/sectors/aviation

AVIATION AND THE ECONOMY

TABLE 1 Structure of the industry 2008–11²²

	2008	2009	2010	2011
Number of enterprises²³	980	1,045	929	859
Total turnover £m	21,841	20,458	20,719	21,474
Approximate gross value added at basic prices £m	5,373	5,034	5,151	4,776
Total purchases of goods, materials and services £m	15,403	14,470	14,574	15,482

EMPLOYMENT IN AVIATION

Using data from the July–September 2011 Labour Force Survey (LFS) we have estimated that the number of employees in civil aviation is 130,008. Table 2 breaks down this figure by the main standard occupational classifications (SOCs):

TABLE 2 Employment in Civil Aviation July–Sep 2011

Major occupation group (main job)	Frequency	Percent
Managers, Directors and Senior Officials	4,809	3.7
Professional Occupations	8,202	6.3
Associate Professional and Technical Occupations	34,121	26.2
Administrative and Secretarial Occupations	10,903	8.4
Skilled Trades Occupations	6,480	5.0
Caring, Leisure and Other Service Occupations	37,821	29.1
Sales and Customer Service Occupations	9,040	7.0
Process, Plant and Machine Operatives	9,240	7.1
Elementary Occupations	9,392	7.2
Total	130,008	100.0

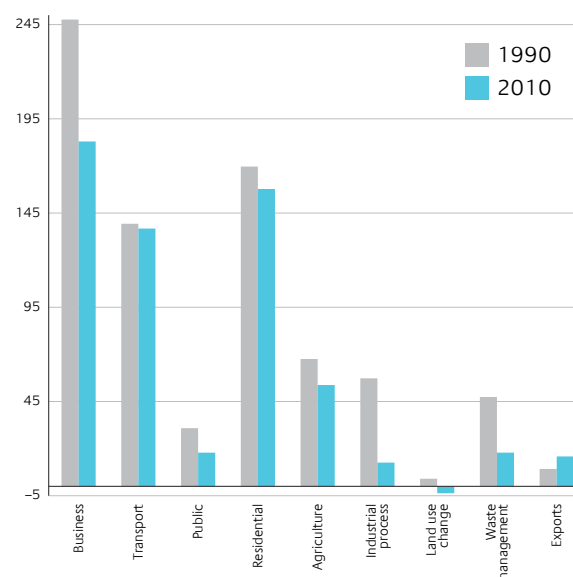
From the table we can see that two occupation groups account for 55 per cent of employment. These are: Associate Professional and Technical Occupations

accounting for 26 per cent; and Caring, Leisure and Other Service Occupations accounting for 29 per cent.

It is notable that the dramatic expansion in passenger flights, has not been accompanied by an increase in the number of jobs in the sector. According to research conducted by campaign group Stop Stansted Expansion, jobs per 1,000 passengers fell from 1,132 in 2008, to 646 in 2007.²⁵ Such figures suggest that, in an increasingly deregulated industry, the formula that increased amounts of air traffic leads inevitably to job creation cannot be assumed as cause and effect, indeed the signs are that the opposite is likely to be true.

Jobs related to tourism spend were estimated²⁶ at 1.7million in 2008. However, as the hotels sector commented in evidence to the Department for Media, Culture and Sport that year, “For every two foreign visitors that are coming into this country at the moment five Brits are going the other way”.

FIG 13 Estimated emissions of Greenhouse Gases by National Communication source by end-user category, 1990–2010 Million tonnes CO₂ equivalent²⁷



²² www.ons.gov.uk/ons/datasets-and-ables/index.html?pageSize=50&sortBy=none&sortDirection=none&newquery=ANNUAL+BUSINESS+SURVEY&content-type=Reference+table&content-type=Dataset

²³ www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-276587

²⁴ Approximate Gross Value Added at basic prices, is the income generated by businesses, less the cost of goods and services used to create this income

²⁵ [aef.org.uk/downloads/Aviation_economics\(1\).pdf](http://aef.org.uk/downloads/Aviation_economics(1).pdf)

²⁶ ‘UK Tourism Satellite Account for 2008’, ONS, 2011

²⁷ www.gov.uk/government/publications/final-uk-emissions-estimates

THE NEED FOR A SUSTAINABLE MODEL OF EMISSIONS REDUCTIONS BY SECTOR

Importantly, reductions in some industrial sectors in the UK are due to offshoring, and this is not an appropriate or sustainable model of emissions reductions for the transport sector to follow.

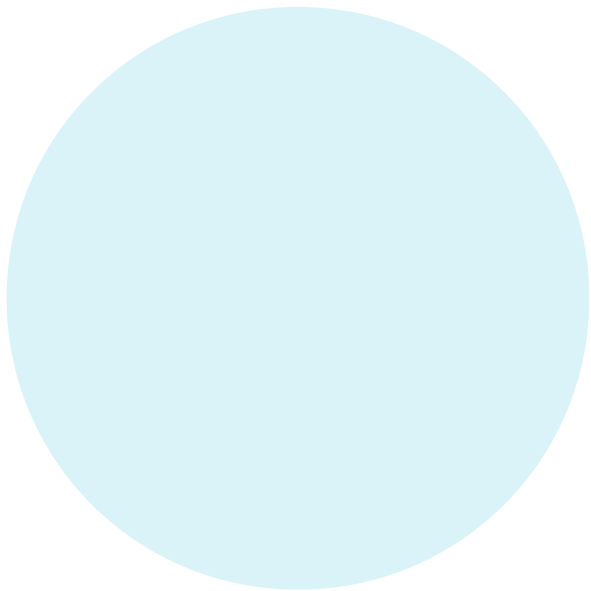
Between 1990 and 2010, only emissions from transport increased (by 9.9 per cent), and the largest reduction occurred in manufacturing industries and construction (25.1 per cent).

The offshoring model has resulted in a heavy loss of high quality manufacturing jobs in the UK, and has itself been a major contributor to the increase in transport emissions, particularly in shipping and aviation (both freight and business flights). There is therefore an absence of a sustainable model for emissions reductions for whole sectors of the economy.

Some workplaces have taken effective action in reducing carbon emissions, particularly where trade unions including the PCS have been involved to harness workplace support,²⁸ and this report suggests ways in which such initiatives could be developed for the employers in the PCS aviation group. Some work has been done on developing sector by sector approaches,²⁹ but such strategies have been insufficiently joined up across the whole economy, and left many unanswered questions, and have seen little implementation in the current climate of free market deregulation and inactive government. Clearly there is a need to develop and implement effective and joined up sector wide emissions reductions strategies, which sustains quality jobs and build a consensus around a policy for tackling unemployment and climate change.

²⁸ Particularly under the TUC GreenWorkplaces project www.tuc.org.uk/greenworkplace

²⁹ See Climate Change Committee reports



Section two Solutions

The PCS is there to help members with their concerns around job protection, as well as helping them address the environmental concerns. With members within the sector, working in National Air Traffic Control, for the British Airports Authority, and in the Civil Aviation Authority, working alongside other trade unions such as Prospect and Unite it is well placed to do this.

Some of the current debate around greenhouse gas emissions has focused on whether action should be domestic, European, or international. Whilst some solutions require domestic action, international co-operation is also important. The Department for Transport's scoping document on aviation stated: 'Aviation is, by its very nature, an international sector, and effective global action is therefore essential if we are to achieve meaningful progress on reducing its climate change emissions, while avoiding competitive disadvantage to the UK.'³⁰

PCS supports the replication of domestic action (such as emissions reduction targets) internationally, and greater planning on an international basis, for example when looking at aspects of aviation taxation, aircraft standards, and different routing.

The Review Group is keen to pursue such co-ordination and co-operation between PCS and sister unions globally, especially through the International Transport Workers'

Federation, and in Europe through the ITFs subsidiary the European Transport Workers' Federation. The PCS recognises the need to raise awareness of the importance of international issues and the benefits of an internationalist approach, amongst both its representatives and members.

As part of its climate change strategy, the previous Government set a UK aviation target in January 2009, to reduce UK aviation CO₂ emissions back to 2005 levels in 2050. Together with deep cuts in other sectors, this would achieve the UK's legislated economy-wide GHG target to reduce emissions by 80 per cent in 2050 relative to 1990.

