Consultation on Revised Draft Airports National Policy Statement

Response From West London Friends of the Earth

Introduction

The consultation document asks just two questions. Rather than attempt to answer each separately, we have found it more useful to address the issue on a topic-by-topic basis. The first question relates to the demand forecast and air pollution assessments. Our comments on demand are concentrated more on the implications of the demand forecasts rather than simply their validity. On air pollution we are also concerned more with the implications rather than details of the forecasts.

Air pollution

Air pollution (euphemistically called "air quality" in the consultation) is a massive public health issue, with an estimated 40,000 people in the UK dying every year and 9,500 in London. The courts have found twice, following cases brought by Client Earth, that the government has no tenable plan for bringing air pollution within legal limits. The judgments were reached without any assumption that Heathrow would be expanded and thereby increase air pollution levels (above the two runway scenario), hence making the government's stance on air pollution seem even less tenable.

With a third runway, the emissions from Heathrow will be much greater than with two runways. As passengers and aircraft movements will be about 50% higher with 3 runways than with two, the emissions will be proportionately greater and concentrations of pollutants will be increased. The revised NPS states that the proposal for a northwest runway at Heathrow has a 'high risk' of exceeding legal limits for air quality.

See Appendix, Q5.1 for more detailed comments.

Noise

The revised NPS does not fully take into account the impact aircraft will have on people and communities that are newly overflown. The population exposure at high noise levels is 42% higher in 2030 in the new forecasts.

The lack of information around detailed flight paths associated with a third runway at Heathrow is a significant flaw that undermines the credibility of the NPS.

The revised NPS now demonstrates that there is a lowering of the threshold at which significant community annoyance begins to occur. Nearly 400,000 more people will fall within the noise contour considered to mark the onset of significant community annoyance in 2030.

There is insufficient information in the revised NPS on the length of respite periods that communities will experience should a third runway become operational. It appears that where there is currently respite for half the time this will typically be reduced to a third. It should also be noted that one person's respite is another person's extra noise (because respite is only possible at one location by having a flight path over another location instead at that time).

See Appendix, Q5.2 for more detailed comments.

Surface Access

There has been a major disagreement about the schemes needed to handle the extra passengers, with the Airports Commission (AC) estimating a cost of £5 billion (bn) and Transport for London estimating about £15bn. DfT lowered the AC estimate to between £1.4 bn and £3.4 bn (after Minister Chris Grayling intervened). The revised NPS has not included any further analysis of the potential costs to resolve these discrepancies.

Heathrow has offered to fund just £1 billion of the surface access improvements. This means a large public subsidy will be needed for the remainder.

While a few public transport and road schemes are proposed, the majority of road usage and public transport resulting from a third runway will be on unenhanced roads and public transport. There will therefore be additional congestion, noise and general harm. These impacts should have been quantified and included in the estimate of net economic benefit.

See Appendix, Q4 for more detailed comments.

Climate Change

The revised NPS includes a significant reduction in CO2 emissions per passenger compared to AC's estimate, yet does not provide evidence to explain why the current predictions are valid and the previous ones were incorrect.

The increased emissions of CO2 from Heathrow expansion mean that, in order to achieve the 80% cut required by the climate change act, other sectors would have to cut their emissions even more. The Committee on Climate Change (CCC) concluded that it would be just about possible for aviation to emit 37.5 million tonnes of CO2 pa within the 2050 target. However, they noted that other sectors would have to cut their emissions by about 85% instead of 80%. This is a very hard ask and there would be a considerable cost to this even deeper cut. The costs, which are clearly attributable to aviation, have not been included in the NPS.

The revised NPS and Appraisal of Sustainability make it clear that the Government has no intention of pursuing a 'carbon capped' scenario but rather will allow expansion on a carbon traded basis. It assumes that all the extra emissions will be 'offset' by a global trading system to ensure that emissions in other sectors will be reduced by whatever the increase is from aviation. This is a wild and unjustified assumption because a comprehensive worldwide trading scheme is not even on the horizon and because there is extensive evidence that 'carbon offsets' are nowhere near 100% effective in capping emissions.

The NPS only considers CO2. However, aircraft emit NOx (nitrogen oxides) and water vapour which are both powerful greenhouse gases when emitted at altitude. (They do not have a significant effect near ground level.) These impacts have been qualitatively and quantitatively ignored in the climate and economic assessments.

See also Appendix, Section 5.1 for comments. However, it should noted that these were written when the forecast of CO2 emissions considerably exceeded the CCC target of 37.5 mtonne pa. We note the remarkable reduction in forecasts in the re-consultation. We do not have the resources to analyse the change but are suspicious because the reduction is just too convenient. It should also be noted that those comments were written when there was a genuine 'carbon capped' scenario. This

has been dropped in all but name, the new version having the same demand figures as 'carbon traded' with the key feature of high carbon costs being dropped. This too is deeply suspicious because it removes the stark and inconvenient distinction between carbon traded and carbon capped scenarios.

Demand

The work of the Airports Commission (AC) showed that if a new runway was not built at Heathrow, the great majority of growth in UK demand would simply be met at other airports, SE and further afield, where is plenty of spare capacity. Put another way, a new runway at Heathrow stultifies growth at other airports. The new DfT forecasts conclude the same thing.

The new forecasts show that traffic outside London would be reduced by 5.4 million passengers per annum (mppa) at 2030 and 17.3 mppa at 2050. This is a reduction of 4.3 and 8.5% respectively in total traffic. The reduction of growth (from 2016 to 2030 or 2050) is a massive 24.4% at 2030 and 42.2% at 2050.

Great play is made by the government of the importance of more routes and hence greater "connectivity". However the government's own analysis show there would be less routes with a new runway than without (Table 3.3 of the Updated Appraisal Report). Only by ignoring shorthaul or ignoring routes where frequency is less than one a day can an increase in routes be claimed.

AC showed that a new runway at Heathrow would reduce substantially (as compared with no new runway) the number of foreign destinations served by other airports, ie a loss of connectivity. A similar analysis (or presentation of results) has not been carried out as part of this re-consultation but there is no reason to suppose that the same pattern would not emerge, especially as the total destinations from the UK does not increase (see previous paragraph).

Growth at Heathrow at the expense of airports in the regions will concentrate even more economic activity and population in the SE and further unbalance the UK economy.

The AC analysis showed that of the traffic lost, the great majority would be interchange traffic. This is traffic where foreigners jet into Heathrow and then jet out. Because they are not staying in Britain, they bring no economic benefit; but they dump extra noise and pollution over the populace near Heathrow. The government tries to justify Heathrow expansion by defining an objective as 'maintaining Heathrow's hub status'. But no proper economic justification is given of that objective.

The new forecasts show the same. Of the forecast 29.1 mppa extra traffic at 2030, 18.3 is international-to-international transfers (I-I) ie 63%. At 2050 15.8 out of 25.8 mppa is I-I ie 61%.

The need for long-haul flights by UK business people to markets such as China is constantly cited by supporters of Heathrow expansion (and now argued as being even more important post Brexit). But the reality is that such flights represent a tiny proportion of total flights – less than 2% (Table 60 of the revised forecasts). There is more than enough airport capacity to serve all conceivable needs of business people for the foreseeable future. There is no evidence that british businessmen (and women) would not fly to China simply because there was not a flight from Heathrow but instead from or via another airport.

The great majority of flights are leisure and great majority of those are taken by affluent people including 'frequent fliers'. The main beneficiaries of a new Heathrow runway (apart from Heathrow itself) are the affluent. The downsides – congestion, noise, air pollution, loss of homes –

are felt by primarily by the less affluent who live near the airport. A new runway is therefore, in terms of equality, highly regressive.

The forecasts of demand on which the entire AC and DfT analyses are based assume that aviation will continue to enjoy tax free fuel indefinitely. A tax on fuel at the same rate as petrol would raise about £10 billion pa at current rates. Because air travel is quite 'price elastic', demand would be considerably less if there were a tax on fuel. The reduction in traffic due to a fuel tax is very likely greater than the modest increase in traffic due to a new runway. The "need" for a new runway is therefore, in a sense, predicated on a tax dodge. We do not believe that a new runway should be built, with all the devastation it will cause, on the basis of a large and continuing tax dodge.

There has been a very odd change in the forecasts from those of the AC. The forecasts for 2030 are considerably increased, which enables the case for new runway at Heathrow seem stronger. But the forecast at 2050 is barely changed which means there is no need to forecast increased CO2 emissions. This is just too convenient.

See Appendix, Q1, Section1 for more comments. But note the forecasts of demand have changed.

Economic impacts

Throughout the entire policy process for a new runway, the government and industry lobbyists have claimed there would be huge economic benefits from Heathrow expansion. This has continued in the current consultation - despite the fact that the extensive analysis and quantified results show otherwise.

To assess whether a big, complex project such as a new runway is worthwhile, it is necessary to look at the stream of costs and benefits over many years and then balance all these costs and benefits. The recognised method is to calculate a 'Net Present Value' or NPV. The great advantage of NPVs is that they take account of all costs and benefits into the future for everyone, not just financial costs and benefits for some of the parties. For this reason NPVs are the standard measure for large infrastructure projects where the overall cost/benefit to society needs to be assessed.

The key figure for NPV, shown in Table 9.2 (page 44) of 'Updated appraisal report airport capacity in the south east', for the Heathrow northwest runway (HNW) is -£2.2 to +£3.3 billion (bn). This is a downgrading from the already very low net economic benefit derived by the AC and subsequently updated by DfT. Now it is conceded that the net economic benefit could well be negative. Even if the benefit is at the top of the range, it is negligible in comparison with the UK economy. £3bn is a cumulated benefit over 60 years, to be compared with the UK's economy which is worth about £2 trillion pounds every year.

The conclusion is profound. By the government's own admission, there is no demonstrable net economic benefit for a new runway at Heathrow. All the other figures of economic benefit in Table 9.2 and elsewhere in the consultation are misleading (or potentially so) because they all exclude some or all of the costs.

See Appendix, Q1, Sections 2 to 6 for more comments. But note the estimates of economic benefits have changed somewhat.

Jobs

Please see comments in Appendix Q1, Section 7. We note that the consultation recognises that "new" or "created" jobs are not generally additional in a broader UK context but are transfers from or substitutes for other jobs. In an economy with low unemployment, such as we have in the UK, it is not possible to increase jobs overall without increasing the population or retirement age.

Scope of NPS

The new consultation documents suggests that if a new runway becomes operational in 2026 it would be full by 2028. This means that, if a third runway at Heathrow were approved, there would immediately be a perceived need for a 4th runway. Given the time from beginning (formulation of policy) to end (operational) of the new runway process, we could be sure the lobbying for a 4th runway would start as soon as the 3rd runway was approved in order that a 4th runway would be available when capacity runs out – namely 2028.

There is no reason to suppose that the underlying policy – "predict and provide" - and the arguments – connectivity, trade, economic benefits – would not be applied all over again. An NPS and an aviation policy which considers just a 3rd runway and ignores the 4th runway, which could follow just two years later on the basis of demand, is fundamentally flawed. It misleads the public about all the impacts of expansion by considering only the first part of an expansion programme and for this reason it may be legally unsound. It is most certainly morally unsound.

Additional comments

We submitted a more detailed response to the original consultation. Most of the comments there remain valid although some of the numbers change, especially the effect of a new runway at Heathrow on growth in the regions.

Sir Jeremy Sullivan said, in a message to West London Friends of the Earth on 28/11/17: "I realise that consultees may well argue that the new information should have led to significant changes in the Government's policy but the fact remains that the policies in the revised draft NPS remain substantially unchanged. Similarly while there have been many detailed amendments to the Appraisal of Sustainability (AoS) to reflect the new Passenger Demand forecasts, the overall sustainability assessment is, rightly or wrongly, largely the same

Following on from this, it is reasonable to conclude that the bulk of our comments to the original consultation are still valid. That response is therefore added as an appendix. It will be clear where the comments in the main text supersede the original comments, these being where forecast numbers are quoted or derived.

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Appendix - Response by West London Friends of the Earth to Original Consultation

Introduction

Detailed responses to Questions 1, 4, 5 and shorter answers to Questions 6 and 7 are given below. Here is a summary of the key points.

1. Evidence from the Airports Commission (amended in some cases by the DfT) shows negligible economic benefit from a new runway and little increase in connectivity in the UK as a whole. Growth and connectivity in the regions are reduced by a third runway at Heathrow (as compared with no new runway).

2. The government estimates show a negligible net economic benefit from a third runway. If the full impacts of noise, congestion, air pollution and climate change are taken into account, the net economic benefit is negative.

3. It is impossible to assess the noise impacts without proposed flight paths being published. It is not believable that noise impact would be only by 9% higher with a third runway (as compared with no new runway) when flights and passengers would increase by nearly 50%. The NPS and other processes should not be progressed until these matters are corrected.

4. There is no evidence given that a third runway would be consistent with EU legal limits for air pollution, let alone other health-based and ecosystem limits. The NPS and other processes should not be progressed until a credible plan has been published by government which shows, with a good level of confidence, that a new runway would not cause air pollution limits to be breached or would not prevent air pollution levels over those limits being brought under the limits.