Following on from this decision, the Government's Climate Change Committee was requested by Government "to assess scope for (emissions) reductions, including from improvements in technology and the effect of appropriate policy levers; and the implications of further aviation expansion beyond 2020".³¹

As well as technological and policy changes, operational changes that require skilled Air Traffic Control are also under consideration. To date, the growth in aviation emissions has also been slightly offset by:

1. Increased load factor (more tightly loaded and/or larger planes)
2. Other technology improvement.

A. Technical and procedural developments

What industry can do to reduce the impact per flight/passenger

In the UK, the aviation industry has focused on technical developments, in preference to regulation or different economic models.

DIFFERENT FUELS

Different fuels (such as biofuels, made from renewable sources) and different body materials (including nanotechnology) are

³⁰ Developing a sustainable framework for UK aviation: Scoping document, Department for Transport March 2011

³¹ www.theccc.org.uk/sectors/aviation

experimental. Work on them to date has failed to demonstrate environmental benefits, when weighed up against the environmental risks.

Biofuels were hailed by industry a few years ago both as a response to public disquiet about aviation's fossil fuel consumption and as a natural response for an industry itself very focused on fuel as a primary cost. However, first generation biofuels have been largely discredited (as they turned out to require heavy fossil fuel investment, and often lead to deforestation and loss of land for food growing. Second generation biofuels remain highly experimental. So far, the advocacy of biofuels has turned out to be a distraction, showing the drawbacks of an industry-led response.

DIFFERENT AIRCRAFT DESIGN

The Review Group agrees with the broad consensus that different aircraft design is critical to any strategy to reduce aviation emissions. In particular, newer, larger aircraft offer environmental benefits (both climate change emissions and noise pollution) by carrying a greater number of passengers (and freight) on fewer flights. This both uses fuel more efficiently, thus reducing climate change emissions, and reduces noise problems for those living under flight paths.

For the new designs now coming through to have as quick an impact as possible, replacement rates need speeding up. The current lifespan of an aircraft is around 20 years.

Ways in which replacement rates could be improved, bringing forward the benefits of the newer larger aircraft, include:

- regulation to require it
- greater incentives to improve efficiency, via fuel taxation
- incentives for replacement, along the lines of the 'scrappage incentive' programme introduced to support the car manufacturing industry and the production of greener road vehicles.

Drawbacks/considerations

Not all airports have sufficiently long runways at present to handle larger planes.

Older and more polluting aircraft, once retired from domestic service, tend to be sold on to poorer countries. To avoid merely offshoring our climate change impacts to poorer countries, this would need to be taken into account when considering any of the above methods, and international discussions would be important.

DIFFERENT ROUTING

Routing aircrafts differently, and more directly, has significant potential to reduce emissions. Currently, flight paths do not take the most direct (and therefore fuel-efficient) route, but use historic 'corridors'. These are influenced by politics, restrictions for military airspace, and financial considerations, with some countries charging less than others for the use of their airspace. The Single European Sky policy intended to address this has had limited success though there is now a movement under Functional Airspace Blocks (FABS) to push this forward, backed by the European Transport Workers' Federation.³²

PCS has supported the strengthening of the Single European Sky policy, working closely with the ETF. However, there are differing political views of what SES is intended for. The EU's commitment to a free market approach has meant that co-operation over airspace is discussed in terms of realising economic efficiencies through Europe-wide centralisation and/or automation (for example via GPS technology), which threatens to decimate the Europe-wide industry labour force.³³

It is important that unions work together at international level to consider alternative approaches where greater international co-operation over airspace could be delivered without losing domestic expertise and jobs. Such an approach is likely to require a rejection of the increasing reliance

³² www.itfglobal.org/etf/civil-aviation.cfm

³³ See for example: A Satellite System That Could End Circling Above the Airport By JAD MOUAWAD www.nytimes.com/2012/04/04/business/a-satellite-system-that-could-end-circling-above-the-airport.html?pagewanted=1&r=2 Published: April 3, 2012

on private sector innovation (which will always have costs, rather than environment and jobs, as its first priority) for a different ownership model, which puts the jobs and the environment jobs first.

It would also be useful to look harder at the possibility of using military airspace, including our own domestic airspace. This raises questions beyond the scope of this report but any prospect of progress in this area will require international co-operation.

OTHER OPERATIONAL REGULATION

Government already directly regulates night flights, stacking, mixed mode and operations/runway alternation. This is a core

area where more engagement with PCS members expertise is important – especially as the government appears to be giving out mixed signals on its intentions in these areas.

Finally, government regulates aviation expansion through its decisions on planning and investment in relation to airport expansion vs. investment in other transport infrastructure investment.

Decisions on additional runways and regional expansion need to address the issues of integrated transport and the key role currently played by Heathrow as a ‘hub’ airport. PCS notes that the current customs and immigration arrangements are limiting the usability and potential of through train travel to Europe.

B. Regulation and infrastructure

How governments can address demand for flights, or their impact

I. FINANCIAL/TAX MECHANISMS

Emissions trading scheme

(‘permits to pollute’ / ‘cap and trade’)

At EU level, the key tool for reducing greenhouse gas emissions and thus tackling climate change has been the EU Emissions Trading Scheme (EU ETS). The scheme, which started in January 2005, is the largest of its kind – it originally covered only heavy industry, and later, large service sector employers. From 2012, it has been expanded to aviation, covering all international flights, from or to anywhere in the world – that arrive at or depart from an EU airport.

In this scheme, companies must reduce their emissions over time – or ‘pay’ for ‘permits’ to pollute – and can sell ‘spare’ permits if they reduce their emissions. Initially the companies were given permits, but as the number of permits is reduced over time, in theory their value (the ‘carbon price’) increases. Airlines can buy allowances from other airlines, from industrial installations that have reduced their emissions – or indeed from clean energy projects carried out in developing countries.

After analysing several types of market-based solutions, the Commission concluded that bringing aviation into the EU ETS would be the most cost-efficient and environmentally effective option for controlling aviation emissions. In other words, compared with alternatives such as a fuel tax, that it would provide the same environmental benefit at a lower cost to society (i.e. in terms of impact on ticket prices, airline companies and the overall economy).

The intention is for the EU ETS to serve as a model for other countries considering similar national or regional schemes, and to link these to the EU scheme over time. Therefore, the EU ETS can form the basis for wider, global action.

The ETS has been (reluctantly) accepted by the UK industry.

DRAWBACKS/CONSIDERATIONS

The value of permits (the ‘carbon price’)

The value of the permits has fallen due to a surplus of permits (particularly as they were allocated on the basis of use during 2004–6, since when consumption has fallen across Europe due to the recession), so it is not yet

at a level that gives much incentive to reduce emissions. The total number of permits will only be required to be reduced to 95 per cent of 2006 levels, by 2020.³⁴ Recently analysts at Thomson Reuters Point Carbon put the carbon pollution bill for airlines at €505 million for 2012, half their previous estimate made in September 2011. At this level of increased costs, this is likely to result in passenger fares increasing by little more than 2–3 euros per transatlantic flight.³⁵

Attempts by campaigners to increase the value of permits have recently been defeated by the European parliament.³⁶

Challenge from outside Europe

The extension of the EU ETS to aviation has been vigorously opposed by China, the United States, India and Russia, amongst others. A legal challenge by US airlines to the European Court of Justice was rejected in late 2011. However, a so-called “coalition of the unwilling” – bringing together 26 nations – has held a series of meetings, raising the spectre of an aviation trade war and the imposition of a range of counter measures.³⁷ Amongst these is the possibility of referring the matter to the formal dispute procedure under the Chicago Convention

on International Civil Aviation.

In response to these pressures, and also internal pressure (from Germany amongst others), in November 2012 the EU agreed a year-long exemption for flights linking EU airports to countries outside of the bloc, whilst making clear that if alternative plans are not delivered, the EU ETS will be extended to these flights.³⁸

The year-long waiver gives the International Civil Aviation Organisation (ICAO)³⁹ until its general assembly late 2014 to reach a global solution. The EU has said it is very much in favour of global action and would adapt its law if ICAO comes up with a world-wide scheme. A decade of talks at ICAO had failed to find solutions for aviation emissions, but progress has now accelerated.⁴⁰ The ICAO has agreed to set up a high-level policy group to consider options for a market-based mechanism, such as carbon trading, to cut emissions, though the EU anticipates tough negotiations ahead, with ICAO meetings in June and the Autumn of 2013.⁴¹

Finally, the industry is now using their support of ETS, to argue against other forms of taxation (Air Passenger Duty) they had previously accepted.⁴²

FIG 14 HM Treasury/HM Revenue & Customs, Overview of Tax Legislation and Rates, 20 March 2013⁴³

Air Passenger Duty (APD) rates for 2013–14 were set out at the 2012 budget. The APD rates for 2014–15 are set out below.

Air Passenger Duty Rates

Bands (approximate distance in miles from the UK)	Reduced rate (Lower class of travel)			Standard rate (Other than the lowest class of travel)			Higher rate	
	From 1 April 2012	From 1 April 2013	From 1 April 2014	From 1 April 2012	From 1 April 2013	From 1 April 2014	From 1 April 2013	From 1 April 2014
Band A (0 – 2,000 miles)	£13	£13	£13	£26	£26	£26	£52	£52
Band B (2,001 – 4,000 miles)	£65	£67	£69	£130	£134	£138	£268	£276
Band C (4,001 – 6,000 miles)	£81	£83	£85	£162	£166	£170	£332	£340
Band D (over 6,000 miles)	£92	£94	£97	£184	£188	£194	£376	£388

³⁴ ec.europa.eu/clima/policies/transport/aviation/allowances/index_en.htm

³⁵ www.reuters.com/article/2012/02/16/carbon-aviation-barcap-idUSL5E8DG40520120216

³⁶ www.guardian.co.uk/environment/2013/apr/16/meps-reject-reform-emissions-trading

³⁷ www.reuters.com/article/2012/02/17/uk-eu-airlines-idUSLNE81G01T20120217

³⁸ uk.reuters.com/article/2012/11/12/us-eu-airlines-ets-idUKBRE8AB0HB20121112

³⁹ A specialised agency of the United Nations, the International Civil Aviation Organization (ICAO) was created in 1944 to promote the safe and orderly development of international civil aviation throughout the world. It sets standards and regulations necessary for aviation safety, security, efficiency and regularity, as well as for aviation environmental protection. The Organization serves as the forum for cooperation in all fields of civil aviation among its 191 Member States.

⁴⁰ www.reuters.com/article/2012/02/17/uk-eu-airlines-idUSLNE81G01T20120217

⁴¹ EU freezes airlines carbon emissions law. The unexpected climbdown was prompted by a decision to look into ways of encouraging airlines to cut their emissions www.guardian.co.uk/environment/2012/nov/12/eu-airline-emissions-law 12 November 2012

⁴² “Airline chiefs demand an end to tax that ‘deprives families of a holiday’”, Times, 18 November 2011

⁴³ Air Passenger Duty: recent debates & reforms p18 By Antony Seely, House of Commons Library, 28 March 2013

Air passenger duty

This is a tax imposed on all passengers on flights from UK airports. It varies according to passenger destination and the class of passenger travel.

The tax is estimated to raise £2.8 billion in 2012/13. To date, the government has resisted calls from the UK’s main airlines, to reduce it or do away with it entirely.

The Government froze the duty for 2011/12 but this freeze has been reversed and APD is now increasing in line with inflation. From 1 April 2013 the tax has been extended to business aviation, raising an estimated £5m a year, but no further significant changes are proposed.

APD – opposed by industry

The airlines have argued that APD is unnecessary since the inclusion of aviation in the EU ETS, and both the Association of British Travel Agents,⁴⁴ and the Airport Operators Association⁴⁵ have argued that UK APD taxes are higher than equivalents charged in other countries.

It is argued that APD tax damages tourism and inward investment, for example in late 2012 a consortium of UK and Irish airline operators published a study which claimed that the abolition of APD could pay for itself, thanks to the associated boost in exports and tourism. The British Airline Pilots Association (BALPA)⁴⁶ strongly opposes the tax on these grounds.

FIG 15 Comparative aviation tax rates for a family of 4 in 2011⁴⁷

	To Europe	To the USA	To Australia
From the UK	£48	£240	£340
From Germany	£30	£90	£164
From Austria	£30	£90	£127
From Ireland	£11*	£11*	£11*
From France	£4	£14.50	£14.50
From other European countries	£0	£0	£0

In response the Government has argued that “unlike many other countries, the UK does not apply VAT on flights and aviation fuel for commercial flights is not taxed.”⁴⁸ It has also noted that the total makeup of aviation taxes will vary from country to country, and that passengers using airports in other countries may be asked to pay for “costs such as landing fees, air traffic control and airport infrastructure charges.”⁴⁹

Most recently, a Price Waterhouse Cooper report commissioned by the airlines suggested that the abolition of APD would lead to a short term boost of 0.45per cent of GDP. It highlighted the benefits from increased tourism but added that “the biggest gain could be for British businesses which, given access to cheaper airfares, might be able to spend more time with overseas customers. Our model suggests this could lead to business expansion and an increase in productivity... almost 60,000 jobs could be created between now and 2020.”

APD – a green tax?

Some commentators have argued that APD would better incentivise a reduction in carbon emissions, if it were charged on planes rather than passengers. Both the previous and current governments have considered but then rejected such a move, with the present Government announcing in 2011 that they had “concerns over the legality and feasibility of this approach”.

Another proposal that has been put forward is to vary APD rates by levels of airport congestion, but the government has rejected this as well.

Unfortunately, the Government has weakened its case for APD by moving away from earlier indications that such taxes might be targeted at ‘green’ improvements, such as improved public transport. Instead it

⁴⁴ ABTA, ABTA Response to HM Treasury: Reform of Air Passenger Duty, 16 June 2011

⁴⁵ House of Commons All Party Parliamentary Group for Aviation, Inquiry into Aviation Policy and Air Passenger Duty, August 2012 p10

⁴⁶ www.balpa.org/Campaigns/Air-Passenger-Duty.aspx

⁴⁷ Air Passenger Duty: recent debates & reforms p6 By Antony Seely, House of Commons Library, 28 March 2013

⁴⁸ HC Deb 19 December 2011 c984W

⁴⁹ HL Deb 8 March 2012 cWA434

now says the purposes of APD are to establish:

“a simple tax system for air transport services in the UK, which does not hamper growth, which ensures a fair contribution toward the public finances from the sector and which is consistent with the Government’s determination to reduce emissions across all parts of the economy.”⁵⁰

The All Party Parliamentary Group for Aviation published a report on aviation policy and APD in August 2012, in which they suggested duty increases appear to have been imposed “simply because it is a “successful means for the Government to raise much needed revenue.” The Committee argued that there should be an evaluation of the impact of duty rates on travellers, and more widely on the impact of the tax on the economy.

26

Fuel taxes

Fuel taxes (from which aviation is currently exempt) are opposed by the industry – and without international legislation, could only be imposed on domestic flights.

Progress on this issue will require the UK to both learn from our international partners, in relation to domestic taxation of fuel, and co-operate with them on international taxation.

Given the anomalies which undermine support for APD, it is an option worth considering.

Aviation taxes – possible ways forward

In a market based system, any taxes on aviation are passed on to the consumer. Therefore, both the civil aviation industry and the tourist industry argue that regulation can be socially regressive and will impact most upon those who can least afford it and lead to families being priced out of taking flights. They argue that this is especially severe for lower socio-economic groups and ethnic minorities visiting friends and relatives abroad.

However environmentalists point out that most frequent flyers are in upper socio-economic groups. This is especially the case for business travel, which tends to be long haul flights, which are the most polluting.

Consideration of the social impact of increased regulation of aviation also depends on the use of any revenues raised through financial mechanisms.

For example, recent research for the Intergenerational Foundation found that increased aviation taxation (by removing the tax subsidies that aviation fuel currently enjoys) would prevent the once a year holiday flyer⁵¹ – but that it would save £590 per family per year, which could be redistributed either directly or (as PCS would suggest) through using it to improve public transport, particularly focusing on reducing other transport costs that place a heavy burden on working people. However, removing aviation fuel subsidies would require international agreement (apart from in relation to domestic flights).