5. There is no evidence given that a third runway would be consistent with the UK's climate target. Indeed, analysis by the Committee on Climate Change and used by the Airports Commission shows that a third runway is not consistent. The NPS and other processes should not be progressed until the government's climate strategy (expected in the autumn) is published and shows how the new runway would be consistent.

6. The consultation, particularly the leaflets and the 'roadshow' was systematically biased. It gave one-sided misleading sound bites and unsupported assertions about economic and employment benefits, while massively playing down impacts such as noise, air pollution and climate change. The lack of balanced and unbiased evidence will very probably bias responses to the consultation and thereby render the process unsound.

Responses to questions

I wish my response to be treated as confidential.

No, we are happy for the response to be published.

Q1. *The Government believes there is the need for additional airport capacity in the South East of England by 2030. Please tell us your views.*

1. Effect on traffic and destinations

1.1 We do not believe the case has been made for additional airport capacity in the South East of England by 2030. The work of the Airports Commission (AC) showed that if a new runway was not built at Heathrow, the great majority of growth in UK demand would simply be met at other airports, SE and further afield, where is plenty of spare capacity.[i] Put another way, a new runway at Heathrow stultifies growth at other airports. Growth at regional airports is reduced by 7% in 2030 and by 16% at 2050.[ii] Growth at Heathrow at the expense of airports in the regions will further unbalance the UK economy.

1.2 The AC analysis furthermore shows that of the traffic lost, the great majority would be interchange traffic.[iii] This is traffic where foreigners jet into Heathrow and then jet out. Because they are not staying in Britain, they bring no economic benefit; but they dump extra noise and pollution over the populace near Heathrow. The government tries to justify Heathrow expansion by defining an objective as 'maintaining Heathrow's hub status'. But no proper economic justification is given of that objective.

1.3 AC analysis shows that even if a new runway is built, there will be hardly any increase in destinations directly served from the UK. [iv] Therefore there is no loss of connectivity if a new runway is not built. New routes will continue to be provided when the (national) demand is sufficient; but these routes will simply be provided from airports other than Heathrow.[v] A third runway at Heathrow reduces considerably the number of international destinations served by regional airports.[vi]

1.4 After the referendum, IATA (International Air Transport Association) issued a report 'The impact of 'BREXIT' on UK Air Transport'.[vii] It said: "*The direct economic impact is likely to see the UK air passenger market be 3-5% lower by 2020 than the no Brexit baseline. In other words, the outcome of yesterday's referendum could reduce air passenger growth by 1.0-1.5 percentage points each year over the near term.*" It did not forecast any 'bounce back' - that is increased growth after 2020 to bring traffic back to the non-Brexit forecast.

1.5 On the air freight market the report says: " .. *is less certain [than passenger traffic]. Over the longer-term, however, there will be an impact on international trade when the UK does formally exit the EU and this, in turn, will affect air freight. For example, the OECD5 estimates that UK trade volumes could fall by 10-20% over the long run (to 2030), relative to the baseline*."

1.6 This analysis by IATA – in contrast to hype from lobbyists for Heathrow and some politicians – indicates there will now be less demand for air travel and therefore less need for new runway capacity than was forecast by AC and DfT.

1.7 Heathrow claims that a new runway would enable it to serve a total of 14 domestic routes, up 6 from the current position. However, the AC's dispassionate economic analysis shows that even with a third runway, the number of domestic routes served by Heathrow would fall to 4. It is apparent, therefore, that the new domestic routes would have to be subsidised by Heathrow airport, the airlines or the taxpayer. There is no proposal in the NPS for any such subsidies. Therefore, all such claims of extra domestic routes should be rejected as mere propaganda.

2. Demand artificially inflated by tax avoidance

2.1 The forecasts of demand on which the entire AC and DfT analysis is based assumes that aviation will continue to enjoy tax free fuel indefinitely. A tax on fuel at the same rate as petrol would raise about £10 billion pa at current rates.[viii] Analysis of AC's demand forecast shows that at 2030, the extra traffic resulting from a new runway is far less than the traffic growth that would be

lost if were not made artificially cheap aviation by avoiding its fair share of tax (fuel tax and VAT).[ix, x].

2.2 The "need" for a new runway is thus predicated on a tax dodge. We do not believe that a new runway should be built, with all the devastation it will cause, on the basis of a large and continuing tax dodge.

3. Economic benefit estimates

3.1 The AC and DfT have estimated the economic benefit of a new runway in the form of a Net Present Value. AC's estimate is £11.8 bn over 60 years.[xi] DfT has revised the estimate downwards to £0.2 to 6.1bn.[xii] Compared with the UK's GDP over that period, the net benefit is negligible.

3.2 The NPV of £11.8bn estimated by AC assumes that no attempt is made to constrain aviation's carbon emissions ('carbon traded scenario') to meet the UK's climate target. If aviation growth is adjusted so that it meets the target recommended by the Committee on Climate Change ('carbon capped'), the NPV reduces to a mere £1.4bn. The DfT estimate of £0.2 to 6.1bn (carbon traded) would likewise reduce but, remarkably, there is no revised figure quoted for carbon capped. We can only surmise this is because the NPV would be negative, undermining government policy of support for a third runway. See also response to Q5.3.

3.3 In its consultation materials, DfT has quoted a figure of £61bn economic benefits. This is totally misleading because it is a 'gross' economic benefit, that is benefits without the corresponding economic and financial costs being subtracted. The proper basis for making a decision on an infrastructure project such as this is clearly NET economic benefit, where costs are subtracted from benefits. Not cherry-picked gross benefit figures. Infrastructure projects are routinely evaluated on this basis, using DfT's own guidance, to give a 'Net Present Value' (NPV).

3.4 The £61 billion is stated in the consultation leaflet as "expected economic benefits to passengers and the wider economy". That figure is consistent with a figures derived from the DfT document [xiii] which shows "total benefits" as £59.2 to £61.1bn. But – crucially – that benefit figure is before any of the costs are subtracted.

3.5 The same table shows that after costs are subtracted there is a NET economic benefit of £0.2 to £6.1bn (expressed as Net Present Value). That is, figure of one tenth or less! If a single figure is to be quoted in the interest of simplicity, it has to be a Net Present Value. To quote benefits of £61bn without costs is utterly misleading.

3.6 While it may still sound a lot, even the upper value of NPV of £6.1bn is negligible in the context of the UK economy. It is a benefit over 60 years and it is equivalent to just a fraction of the cost of a cup of coffee for each airport passenger. It is equivalent to about 0.005% of GDP.