PCS would support the hypothecation of aviation taxes, whether via fuel or APD. Notably, both the Germans and the French do this in regard to their Air Passenger Duty equivalent, and that this is an area the ETF have also been looking at. PCS members would benefit if the taxes were used to develop public transport and in particular a focus on reducing costs. PCS regrets the government’s recent denial that these taxes were essentially green taxes, thus reducing the moral authority to levy them and the pressure to hypothecate them.

II. AIRPORT INFRASTRUCTURE, CAPACITY CONSTRAINTS AND EXPANSION

Above, we outlined how the demand for aviation in the coming years is predicted to increase, driven in part by the globalisation of manufacturing and commerce. In the current policy mix of a non-interventionist

⁵⁰ www.parliament.uk/briefing-papers/SN05094.pdf

⁵¹ See www.if.org.uk/wp-content/uploads/2012/11/Aviation_Report_Intergenerational_Foundation_FINAL.pdf

government, capacity constraints are likely to be the major factor in restricting the supply, and thus, environmental impact of flights. PCS may want to consider:

- Does a policy of restricting supply through constrained capacity, in isolation, deliver sufficient environmental benefits to meet PCS's principles of environmental sustainability?
- Does the downside of constrained capacity (increased cost for flights, limited opportunity for job growth/potential job loss) outweigh these benefits for the PCS?

If the answer to either question is no, then PCS may also want to consider the extent to which it favours other/additional measures to restrict the number, or environmental impact of flights, including measures to restrict the demand not just the supply of flights, as outlined above.

A third question to consider is that in some cases – for example, Manchester – it is argued that capacity constraints actually exacerbate environmental impacts (climate, air quality, and noise) due to an increased reliance on stacking and ground level taxing. In some cases, increasing spare capacity (for example, through the provision of a new runway) could in some cases allow for better air traffic management and taxing from an environmental point of view.

The 'capacity crunch'

The 'capacity crunch' is a particular issue for the south east of England, as this is the destination for most international air traffic. In particular, it is recognised that Heathrow is close to limit of imposed capacity constraint (its two runways are running at 99.2 per cent full capacity).

Why is Heathrow experiencing a 'capacity crunch'?

When an Avro Lancastrian – a modified bomber with no gun turrets and a small amount of room for passengers – became the first scheduled flight to take off from

Heathrow in 1946, the airport's passenger terminal was just a row of tents. But it had plenty of room to grow. It was a military airport, which changed use into a civil aviation airport. Within a year, it saw 63,000 passengers and in five years that had grown to 796,000.⁵² Nobody at time would guess that it would become the world's third largest airport by passenger numbers.

Geographically Heathrow is not ideally placed. Its site is physically constrained compared to other European international hub airports, and its location west of London has resulted in further constraints due to the need to restrict aircraft noise above heavily populated areas. The runways are aligned with the prevailing wind – in UK, westerly – therefore the flight paths are over London. In an ideal world the airport would be either north or south of London.

A further (temporary) internal constraint is that currently Terminal 2 is closed while modernisation works are taking place. The new Terminal 2 will open to passengers in 2014. This is causing the displacement of passengers to other terminals, and causing overcrowding, and stretching resources, especially immigration control.

Imposed capacity constraints

The less than ideal geographical location of Heathrow, means that for social and political reasons, flights are constrained to reduce the impact of noise on those living below its flight paths.

At present, London Heathrow Airport's pair of runways is used alternately, meaning one handles landings and the other is used for departures. This use switches at 1500hrs each day, through a system that's meant to give everyone living in the area an even break from the tightly-packed streams of arrivals and departures. Through the same mechanism, the runway direction is also changed, on a weekly basis.

However the impact still causes considerable issues for some residences. For

⁵² ibid

example, according to Wandsworth Council, which lies due east of the southern runway at Heathrow. Most aircraft still land into the prevailing westerly wind which means they make their descent over large parts of Clapham, Battersea, Wandsworth and Putney.⁵³ Although: ‘This alternation provides considerable relief for residents living close to the airport. Wandsworth residents receive less benefit as aircraft still need to cross the borough when lining up to the northern runway’.

The industry arguments for expansion

The airlines and business are currently pressing the case that without additional capacity (i.e. a third runway) the UK industry will not be able to expand to new markets – particularly flights to China – and will lose jobs to overseas hubs such as Paris, Frankfurt Amsterdam and the Middle East. A report by Frontier put the value on this ‘missed trade’ at £14bn (£1.2bn per year) over the next decade. Frontier’s report concludes UK businesses trade 20 times as much with developing countries that have a direct daily flight to Britain compared with those nations that have less frequent service or none at all.

However, such figures rely on questionable assumptions about the extent to which such direct flights cause, or facilitate, such trade links, and the extent to which they are a consequence of trade links that are in fact dependent on other factors – notably, historic, political and imperial links.

There is also a lack of evidence to support the assumption that direct connections to lots of cities boost economic growth. Adie Tomer of the Brookings Institution, an American think-tank, says research shows that a big flow of arriving and departing passengers, rather than the number of destinations reached, is what boosts

growth. A recent study of creative-industry jobs in American cities by Zachary Neal of Michigan State University found just such a result. Such studies are far from conclusive. But they do not help the argument that London’s overriding priority should be to maintain a single hub.⁵⁴

A variety of options have been put forward to address capacity constraints, especially in the south east of the United Kingdom.

In considering which of these options are realistic, and why some areas are favoured more than others by industry, we will first have to look at the key economic and business models used by the industry, in particular, that of hub-and-spoke networks.

Hub-and-spoke

Such networks are an important feature of the global aviation network.

These are efficient (i.e. cost effective/ profitable to the airlines) systems for gathering traffic from multiple origins and distributing them to multiple destinations. They bring heavy fixed costs associated with facilities, equipment, required to handle the artificial peaks created by each incoming and outgoing bank.^{55,56} The return on investment is 25–40 years, so the industry is keen on political certainty beyond the next electoral cycle.

Heathrow is the UK’s main hub, with over 1/3 of its passengers (34.6 per cent, 24 million passengers in 2011⁵⁷) using it to connect between flights. Therefore most of the debate about aviation expansion / capacity constraints, has focused on either expanding Heathrow’s ability to operate as a hub, or expanding hubs in other ways.

The civil aviation industry argues that for an airport to operate successfully as a hub airport, it must have:

- A Network Carrier or airline alliance operating sufficient aircraft from that base

⁵³ www.wandsworth.gov.uk/aviation/

⁵⁴ *ibid*

⁵⁵ Bank - A cluster of arrivals or departures in a short period of time, characteristic of an airline hub operation. www.airportsites.net/SEA-Part150/glossary.htm

⁵⁶ Hollow Stephen (2003) STRAIGHT AND LEVEL: PRACTICAL AIRLINE ECONOMICS Aldershot: Ashgate

⁵⁷ www.heathrowairport.com/about-us/company-news-and-information/company-information/facts-and-figures

- A large route network. This network does not necessarily have to be served by a single airline or alliance
- Strong local demand for travel to and from the city where it is based, allowing airlines to cost effectively serve passengers and freight transferring through the hub airport between large markets
- Pooling of Demand: For example Edinburgh's, Belfast's and Manchester's populations alone cannot sustain demand for a daily flight to Sao Paulo for example, but by pooling that demand from around the UK and beyond, a Network Carrier at a hub airport can viably serve the route
- A local political economy that can support local state investment into the airport
- Appropriate terminal facilities including immigration and customs to handle efficient connections for passengers, their baggage and cargo transferring through the airport and to accommodate the variability in aircraft, peak flows and passenger types that come with hub operation
- Adequate runway and Air Traffic Control capacity for the airlines to operate waves of arrivals and departures, enabling short transfer times to passengers changing flights at the hub airport and the maximum number of efficient connections for a given network.

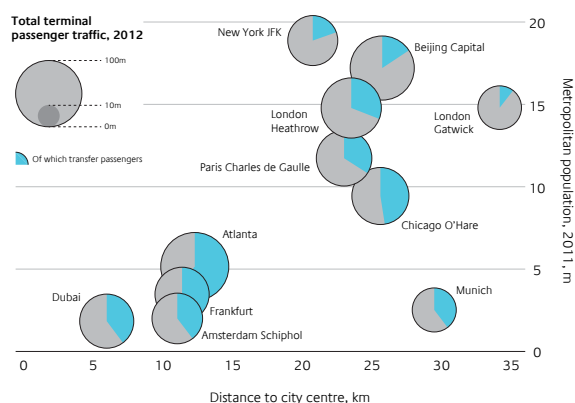
In Figure 16 we show the major global airports, which, it will be noted, are also major hub airports. Four are within fifteen km of their city centres. Five are within twenty-five km of their city centres. Only two are over thirty km from their city centres.

The hub-and-spoke model is industry's preferred model, but not passengers. Unsurprisingly customers, especially business travellers – who provide most of airlines' profits – want the fastest and most direct method of travel, but this would result in underutilised aircraft, which would be uneconomical for the companies and also bad for the environment.

The new generation of long-haul jets are designed to make long-haul routes profitable with fewer passengers. Therefore they may to some extent reduce the need for the hub and spoke model.

The growth of the three “super-connector” airlines based in the Gulf (Emirates, Qatar and Etihad), are taking much of the connecting traffic. They have big home airports that are being expanded with by their own governments. The superconnectors have modern fleets and state shareholders. Their hub airports sit nicely between most of Asia and both Europe and much of Africa. This all makes it likely that London's importance as a hub – and that of any European airport – will fade whatever airport capacity it builds, even as demand for flights to London itself keeps growing.⁵⁹

FIG 16 Major global airports (selected)⁵⁸



Expanded capacity and/or better use of existing capacity?

There is growing consensus of the potential to better use of existing capacity, without dramatic expansion through additional runways which could only drive further, unnecessary and more problematic growth. In particular, this review has raised the potential of the two-hub model. Such a model could also be a key driver of improved integrated transport

⁵⁸ Original information from www.economist.com/blogs/graphicdetail/2013/04/daily-chart-0?zid=307&ah=5e80419d1bc9821ebe173f4f0f060a07

⁵⁹ Britain has many options for providing the extra airport capacity its capital is going to need. Each has drawbacks www.economist.com/news/briefing/21574489-britain-has-many-options-providing-extra-airport-capacity-its-capital-going-need Mar 30th 2013

infrastructure. However its development is constrained by the current policy of breaking up airport operators.

Better use of existing capacity, without dramatic expansion through additional runways may be a more economically viable and sustainable alternative. The growing interest in a two-hub model could also be a key driver of improved integrated transport infrastructure.

There are a number of options which are being considered

Capacity is also currently limited by operational regulation (e.g. on night flights and mixed mode operations/runway alternation) where engagement with PCS members' expertise is important, though there are concerns about noise.

30

1. New generation, larger aircraft

This method has a lower environmental impact than increased flights, but is projected to only address expanding demand in the short term; it will not solve the issue in the longer term and is mainly Heathrow-focused.

2. Increased use of existing runways by either:

a) Mixed mode⁶⁰ operation. The Government recently gave its approval for a limited experiment to reduce flight delays. And:

b) Extending the time of airport operations, lifting some restrictions on night flights.

Both of these proposals would be opposed by local councils and residents. They could lead to more jobs for PCS members or they could lead to longer – and more unsociable hours.

3. A third runway?

The case for a third runway is being led by BAA Heathrow and the Airlines International Airlines Group. However, the Government (supported by the Labour Party) have effectively kicked into the long grass any

decision on the third runway by setting up the independent commission on airports, which is due to report after the next general election (although an interim report is due by the end of 2013).

Prior to the last general election, the Conservative Party had been opposed to the building of a third runway at Heathrow. However, it looks like under sustained business pressure they will now support a third runway.

The recent Coalition audit reveals hints of future changes of policy. It does not celebrate the government's success in rebuffing attempts to achieve planning permission for a third runway at Heathrow airport. Instead, it notes the successful completion of the promise before noting: "Maintaining the UK's status as a leading global aviation hub is of fundamental long-term importance to our economy."⁶¹

4. Four runways?

This has been put forward by the Free Enterprise Group of Tory MPs and Policy Exchange, a right-wing think-tank. Instead of expanding Heathrow to the north, as current third-runway plans would do, it would extend it to the west – and build not just one new runway but four.

This would be a massive undertaking, involving covering over a 2km stretch of the M25 orbital motorway, moving a large reservoir and demolishing a small industrial estate. But many of Heathrow's existing buildings could be kept, and its existing road and rail links (including the new Crossrail, now under construction) would require only modest changes.

The most politically salient objections to a third (or more) runways are to do with noise. Because of prevailing winds, about three-quarters of the time planes come into Heathrow from the east, over heavily populated parts of London. Under the third-runway scheme, which extends Heathrow to the north, the number of people affected by new traffic increases,

⁶⁰ Mixed-mode runways allow for runways to be used for a mixture of arrivals and departures

⁶¹ Labour hits out over coalition audit By Kiran Stacey, Political Correspondent Financial Times January 9, 2013

because its east-to-west final approach now goes over places that have hitherto been relatively plane-free.⁶²

Dual hubs

Splitting passengers between two hubs – for example, between Heathrow and Gatwick – may be feasible. However, this is not a solution preferred by the airport operators.

Heathrow argues that when, for example, Tokyo opened a new principal airport alongside the old one, it lost traffic to Seoul. But Seoul's rise had more to do with South Korea's strong economic growth compared with Japan's stagnation. And Shinchiro Ito, the boss of All Nippon Airways (ANA), says it is proving quite feasible to operate from two hubs, since they do different jobs: Haneda mostly handles passengers travelling to or from Japanese cities, whereas Narita is more of a global connecting hub for passengers travelling between Asia and America.

Regrettably, the government policy of splitting airport ownership into competing units, seems likely to worsen industry opposition (and competition law barriers) to what could otherwise be an effective solution to balancing issues of capacity, demand and employment on the one hand, and environmental concerns on the other. It is highly unlikely to come from an industry that prioritises competition over co-operation. PCS has long urged the government to reconsider this approach and sees public ownership as the best way to guarantee an integrated, planned approach.

5. Heathrow Gatwick Dual Hub

The owners of Gatwick, the West Sussex airport, are making the case for a second runway costing up to £5m that would open sometime after 2019, when a planning restriction expires. Gatwick expects its current single runway to be operating at full capacity by the mid to late 2020s.

A radical plan for a new "Heath-Wick" airport hub featuring a £5bn, 35-mile, 15 minute high-speed rail link between

Heathrow and Gatwick was being considered seriously by ministers. Passengers would not need to pass through immigration or check-in twice. The idea was put forward as an alternative to the politically unpalatable expansion of Heathrow and was being closely examined by ministers, who are under pressure to increase airport capacity in the south-east of England.

The British Chambers of Commerce suggested four years ago that high-speed rail could be used to link Heathrow and Gatwick, creating a "collective hub".

Such a link could rebrand Gatwick as a 'premium' airport, with higher cost landing slots, forcing low-cost airlines such as Ryanair and easyJet to move to Stansted. This could free up more slots at the new "Heath-Wick" hub for an expansion of regional capacity, an idea which has caught the eye of cabinet ministers.

The route would take several years to legislate and another five to build but would be faster to deliver than alternatives including the £40bn "Boris Airport" (see below).

When this plan was originally floated both airports were owned by the same company BAA. Since then they have been broken up by the Competition Commission in order to increase competition in the industry. In 2009 Gatwick Airport was sold to Global Infrastructure Partners. This would appear to create another barrier to the creation of a dual hub airport. Having broken the airports to increase competition it is difficult to see how or why the competition authorities would allow them to cooperate on such a plan which would ultimately effect completion!

6. Heathrow Stansted

Make, a firm of architects, is developing proposals under which an expanded Stansted airport (perhaps expanding from one to as eventually as many as four runways) could be connected with Heathrow via the £15bn Crossrail line that

⁶² ibid

will run between Heathrow and Stratford, east London, from 2018. Building a spur line from Stratford station in east London to Stansted could reduce overall journey times to 25 minutes between Stansted and Stratford, but it would still take at least an hour to travel between the two airports.