It should be noted that there are other misleading claims circulating about economic benefits and these have been used systematically for propaganda purposes by Heathrow Airport and other supporters of Heathrow expansion. The claims derive from a study by PwC for the AC. The results were rubbished by the AC's own peer reviewers and they were abandoned by the DfT in its revision of economic benefits.[xiv] Figures such as £211bn and £147bn for 'wider economic benefits' have gone and we now see a range of £2.0bn to 3.9bn.[xv] However, the legacy remains; many respondents will support Heathrow expansion on the back of those false claims about economic benefits.

4. Under-estimates of surface access and environmental costs

4.1 As noted in Q4, estimates of surface access (SA) costs have been reduced, following disquiet at the taxpayer subsidy which would be needed. This suggests that the latest forecasts are optimistic. If the AC estimate of £5.0bn is in fact the more valid, the DfT estimate of SA cost is £1.6bn to £3.6bn too low. (It should be noted that this assumes AC's modest costs for SA. If the TfL estimate was used, the negative impact on NPV would be far greater.)

4.2 As noted in Q5.2, the estimate of noise impact (3 runways v 2) was perhaps £2bn too low because optimisation of flight paths was assumed with 3 runways but not with 2 runways.

4.3 Air pollution costs are also under-estimated while climate costs have been ignored completely.

4.4 If corrections are applied for these factors, DfT's NPV of £0.2bn to £6.1bn is reduced to -£2.5bn to -£13.8bn. There are further social cost not accounted for which would reduce the NPV further. See appendix 1 for detail.

5. Trade

5.1 Great play is made in the consultation of the economic benefits of more trade, facilitated by more air travel. But the fact of the matter is that the vast majority of air travel is tourism and leisure. Far more money is taken out of the UK by tourism that is brought in; encouraging even more (tax-free) flying is therefore not economically beneficial to the nation. It should furthermore be noted that affluent people comprise the great majority of tourist traffic. This means that the benefits and public subsidies (surface access infrastructure provision, tax exemptions, etc) help the affluent and exacerbate inequality.

5.2 The need for long-haul flights by UK business people to markets such as China is constantly cited by supporters of Heathrow expansion. But the reality is that such flights represent a tiny proportion of flights – about 2%.[xvi] There is more than enough airport capacity to serve all conceivable needs of business people for the foreseeable future. There is no evidence that british businessmen (and women) would not fly to China simply because there was not a flight from Heathrow but instead from or via another airport.

6. The importance of aviation to the UK economy

6.1 Paras 3.2 to 3.4 of the consultation document may be of some general interest, but are not relevant to the issue at hand, namely whether to build a new runway at Heathrow (or elsewhere). The reasons for this conclusion are given below.

6.2 Clearly aviation forms part of the UK economy and clearly a proportion of UK jobs are associated with aviation. The word "contributes", used in the consultation, is a misnomer because it implies that aviation makes the economy bigger by £20bn.[xvii] It does not. A correct and unbiased way of expressing it is to say that aviation's £20bn is "part of the economy".

6.3 Whatever the proportion of the UK economy that is represented by aviation, it has no relevance in the debate on expansion. More aviation does not mean a bigger economy. If this 'more is better' philosophy were employed, we ought to be generating more electricity. In fact, we should strive to generate less. Better energy efficiency and less jobs (including higher labour productivity) in electricity generation are better for the UK economy.

6.4 The main effect of more aviation will be a larger proportion of the UK economy being devoted to aviation. There is no reason to suppose this is beneficial to the UK economy. It is of course correct, as noted in 3.3, that aviation facilitates trade and economic activity. But this is an entirely

different matter to the size of the aviation sector itself. Even more importantly, the fact that aviation facilitates trade does not mean that more aviation will create more trade. Any more than generating more electricity will grow UK industry.

6.5 For all these reasons the current size of the aviation sector and the number of jobs associated with it are irrelevant to the issue whether a third runway should be built. We conclude therefore that such material has been included for promotional purposes, intended to garner support for expansion.

6.6 Finally, it may be noted that the aviation sector is actually quite small. £20bn represents about 1% of UK GDP.

7. Jobs

7.1 The consultation document is littered with references to jobs and job created. However, these are highly misleading because, while jobs may be "created" in one area as a result of a scheme, this never happens isolation. The effect on employment generally in the local area and beyond are of critical importance.

It is very telling that the AC points this out. Firstly, it dispels the myth that a new runway would create jobs in the UK as a whole:

"It is important to note that it is assumed that there is no net additional employment in the UK and that all these additional jobs in the do something are being displaced from outside the catchment area." ["do something" means a new runway] [xviii]

To a lesser extent, this will apply in the Heathrow area or the SE. There will inevitably be displacement of existing or new jobs, unless there is population increase.

AC continues by saying that extra jobs locally would be achieved by increasing the population: "*The additional employment supported by Heathrow's expansion would lead to a significant requirement for additional housing. The Commission's analysis indicates this would total between 29,800 and 70,800 houses by 2030 within the local authorities assessed as part of the local economy assessment. This additional housing and population growth would also require substantial supporting infrastructure including schools and health care facilities."* [xix]

It is generally considered desirable that unemployment is low. But tellingly, AC does not suggest that a new runway will reduce unemployment. They are right not to do so. The causes of unemployment are deep and complex. They include the state of the national economy, the economic cycle, education, skills, social factors, regional differences and demographics. Not presence or absence of a third runway.

The claim that unemployment could be cured by building a new runway at Heathrow is little short of absurd. But this does not prevent supporters of expansion making false claims, eg "*Unemployment could be cut by 50% and youth unemployment in surrounding boroughs could end*." [xx]

The effects of the extra population would be severe. The Airport Commission says: "*The need for additional housing provision to house the increase in residents in the area around the airport will also need to be supported by the provision of additional social infrastructure such as schools, hospitals and leisure centres. The Commission's assessment suggests that provision of additional housing will need to be supported by the provision of additional schools 50 primary and six*

secondary across all 14 local authorities, two additional health centres (14 GPs) and two primary care centres per local authority to 2030. [xxi]

It is important to note that increasing economic activity in an area is not necessarily 'a good thing'. If it is achieved by population growth, as AC concludes it would, that does not increase prosperity because per capita wealth or income is not increased.

We have seen no evidence or review of the AC reports which contradicts their conclusions, highlighted above.

DfT's make claims about jobs, without pointing out key facts, recognised by AC, such as jobs created near Heathrow are offset by jobs lost or not created elsewhere and that the new jobs will increase population rather than reduce unemployment. In this form it is, in effect, propaganda supporting Heathrow's claims, not the dispassionate, reasoned case the public have a right to expect from civil servants.

While claims from DfT about jobs and jobs created may be correct in a narrow sense, the above shows that there is no net job creation across the UK and that the job creation locally does not mean people are better off. Figures of jobs and jobs created are therefore not an argument in favour of a new runway.