The plan does not appear to be favoured by Heathrow's owners who have cited the still-lengthy transfer times.

However expanding Stansted could be cheaper and politically easier than building another airport (i.e. Thames Estuary). Further, Stansted, unlike Heathrow, is not located in a densely populated area and has good road links because of proximity to the M11 motorway. Linking Stansted to Stratford would also link it to the High Speed 1 (Eurostar) link and would open up the possibility of connecting Stansted to the planned £17bn High Speed 2 rail line from London's Euston station to Birmingham.

Creating a successful dual hub of Heathrow and Stansted would almost certainly hinge on persuading one of the three global airline alliances to locate operations at the Essex airport. British Airways, a leading member of Oneworld Alliance, one of the world's three largest groups, is expected to remain based at Heathrow, so Stansted would need to woo either SkyTeam, including Delta, Air France and KLM, or Star Alliance, which includes Lufthansa, United and SAS.

When this plan was originally floated like Gatwick both airports were again owned by the same company BAA. And like Gatwick since then they have again been broken up by the Competition Commission in order to increase competition in the industry. In January 2010 Stansted Airport was sold to the Manchester Airport Group. The Group currently operates Manchester, Bournemouth and East Midlands airports in the UK. Again this would appear to create another barrier to the creation of a dual hub airport.

Clearly, it is going to take a number of years before we will be certain where the

market is developing with the three major airports within the south-east and this is something that the PCS will need to keep a close watch on to monitor developments as it could have a major impact on its membership.

Non-Heathrow South East alternatives

7. Thames estuary

Lord Foster, the architect, has designed a new four-runway hub airport on the Isle of Grain in the Thames estuary that would likely also involve the closure of Heathrow. Foster and Partners estimate the estuary airport would cost £50bn, if rail and other infrastructure is included. It could open in 2028. This is the 'Boris island' airport supported by the mayor of London.⁶³

The prevailing wind in the UK blows mainly from the west, a majority of aircraft departing from a Thames estuary airport would likely fly across much of London, according to Simon Hocquard, head of operational strategy at NATS. The work would be lengthy and politically highly difficult. The proposal does not seem to be attracting mainstream political support outside of London.

8. Kent coast

Beckett Rankine, the engineers, is proposing a three-runway airport at Goodwin Sands, three kilometres off the east coast of Kent. The airport and other infrastructure would cost at least £39bn. Beckett claimed its proposal, unlike a Thames estuary airport, would not interfere with bird life.

Outside the South East

9. Birmingham International Airport

Birmingham is the only realistic 'disseminated hub' outside the South East, and it would depend on the delivery of High Speed 2. If/when High Speed 2 rail is delivered, it could allow Birmingham to double passenger volumes (from 9m to

⁶³ www.tfl.gov.uk/corporate/projectsandschemes/26458.aspx

18m per year) without the need for further infrastructure. Further infrastructure development could double this again. There are proposals to extend the runway to allow long haul flights to the east coast of the US and Pacific basin regions such as Singapore and Australia.

10. Manchester Airport

Manchester has a tentative long-term proposal for a third runway.⁶⁴

Where next for airport capacity?

PCS considers that to balance the importance of aviation to our economy, and to our members jobs, with environmental concerns, it is important to recognise the importance of the hub and spoke model for the industry, and to consider ways in which increased capacity pressures – which have their own environmental impacts in terms of increased stacking etc. – can be met through a better use of existing capacity, in particular, through a 2 hub model.

The PCS will have to take into account that any further expansion of flight numbers,

even through better use of existing capacity, has an environmental impact that will be of concern to its members in aviation, its membership more generally, the wider society, and thus must be weighed against any potential economic benefits.

However at this stage the Review Group feels a realistic assessment of the position will allow for some limited expansion of flight numbers. It also notes that the restrictions on capacity also have an unfavourable climate change impact in terms of stacking, where considerable fuel is wasted due to pressure on landing slots.

Decisions about transport infrastructure development should not be made solely on the basis of the political strength of neighbouring communities living nearest – which hits poorer communities hardest. For example, those living near Heathrow are poorer than those living near Gatwick and Stansted, on the whole. Instead, decisions should be made on more a rational basis, e.g. considering prevailing wind conditions and actual / potential transport links.

C. Climate jobs

Rather than use up our remaining resources and capacity to absorb CO₂ by reproducing our day to day lives and travel for just a few more years, we need to make a new, greener infrastructure (from wind turbines to bus and rail networks) to protect all our quality of life in the long run.

The union is calling for government, company and investments policies that create a ‘million climate jobs’ as part of a ‘just transition’ that manages the transition towards a more sustainable use of resources, quickly enough to protect the environment, but also in a way that delivers sustainable, quality jobs. ‘Climate jobs’ are jobs which are part of a greener, less resource intensive, less polluting Economy by:

1. Making existing jobs greener via

incremental changes through workforce bargaining

2. Making existing jobs greener by using considerably different processes and operational structures, which may require further training creating jobs in the ‘greener’ sectors of the economy
3. Creating jobs in new ‘green’ sectors.

1. Making existing jobs greener

This is the most comfortable way of creating greener jobs. It can be achieved through raising awareness and enabling bargaining for resource savings and improvements to health and safety (particularly air quality), travel to work, working time, training and facilities time.

See Section A for more detail on this approach.

⁶⁴ The Second Runway Legal Agreement included an obligation that no proposals for a third runway would be considered during the period up to 2011. The Land Use Plan, part of the Manchester Airport Master Plan, equally states there are no plans for a third runway in the period up to 2030.

To achieve it, the Group requires organising support to extend its membership (particularly within BAA) and therefore voice at workplace and industry level, and indeed its influence with sister unions.

2. Shifts in processes and operational structures within the industry

By developing its work regarding the issues put forward above, PCS can strengthen its voice when negotiating alongside sister unions, at the workplace and beyond. It can strengthen the voice of its members with considerable operational expertise and experience, and ensure this is heard when considering the more significant alterations to working processes and structures which are needed to achieve a more sustainable aviation industry.

Such shifts can be negotiated for to some extent at workplace level (particularly with more joined up representation within workplaces and between branches), but also require negotiation at industry-wide level, and political engagement both nationally and indeed internationally. In particular, there is a need to focus on training, job protection and where necessary redeployment, and also to bear in mind wider green jobs and transport strategies (see below).

Given the decrease in jobs per flight over the last decade, as noted above, it is clear that industry growth / protection does not equal jobs growth / protection. Indeed industry expansion has arguably led merely to intensification of work. Similarly, utilising other forms of transport is not part of a zero sum equation that automatically takes jobs away from aviation. An aviation (and wider transport) industry focused on the highest safety and environmental standards – on quality not sheer quantity of journeys – would be more likely to secure jobs, alongside environmental improvements, than the current free market approach. Such a strategy would sit well alongside an integrated transport strategy.

3. Expanding jobs in new 'green' sectors, including transport

Typically, green jobs are considered to cover a broad range of activities, including:

- Environmental services (cleaning up waste and pollution)
- Manufacturing, installation and maintenance of energy-saving products, such as insulation, white goods or vehicles
- Renewable energy and co-generation
- More energy efficient services, such as public transport or maintenance services.

A green jobs approach to transport would have a 3 pronged approach, according to the United Nations Environment Programme (UNEP):

1. Promote access instead of mobility; in other words, a change to local land use, the promotion of local services, production and consumption. An increase in telecommunication access will also be important
2. Shift to less harmful modes of transportation; such as from cars to non-motorised and public transport, and from aviation to rail and shipping
3. Improve vehicles and fuels towards lower carbon intensity and pollution.

To achieve this shift to 'green' transport jobs, UNEP stress the need for a wide-ranging policy mix, including:

- Regulation, for example of planning and of fuels and vehicles
- More funding for public transport and non-motorised transport, and in local infrastructure (e.g. to make it more walkable / cycle friendly, and to re-localise services, businesses and economies) coupled with strong economic incentives such as taxes, charges and subsidy reform
- Developing and widely applying green transport technology; including greener vehicles and fuels, and telecommunication and other technologies
- Setting up and building the capacity of institutions to foster greener transport, and to ensure close cooperation with other key sectors.

Such a policy mix is essential to generate the 'green jobs' that are needed for our economic wellbeing.

Such an approach would also have considerable benefits in terms of wellbeing,

quality of life, addressing inequality and access to jobs and markets. It is the poorest people who live closest to the most polluting transport routes, from road traffic which creates air pollution, to flight path corridors which create noise pollution.

According to UNEP, such investment could be freed up by different, rather than additional, investment. They state:

“Several scenarios show that a green, low carbon, transport sector can reduce greenhouse gas emissions by 70 per cent without major additional investment. A reallocation of just 0.16 per cent of global GDP in support of public transport infrastructure and efficiency improvements to road vehicles would reduce the volume of road vehicles by between around one-third by 2050. It would diminish the use of oil-based fuel by up to one-third and promote strong and sustainable employment in the sector.”

A similar approach to aviation is possible – shifting investment (and jobs) away from a continued dramatic expansion of aviation, and towards an industry focused on safety, quality, and sustainability.

The One Million Climate Jobs pamphlet produced by the Campaign Against Climate Change Trade Union Group (including PCS) further suggested a refocusing of transport policy and funding which could create at least 450,000 new jobs in the transport sector, including 300,000 in public transport. The projected jobs breakdown to deliver the climate change improvements we need were:

- Bus drivers
- Shared taxi drivers
- Driving, stations, signals and track work in rail
- Building and electrifying rail lines
- Manufacture of track, engines, rolling stock, electric cars and buses, and cycles and electric bikes
- Building cycle lanes
- Supply of parts and materials
- Maintenance, servicing and repair of all vehicles
- Training and education in all the necessary skills.

Those arguing for aviation expansion are well-funded by industry. Complex models such as those used by PwC suggest considerable numbers of new jobs would accompany its expansion. These models are difficult to verify, however. The Government has ignored calls to conduct an independent assessment of such claims.

Any such assessment would also have to factor in the opportunity costs of not investing in green jobs – and most of all, the costs of escalating climate change.

According to evidence given by British hotel chain Travelodge to the Department for Media, Culture and Sport, ‘A 10% reduction in overseas flights by British tourists by 2020 would create 31,250 jobs and inject £1 billion into struggling tourism locations outside of London.’⁶⁵

A number of reports – for example the Centre for Alternative Technology’s ‘Low Carbon Britain’ report – highlight the enormous potential for green jobs, including those in the transport sector. However such reports do not always factor in sufficiently the need for such jobs to be high quality and well-paid jobs. PCS is in a good position to organise further within the sector and improve the union movement’s voice on environmental issues. This would enable PCS and the movement more widely to work co-operatively with those in the environmental movement, to deliver green jobs, building on the work undertaken to date for example in the ‘One Million Climate Jobs’ pamphlet.

Growing such links between unions and the environmental movement is vitally necessary to address the fact that otherwise useful Government strategies highlighting the number of green jobs – including those in transport – such as the UK Low Carbon Industrial Strategy, and the House of Commons Environmental Audit committee report into green jobs and skills, still rely significantly on free market assumptions which, experience has shown, is not translating into green jobs on the ground.

⁶⁵ Transcript of oral evidence to House of Commons Culture, Media and Sport Committee, 29 Jan 2008, and Travelodge press release of same date

D. What will make it happen?

36

The Government can create climate jobs directly by investing in them (as PCS advocates) or indirectly by creating the policy framework that encourages investment in climate jobs. For example solar energy jobs have been growing 22,000 jobs in a year, and the UK's geography gives it one of the best offshore wind energy environments in the world. Whilst the US, China, Spain and Germany increase their climate jobs rapidly, using strategies like guaranteed pricing for green energy, the UK risks being left behind as the current government's commitment to climate jobs appears uncertain.

There has been much talk of a 'green bank' to drive 'green investment' in 'green infrastructure', 'climate jobs' and reskilling. PCS supports these moves but also strongly supports direct public ownership as by far the quickest way to drive investment towards desirable social and environmental outcomes.

Encouraging use of other forms of transport

Sometimes called modal shift, the effectiveness of such policies can be seen in terms of the electrification of the West Coast mainline, which has correlated with a significant drop in domestic flights within the UK. Whilst detailed research would be needed to prove it beyond doubt, it seems plausible the two are causally linked, as journey times between the major cities are now brought below the 4 hours which research has found is a tipping point between the choice to fly and the willingness to use the train.⁶⁶

The shift from air to rail travel in the UK market is revealed by recent figures that show train use on domestic air routes has jumped almost 60 per cent in the past six years.

An analysis of the 10 busiest domestic air routes, mainly between the south of

England and Scotland, shows that rail's market share increased from 29 to 46 per cent between 2006 and 2012.

Train usage rose 52 per cent to 7.7m trips. In contrast, airlines saw passenger numbers fall 26 per cent to just over 9m. The total market dropped 3 per cent over the period, reflecting the impact of the economic slowdown.

The Association of Train Operating Companies said the growth in rail use was due to the widespread adoption of airline-style pricing by train companies.

Rail executives said the £9bn upgrade of the West Coast main line, completed in 2009, also boosted the appeal of the train. The work cut journey times between London, Manchester and Glasgow by up to 30 per cent, improved reliability and enabled the introduction of more services.

The cut in journey times has all but killed off the London–Manchester air market, with only 15 per cent of journeys still made by aircraft. Those travellers are normally ones transferring on to international flights at Heathrow.

The main domestic air market is between London and Scotland, where train operators still do not come close to matching airline journey times – measured city centre to city centre.⁶⁷

However, the limitations of the free market approach to integrated transport is illustrated by the incredibly slow and politically fraught progress towards High Speed 2 and other upgrades (important for journey time tipping points), and also under-investment in, and high prices of, other existing public transport provision.

The Coalition Government's policy is to support the development of a high speed rail route running from London to Birmingham, Manchester and Leeds, appears to be operating at a snail's pace, in the face of fierce opposition from

⁶⁶ Airlines feel the strain as UK passengers take the train By Mark Odell, Financial Times April 28, 2013

⁶⁷ Ibid

Conservative MPs representing its picturesque Chiltern route. Some environmentalists have also questioned whether additional rail capacity is a priority, over and above investment in existing public transport provision, including bus and coach transport, and upgrading the existing rail network.

Encouraging ‘integrated’ transport

The environmental impact of Heathrow airport is worsened by the heavy reliance on access by road vehicles – which also impacts on the air quality and health, safety and

wellbeing of airport workers. It does not have good quality railway links to the rest of the UK, although has underground and surface rail links to London as well as coach and bus terminus. The opening of the Crossrail link in 2018 could help, though from an environmental point of view this benefit could be more than offset if it results in expanded airport capacity.

There are some tentative plans for a link between Heathrow and HS2; however, vocal opponents of HS2 have claimed passenger use of such a link “would be extraordinarily low”.

Appendix one Aviation review working group

Participants in Aviation Review Working Group were as follows:

Chris Baugh (Assistant General Secretary)

Neil License (NEC)

Emily Kelly (NEC)

Andrew Reid (NEC)

Ian Pope (NEC)

Tahir Latif (Aviation Group President)

Jeremy Gautrey (Aviation Group Secretary)

Sue Rose (Aviation Group GEC)

Rory Devlin (Aviation Group GEC)

Tim Denyer (Aviation Group GEC)

Dennis Burke (Aviation Group GEC)

Ian McNeil (Aviation Group GEC)

Anne Elliot Day (PCS Green Policy Officer – June 2010 to June 2012)

Imogen Radford (PCS Research Officer)

Natasha Burgess (PCS Campaigns Officer)

James Davies (PCS Campaigns Officer)

Sam Mason (Policy Officer AGS Office)

John Stewart Campaign Against Climate Change & Heathrow Association for the Control of Aircraft Noise (HACAN) (Attended meeting on 24 January 2013).

The review was supported by consultants Caroline Molloy and Roger Sealey.

Appendix two Radiative forcing

The overall effect of aviation on climate is currently the subject of active scientific research.

Somebody looking at the amount of emissions coming from civil aviation might be tempted to ask the question why is this of concern, especially given the emissions from other sectors of the economy. The answer to this question is twofold. The first as we have already indicated is that civil aviation is forecast to grow, therefore increasing emission. The other is because of radiative forcing (RF).