Q2. *Please give us your views on how best to address the issue of airport capacity in the South East of England by 2030. This could be through the Heathrow Northwest Runway scheme (the Government's preferred scheme), the Gatwick Second Runway scheme, the Heathrow Extended Northern Runway scheme, or any other scheme.*

An extended northern runway at Heathrow would have very similar economic and other impacts to the NW runway. A runway at Gatwick would have somewhat less economic and other impacts. However, the response to Q1 demonstrates that there is no need for a new runway at Heathrow or anywhere in the SE. There is spare capacity at Luton and Stansted. There is certainly no need for a new runway outside the SE because there is ample spare capacity at all regional airports.

Q3. *The Secretary of State will use a range of assessment principles when considering any application for a Northwest Runway at Heathrow Airport. Please tell us your views.*

Aspects of this are covered by responses to other questions.

Q4. *The Government has set out its approach to surface access for a Heathrow Northwest Runway scheme. Please tell us your views.*

1. The Airports Commission (AC) estimated that some £5bn would need to be spent on surface access (road and rail) to support a new runway. However, the experts on surface access, Transport for London (TfL) estimated £15bn. But whether the figure is £5 or £15bn, Heathrow airport has offered to pay only about £1bn towards the costs. This means a taxpayer subsidy of £4bn to £11bn to support Heathrow expansion.

2. Following adverse public comment about taxpayers subsidising Heathrow expansion, Secretary of State Chris Grayling claimed TfL's figure was "ludicrous". In its review DfT revised down even the far smaller AC forecast of SA cost to a range of £3.4bn to £1.4bn.[xxii] See also section 2 of appendix for the effect of this issue on net economic benefit.

3. We believe there are more important claims on the public purse than subsidising affluent people to fly. (The great majority of trips are by affluent people and the great majority of trips are leisure/tourism. All trips are free of fuel tax and VAT.)

4. The consultation claims that the percentage of trips to Heathrow by public transport will increase from the present if a new runway is built. That is welcome, but it is not good enough. With nearly 50% more passengers, there would be a massive increase in car trips even if the % of trips by public transport rises to 55% (in 2040).

5. We note that (at the time just before the consultation closed), Heathrow Airport has taken the government to court in an attempt to charge HS2 for the use of the track to Heathrow. The prohibitive charge Heathrow is trying to impose will either deter passengers if the charge is passed on in fares or will be a further public subsidy if the cost is borne by HS2. Either way, Heathrow's approach on HS2 demonstrates Heathrow's lack of genuine ambition to maximise public transport.

6. A large increase in road traffic is not sustainable because it will lead to more congestion, more air pollution, more greenhouse gas emissions, more ill health and more deaths. More ambitious targets are needed for public transport but, crucially, they must be made to happen. This can only be achieved by providing the necessary public transport and – crucially - by limiting car access and parking for the airport.

7. Suggested measure to increase the proportion of passengers travelling by public transport will have no effect on the increasing volume of freight that is being promoted as a benefit of expansion. Lorries produce especially large amounts of pollution, so an increase in lorry traffic would make the meeting of legal and health-based pollution limits even harder.

8. The estimates of NPV include the cost of the proposed enhancements to surface access (now only £1.6bn to £3.6bn.) However, these enhancements can only address the congestion that would otherwise ensue in a very small part of the area affected by Heathrow. It is inevitable that there would be an increase in congestion over the whole of west London and west of London resulting from R3. While the percentage increase in traffic and congestion may be small at any particular location, it will be occur over a very large area. The total environmental and social cost of the extra traffic and congestion will therefore be considerable and should be included in the economic appraisal.

Q5. *The draft Airports National Policy Statement sets out a package of supporting measures to mitigate negative impacts of a Heathrow Northwest Runway scheme. Please tell us your views. Are there any other supporting measures that should be set out? In particular, please tell us your views on:*

Q5.1 *Air quality supporting measures*

1. Air pollution is the UK's biggest environmental cause of premature death (second only to smoking overall), killing 29,000 people prematurely a year from particulates alone. However, if the effects of the toxic gas NO2 are added, the number of premature deaths is expected to double. It is estimated that 9,500 Londoners die every year from air pollution.

2. It is obvious that with a new runway, giving rise to nearly 50% more flights and passengers, air pollution will be higher than without a new runway.

3. DfT claims that air pollution (euphemistically called air quality) can be addressed: "The Government believes that, with a range of policy measures and environmental mitigations, expansion at Heathrow Airport can be delivered within legal air quality requirements." There can be no confidence that this belief is justified. The government has a history of making optimistic forecasts. Indeed, it was exposed by the Observer and BBC (Panorama) for working with Heathrow Airport to reduce the inconveniently high forecasts of air pollution levels during the previous incarnation of R3. [xxiii]

4. In April 2015, ClientEarth won a Supreme Court ruling against the government which ordered ministers to come up with a plan to bring air pollution down within legal limits as soon as possible. Those plans were considered so poor that ClientEarth took the government back to the High Court in a Judicial Review. In a damning indictment (Nov 2016) of ministers' inaction on killer air pollution, Mr Justice Garnham agreed with ClientEarth that the Environment Secretary had failed to take measures that would bring the UK into compliance with the law "as soon as possible" and said that ministers knew that over-optimistic pollution modelling was being used. These failures were found irrespective of a third runway at Heathrow.

5. A new 'plan' was published on 5/4/17 for consultation but first reactions from commentators, including Client Earth, are that no effective measures are proposed (as opposed to just being mentioned). Until a new air quality plan has been published and shown to be credible - in the courts if necessary - there can be no assurance that air pollution limits would be achieved even without a new runway.

6. Heathrow is already a massive polluter. The air pollution standards – set to protect human health – are regularly breached around Heathrow.

7. The consultation is materially misleading because the air pollution estimates are for 2030, when the runway will only be about 5 years old and will only be partly used. The real impact of a new runway – a fully used runway – is not shown. Heathrow has apparently offered only to use the new runway to the extent that air pollution levels are not breached. But these are just words. Without government support and insistence on this and without a regulatory or legal framework to support it, the offer is valueless. It is inconceivable that Heathrow Airport, having spent billions on a new runway and ancillary infrastructure, would voluntarily elect not to use it.

8. The consultation says that "construction and operation of the new capacity will not affect the UK's ability to comply with legal air quality requirements. Failure to demonstrate this will result in refusal of development consent." This is little short of a confidence trick. The UK will not achieve compliance with European law until all locations in the UK meet limit values. There are a handful of sites in central London that have higher levels even than those at Heathrow. Therefore, as long as air pollution levels around Heathrow remain lower than the worst hotspot in central London, the government can claim there is no impediment to Heathrow expansion. This interpretation was firmly rebutted by the ClientEarth judgement.