Radiative Forcing (RF) is a standard metric used to compare the contribution of changes in individual atmospheric constituents (forcing agents) to the energy imbalance of the earth's atmosphere system since pre-industrial times.

It is important to understand that RF measures the energy imbalance at a given point in time. It is determined in part by the current stock of each forcing agent in the atmosphere, and so depends on the emissions history of that agent and its lifetime. For instance, CO₂ remains in the atmosphere for many centuries, so the CO₂ RF results from the accumulation of emissions since the start of aviation activity. In contrast, contrails only remain for up to several hours.

RF indicates the current imbalance arising from past activity up until now; it does not give an indication of how current activity will contribute to future climate change. This is because a long-lived forcing agent emitted now will continue to exert RF for much longer than a short-lived agent.

Aircraft release emissions into the atmosphere comprising of several different kinds of gases and particles. These gases and particles also alter the concentration of atmospheric greenhouse gases, including

CO₂, ozone (O₃), and methane (CH₄)

Some of these gases and particles cool the planet, other warm it. But the overall impact of these emissions, according to the IPCC 2002, has a warming effect of 2.7 times that of the carbon dioxide alone.

Apart from CO₂, combustion of aviation fuel results in emission of water vapour, nitrogen oxides (NO_x) and aerosols. NO_x are indirect GHGs, in that they do not give rise to a radiative effect themselves, but influence the concentration of other direct GHGs by enhancing ozone (leading to warming) and suppressing methane (leading to cooling). With the exception of sulphate aerosols, all other emissions cause warming.⁶⁸

Also depending on meteorological conditions, the flight of aircraft can also cause formation of linear ice clouds (contrails) and can lead to further subsequent aviation-induced cloudiness. These cloud effects cause additional warming.⁶⁹

The uncertainties over the overall impact of aviation on climate change mean that there currently no internationally recognised method of converting CO₂ emissions into the full CO₂ equivalent quantity. Emissions from aviation as a proportion of total GGE are currently 5.8 per cent excluding the radiative forcing effect. In a parliamentary answer in 2 May 2007 Gillian Merron MP, the then the Secretary of State for Transport, stated that: 'Using a radiative forcing multiplier of two, emissions from flights departing the UK contributed approximately 13 per cent of total UK emissions in 2005. However, the figures for non-aviation sources do not include any radiative forcing attributable to them, as conclusive figures are not available'.⁷⁰ So the absolute maximum figure for UK aviation's

⁶⁸ www.grida.no/publications/other/ipcc_sr/?src=/climate/ipcc/aviation/083.htm

⁶⁹ See Meeting the UK aviation target – options for reducing emissions to 2050 Committee on Climate Change December 2009 p122

⁷⁰ www.publications.parliament.uk/pa/cm200607/cmhansrd/cm070502/text/70502w0005.htm

emissions in 2005 was 13 per cent, but was anywhere between 6 and 13 per cent.

The evaluations used in this section are relative appraisals of the level of scientific understanding associated with each component at the given time, and are subject to change given changes in our understanding.

Appendix three

PCS bargaining on the environment

PCS wants to use a strong bargaining union which ensures that any savings realised through technical or operational changes will be shared fairly with the workforce – by being used to protect jobs, conditions or pay – and/or with the environment and society as a whole – not just used to benefit shareholders and executives. This is always the risk with publicly listed companies, who are bound by company law to have no regard for anything other than shareholder value.

Union bargaining can empower workers to achieve considerable resource savings. Even negotiating on small steps (perhaps not that significant in terms of the aviation industry's overall environmental impact) can raise awareness of the issue amongst membership, and, as suggested above, ensure unions have a place at the table when negotiating on the bigger issues like job protection and redeployment. For it is clear that such changes are coming (whether because of increasing environmental regulation or due to increasing resource scarcity) and it is critical unions like PCS have a voice.

Key questions to ask about greening the workplace environment, include:

1. Does heating, cooling, insulation and draught-proofing keep workers comfortable without wasting energy?
2. Is automation used to reduce energy use where appropriate, such as motion sensor lights?
3. Are energy and life-cycle costs factored in to the purchasing of equipment, including lighting and IT?
4. Are staff trained on using equipment in an energy efficient and environmentally friendly way?
5. Is all equipment turned off fully when not in use? If not, why?
6. Is offsetting only carried out as a last resort after looking at energy saving, sourcing green electricity, and onsite renewable/CHP generation?
7. Is there an up-to-date travel plan that promotes energy efficient travel to work, negotiated with PCS?
8. Are there effective procedures to minimise the use of all resources including energy, paper, raw materials, packaging and disposable items, to recycle resources that are used, and to buy resources made from recycled not virgin materials?
9. Are water saving measures in place?
10. Do catering arrangements make efficient use of resources, or do they rely on processed and packaged food?

Key questions to ask when negotiating for greater PCS involvement in improving environmental impacts:

1. Has the organisation had an environmental or carbon audit? Does it know its 'carbon footprint'?
2. Has it implemented any recommendations?
3. What key environmental indicators does it publish?
4. Does the employer have an accredited Environmental or Carbon Management System, which should include a way of prioritising, monitoring and working with staff and union(s)?
5. Are unions involved in progressing environmental decisions? Is there a joint environmental committee, or the environment as a standing issue on existing bargaining structures, and is PCS represented on it?

PCS experience in other sectors has shown that workers at shop floor level often have considerable knowledge of where resources are being used inefficiently, but may not be sure how to raise them.

Greater PCS involvement in negotiating around such issues helps to capture and share such expertise and ensures workforce buy-in of any changes that are proposed.

In a number of workplaces in other sectors, PCS has negotiated time off for training on environmental issues – both for the workforce as a whole, and PCS member and reps. Such training has led both to measurable environmental improvements (and cost savings) – and to increased awareness of the wider issues and challenges for industries that are inherently energy-intensive.

PCS has also pushed for recognition for environmental reps to enable them to have the time, training, and place at the negotiating table to act as a conduit for ideas and concerns.

In some workplaces environmental negotiation and representation has been merged with health and safety. The advantage of this is that it can take advantage of pre-existing structures and recognition, though it is not always appropriate.

In all workplaces, but most particularly in an airport environment, air quality due to pollution is a particular concern. Poor air quality can cause serious ill health.

Contributing factors at airports include:

- take-off and landing of aircraft
- taxi-ing
- airport support equipment
- jet-fuelled auxiliary power units (generate on-board electricity)
- very heavy road transport connections.

For example, Heathrow has the 2nd worst air quality of anywhere in London.⁷¹ There are a number of measures that have been proposed to address this. Whilst some involve re-locating aviation centres (see

above) there are also workplace level solutions that could, it is estimated,⁷² halve the air pollution from airport operations, including:

- Plugging airport power units into the airport electricity supply
- Increased use of electric vehicles for airport support operations
- Using desulphurised fuel for airport support operations (estimated to add only 2 per cent to fuel costs, but reduce the health by 20per cent.
- Improved training for staff.

Clearly this – especially taxi-ing management – is an area where there could be opportunities to grow employment to protect the environment.

Noise pollution is another concern for those located at airports – who will often also live under flight paths, and experience annoyance and sleep disruption as a result.

Improved public transport links to airports could improve air quality, as well as convenience for the airport workforce. Two thirds of the 69 million passengers using Heathrow each year, travel by car.

A key area which PCS has addressed in other sectors is Travel to Work, negotiating travel plans which facilitate and reward energy efficient travel, and cut down on unnecessary travel. Such policies could improve the quality of working life, as well as climate and air pollution problems, and also reduce accidents and the financial and time burdens placed on people by traffic congestion, and leave more time for productive activities.

PCS supplies more detail on all the above areas on the Green Resources section of its website, see: www.pcs.org.uk/en/resources/green_workplaces/green_resources

⁷¹ www.london.gov.uk/mayor-assembly/london-assembly/publications/tackling-air-and-noise-pollution-around-heathrow

⁷² www.guardian.co.uk/environment/2012/oct/12/heathrow-third-runway-air-pollution

Public and Commercial Services Union
160 Falcon Road, London SW11 2LN
Telephone: 020 7924 2727
Fax: 020 7924 1847