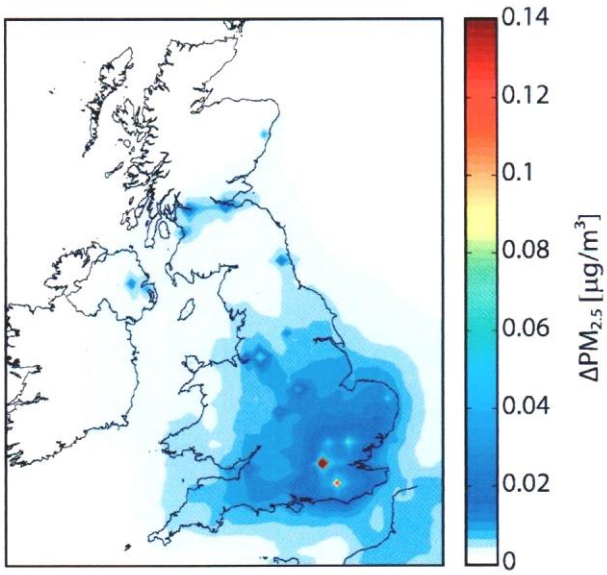
9. The consultation refers only to meeting EU legal limits. That is, what the UK can get away without legal action. The consultation ignores the deaths and ill-health as issues in their own right, even though air pollution at well below EU legal limits has health and other impacts. WHO 'Guideline' values are ignored.

10. It is readily inferred from the consultation that the government believes that long as EU limit values are achieved, the potential health benefit of reduced air pollution from non-airport sources can be appropriated by extra pollution from a third runway. We do not accept that health benefits from potential reductions in air pollution should be sacrificed.

11. The consultation ignores the fact that NO2 levels would breach EU limits for a significant number of ecosystems near Heathrow.

12. The Jacobs report [xxiv] states in 3.2: "*The contribution of airport emissions to ground-level pollutant concentrations falls off rapidly with increasing distance from the airport boundary, and is very small beyond a distance of a few kilometres. The "Principal Study Area" for each Scheme has been selected to focus on sensitive properties and habitats likely to be substantially affected by the Scheme and encompasses a 2km radius around each Scheme boundary*." This statement may be correct as it stands, but it totally misrepresents the impacts further away from the airport. While pollution concentrations resulting from airport emissions decline progressively as one moves away from the airport, the area and number of people affected progressively increase. [xxv] In societal terms, a lot a people suffering a small increase in pollution may well be as significant as a small number of people suffering a large increase. The total or societal impact on 8 million Londoners downwind of Heathrow could be greater than the impact on 120,000 people in the study area.

13. This effect is well illustrated in a report by Barrett et al.[xxvi],[xxvii].



3.7 of the report explains that only emissions from aircraft below 915 metres have been modelled. However, aircraft rise rapidly above this height and they spend the vast majority of their time in this country over 915m. The fact that they are over 915m does not mean they do not cause pollution at ground level. What it means is that the pollution is spread over a wider area. The vast majority of pollution emitted by planes that are higher than 915m (but which come from or are going to Heathrow) is probably deposited in areas well away from Heathrow.[xxviii] This pollution, probably affecting millions of people, is ignored by Jacobs, AC and DfT.

14. It is repeatedly asserted by Heathrow Airport and its promoters that the air pollution problem around Heathrow is mainly due to road traffic and not to the airport and its aircraft. The evidence is detailed and technical, but there are strong reasons for not accepting this claim.

15. The Jacobs report [xxix] shows (page 62) that NOx emissions from Heathrow would be 2.2 times higher than emissions from all the traffic on main roads across the whole of west London into the west end. (Traffic in the "model simulation area", figure 5.3 of Jacobs.) This indicates a vast and disproportionate level of emissions from Heathrow. It is frankly not believable that the airport is not

a major factor and that a third runway would not have major impact on air pollution levels and therefore health.

16. A reason why Heathrow and others can claim that the main problem is road traffic is that the critical areas are near main roads. It is monitors or 'receptors' located that are just by main roads which are most likely to show breaches of air pollution limits. Those receptors are precisely the ones where the contribution of road traffic to air pollution will be particularly high, both in absolute and proportional terms. By definition, the proportion contributed by aircraft or the airport will be low. But these receptors are completely atypical. The great majority of locations where people are exposed to pollution are not right by a busy main road. And in all those locations, the proportion of pollution contributed by aircraft will be higher, because the proportion from road traffic is lower.

17. Based on all of the above, it can be safely concluded that the air pollution impacts have been significantly under-stated.

18. The only protection offered in the consultation is "*Heathrow Airport will need to undertake an assessment of its project, to be included as part of its environmental statement, demonstrating to the Secretary of State that the construction and operation of the new capacity will not affect the UK's ability to comply with legal air quality requirements. Failure to demonstrate this will result in refusal of development consent.*" (6.23).

19. Careful consideration of this statement shows that it gives no genuine assurances. All that has to happen is for Heathrow Airport, at the time they require a Development Consent Order, to produce forecasts of air pollution for many years later when the new runway is in use. Heathrow Airport is obviously not impartial and will obviously produce forecasts that show the air pollution will be within limits. The government is barely less impartial, having announced its strong support for Heathrow expansion. It will therefore obviously not challenge Heathrow Airport's forecasts. Thus, there is no realistic protection against high levels of air pollution.

20. The consultation ignores the fact with Brexit, the UK may repeal air pollution laws. The undertakings would then be valueless because there would then not even be a target to be met.

21. Based on the forgoing, there will realistically be no targets or constraints on a third runway in respect of air pollution. Therefore, measures posited, such as a congestion charge or electric vehicles would not be even needed. And if they were needed, it is highly doubtful if they would be politically or financially acceptable.

22. From the above, it is clear that there are no effective supporting measures on air pollution proposed.

23. In order to ensure protection against air pollution, the mechanism of the Consent Order could be used. The Consent Order should be issued on the basis that the forecasts are valid, ie do not under-estimate air pollution. There should be a legally binding condition that suspends the order if the actual air pollution levels exceed those forecast at any time up to opening of the runway. In this way, temptation to make optimistic forecasts would be avoided.

24. After the runway is opened there should be a legally binding regulation, enforced by an independent authority, to prevent additional use of the runway (or the other runways) until air pollution was brought within the forecast limits.

25. Irrespective of such mechanisms, there will be more air pollution with a third runway than without. In accordance with the 'Polluter Pays Principle' there should be a charge levied, equal to

the economic cost of health and other impacts. The mechanism of levying is beyond the scope of this consultation, as is discussion of who the recipients would be and how they would be compensated.

26. If the decision process were to be continued in absence of clarity on air pollution, that would be an admission that the government intends to ignore air pollution. It would be an affront to citizens who have a right to breathe clean air and it could well be challengeable in court.

Q5.2. *Noise supporting measures*

1. According to the European Commission, at least 725,000 people live under the Heathrow flight paths; 28% of all people impacted by aircraft noise across Europe. And that is before a new runway.

2. The noise impacts of a third runway area are unknown because no proposals for flight paths have been made. Residents who already suffer from aircraft noise do not know whether it will get better or worse for them. Those that do not suffer at present do not know if they will be newly affected. A new runway would almost certainly bring a considerable number of new people under a flight path for a first time, including hospitals, nursing homes, care centres and schools. Without knowledge of the flight paths, it is impossible to have a meaningful consultation.

3. The noise contours, used by the NPS, do not properly reflect impacts. For example, averaging over 'easterlies' and 'westerlies' gives Leqs and noise contours which are used to claim that large populations are "not affected" by aircraft noise. Leqs and resulting contours over-emphasise the effect of quieter planes (because the perceived loudness is related to noise energy in an approximately 'logarithmic' way) and correspondingly under-estimate the impact of numbers of aircraft. The exclusive use of Leq therefore systemically under-estimates the real impacts. Furthermore, it increasingly under-estimates impacts because the number of flights is increasing while the noise energy of individual planes is reducing.

4. The most authoritative and independent assessments of aircraft noise impacts come from the World Health Organisation (WHO). The WHO considers that people are affected by noise levels as low as 45db at night (outside) and 50dB during the day. The Airports Commission ignores the WHO and instead concentrates on people exposed to more than 55dB daytime. Thereby, at a stroke, it greatly understates the number of people affected by noise.

5. The consultation says "*Heathrow Airport has committed to mitigate the noise impacts which could result from a new runway. Measures will include new binding noise performance targets to encourage the use of quieter aircraft, and continuing to alternate the airport's runways to provide local communities with predictable periods free from noise*."

6. To simply "encourage" use of quieter aircraft gives absolutely no assurance of real action or of result. Mitigation without specifying exactly what will be done makes the promise valueless.

7. The promise of predicable respite without any figures also makes it valueless. Worse, the consultation is misleading because it fails point out that a third runway will lead to reduced respite for many. With two runways, communities under the landing paths get 50% respite; with 3 runways they will probably only get 33%. Communities which currently have 100% respite, because they are not currently under a flight path, will get less respite.

8. The consultation says "*Predicted improvements in aircraft technology and procedures should mean that, with or without expansion, fewer people than today would be affected by noise*." This

may be wishful thinking rather than anything firmer. If the predicted improvements are valid, the government should set legally binding noise limits that recognise and enforce the improvements.

9. If there are improvements in aircraft technology and procedures, we consider that communities round Heathrow should benefit in terms of sleep, quality of life and health. The potential benefits should not be appropriated by a third runway.

10. In estimating the impacts of third runway, a huge flaw was uncovered. Noise estimates with a 3-runway were based on assumption provided by Heathrow Airport of 'optimised' flight paths. But there was no optimisation assume of the base, a 2-runway. By this means, number people affected by noise would only increase by 9% and the economic cost of extra noise would be £1.0bn (carbon traded). This is barely believable. With an increase of flights and passengers of nearly 50%, the increase in noise impacts would be nearer to 50% than 9%. See also appendix 1.

11. It is apparent, for the reasons explained above, that there are no assurances that noise will be any more tolerable than now or that people living near Heathrow will reap benefits that would accrue if Heathrow remained a two-runway airport.

12. 6.29 says: "*Heathrow Airport has committed to mitigate the noise impacts which could result from a new runway. Measures will include new binding noise performance targets to encourage the use of quieter aircraft, and continuing to alternate the airport's runways to provide local communities with predictable periods free from noise*". Consideration of this statement shows that it gives no genuine assurances. Without any quantification of noise performance or alternation, there is no protection whatever offered against noise.

13. There are two huge 'get-outs' in these apparent promises. Firstly, only scheduled flights are banned – any number of unscheduled flights will apparently be allowed. Secondly, the government is prepared to be over-ruled by ICAO's approach: "*Consideration of any ban will be subject to the International Civil Aviation Organisation's balanced approach to noise management, including consultation with local communities.*" ICAO's approach is to oppose any unilateral action at airports on noise.

14. Based on the forgoing, it is clear that there are no effective supporting measures proposed.

Q5.3 Carbon emissions supporting measures

1. The consultation document says: "*The Airports Commission concluded that any one of these schemes could be delivered with the UK's climate obligations*." This is a simplification of what AC said and a simplification of the reality of the situation to the point of being misleading.

2. The AC took seriously advice from the Committee on Climate Change (CCC). CCC's advice to government is that emissions of more than 37.5 mtonnes pa by 2050 would just about be compatible with the CO2 targets in the Climate Act. It would, however, place great pressure on other sectors, which would have to achieve even higher cuts to make up for aviation's emissions.

3. AC's estimate of carbon emissions with a new runway at Heathrow, based on their preferred 'assessment of need' scenario carbon traded', massively overshoots that target. It is possible - in a literal sense – to build a third runway and stay within the carbon target. But that would require one of two things, as can be seen from a cursory examination of AC or DfT demand forecasts.

4. Firstly, not use the new Heathrow runway! But some constraints would still be needed at regional airports. Secondly, constrain growth heavily at regional airports so that a new runway can at Heathrow can take up the CO2 emissions to the limit.

5. Neither of these options were even intimated or discussed, let alone recommended by AC. Nor did the government in its response, consider such options. The truth of the matter is therefore that a third runway is NOT consistent with the UK's climate obligations.

6. Recognising that its 'carbon traded' scenarios would not meet the UK's climate obligations, the AC constructed a set of scenarios specifically to meet the carbon target. These are called 'carbon capped' scenarios. By applying a sufficiently large premium to ticket prices (in the form of a carbon charge), demand is constrained (growth reduced) to the point at which carbon emissions just meet the target.

7. Although AC devised these carbon capped scenarios, there was no recommendation that the relevant policies, such as a tax on fuel/emissions or constraints on air traffic, should even be considered. Nor did the government in its response, entertain such options. In fact, the government appears to have dropped the carbon capped concept entirely – the economic case shown in its review only shows benefits based on a carbon traded scenarios.

8. 6.38 "*Heathrow Airport will need to take ambitious measures* .." and 6.39 "*Heathrow Airport is expected to include specific proposals* .." are extremely vague. There are no specific proposals and nothing to show that AC's estimate of a massive exceedance of the CCC target (carbon traded) is wrong. Worse, they only refer to emissions from the airport itself, a mere 3% of the total emissions including aircraft.

9. From the above, there is no evidence that greenhouse gas emissions will be brought within the UK's climate obligations. It is clear that no effective supporting measures on climate change (carbon emissions) are proposed.

10. It should be noted that the UK's climate target currently only covers CO2. Aircraft emit significant amounts of other greenhouse gases, these being water and NOx at altitude. It is estimated that these emissions add a further 60% to the climatic effect of CO2.[xxx]

11. The government is due to produce a climate strategy in the autumn which will, inter alia, show how the targets in the target in the Climate Act will be achieved. As noted above, there is every indication at present that if a new runway is built, that would make achieving the target impossible. If the decision process were to be continued in absence of clarity on climate change, that would be an admission that the government intends to ignore climate change. It would be an affront to citizens whose children and grandchildren deserve a world free from the threat of catastrophic climate change.

Q5.4 *Compensation for local communities*

1. We support the principle of compensation but, crucially, 'without prejudice'. We do not believe that a damaging and inappropriate planning decision should be granted simply because compensation is offered. Nor should noise or pollution levels not be minimised simply because compensation is offered.

2. The NPS and consultation is somewhat misleading because part of what is discussed is "mitigation", not "compensation". Assistance with double glazing is mitigation because it reduces

noise impacts indoors. But where mitigation is not possible, eg in a garden, only compensation is possible, normally in monetary terms.

3. Any compensation must be proportionate to the harm caused, in accordance to the "polluter pays principle". The noise compensation suggested of £50m pa (6.47) is utterly inadequate, given that the economic cost of noise estimated at around £500m pa (this is all Heathrow, not the extra due to R3). No compensation is offered for air pollution or climate charge (carbon emissions) which is inexcusable.

4. In addition to fairness and natural justice, giving full compensation has social and economic benefits. If the airport or airline has to be pay for the impacts it causes, it has a real incentive to minimise impacts. An airline would, for example, have a financial incentive, and one that was 'economically efficient', to invest in quieter planes. Or an airport would have an incentive to increase landing charges for noisier planes or ones landing at night.

Q6 *The Government has set out a number of planning requirements that a Heathrow Northwest Runway scheme must meet in order to operate. Please tell us your views. Are there any other requirements the Government should set out?*

Skills

Without any legal basis or any method of enforcement proposed, Heathrow's current 'Public commitment'' to create 5,000 new apprenticeships is worthless.

Ruling out a fourth runway

As part of the government's agreement to Terminal 5, it ruled out a third runway. Very soon after the new terminal was built, Heathrow started lobbying for a third runway and very soon after the government was expressing support. We therefore have no reason to trust any commitment not to build a fourth runway. We note in any case that there is no commitment not to support a fourth runway. " .. *does not see a need for a fourth runway* .." (6.55) is nothing like a commitment not to support one later and thus gives no "certainty" to residents whatever.

Question 7: The Appraisal of Sustainability sets out the Government's assessment of the Heathrow Northwest Runway scheme, and considers alternatives. Please tell us your views.

1. While there are serious shortcomings in the Sustainability Appraisement, its overall conclusion is sound. Namely that a New NW runway and an extended northern at Heathrow have similar adverse environmental impacts and a new runway at Gatwick would have considerably less environmental impacts (but not in biodiversity terms).

2. The government's decision to support Heathrow expansion is based on the greater claimed economic benefit of Heathrow expansion over Gatwick. The claimed economic benefits for Heathrow are extremely dubious as explained in our response to Q1. But the adverse environmental impacts (more noise, more air pollution, more climate change) and social impacts (destruction of homes and communities and pressure on public services and infrastructure) are unequivocal and large. We do not accept that highly dubious economic benefits should override unequivocal large environmental and social costs.

Question 8: Do you have any additional comments on the draft Airports National Policy Statement or other supporting documents?

The consultation, particularly the leaflets and the 'roadshow' was systematically biased. If gave one-sided misleading sound bites and unsupported assertions about economic and employment benefits, while massively playing down impacts such as noise, air pollution and climate change.

Question 9: The Government has a public sector equality duty to ensure protected groups have the opportunity to respond to consultations. Please tell us your views on how this consultation has achieved this.

No comments.

Appendix 1 – Under-estimation of costs

1. Noise costs

1.1 The economic cost of extra noise due to a third runway quoted by DfT is £1.0 billion over 60 years (taken from the Airports Commission). But this estimate uses Heathrow Airport data to conclude that the number people affected by noise would only increase by 9%. This is barely believable.

1.2 In its report 'landing the right airport' TfL severely criticised the AC's estimate of noise impacts. They point out that the AC carried out a series of "optimisations" of flight paths to minimise the noise impacts for a 3 runway airport. However, no such optimisation was carried out for the base case of 2 runways. This makes a huge difference to the forecast extra impact of a third runway.

1.3 Re-calculating the impact of the 2 runway base case, TfL estimates that 46% more people would be affected compared with 3 runways - 637,700 cf 435,600.[xxxi] A figure of 46% is intuitively reasonable since a third runway is forecast to increase flights and passengers by around a half. This contrasts with just a 9% increase forecast by the AC - 637,700 cf 583,500.[xxxii]

1.4 If the 'people affected' translates into an economic cost, that cost would be about 5 times as large – £5.0bn as opposed to £1.0bn. We recognise that there will not be a linear relationship between people "affected by noise" and economic cost and therefore take a more conservative figure of £3bn, this being an average of £1bn and £5bn. On this basis the noise costs have been under-estimated by £2bn.

2. Surface access costs

2.1 The Airports Commission estimated the cost of surface access improvements needed to service an enlarged airport at £5bn. (Of which Heathrow Airport was prepared to pay £1bn.) Transport for London produced a counter-estimate of £15bn. Chris Grayling intervened (see answer to Question 4) and the DfT reduced the AC's estimate to a range of £1.4bn to £3.4bn.

2.2 We prefer to accept the estimate of £5bn from the independent AC rather than a figure tainted by political intervention. The surface cost has therefore, in our view, been under-estimated by between £1.6bn and £3.6bn.

3. Climate costs

3.1 The government evaluation of economic benefits is based on a 'carbon traded' scenario. This is the scenario where emissions of CO2 are not constrained and, as a result, emissions will cause the UK's overall target of 80% cuts by 2050 to be missed. AC produced an alternative scenario called 'carbon capped' in which aviation's emissions are capped in order to make them consistent with UK's 2050 target. The economic benefits of this were lower.

3.2 As the government has rejected the carbon capped approach, allowance needs to be made for the economic cost of the carbon generated by a third runway. Alternatively, one can use the AC's evaluations of carbon traded v carbon capped scenarios to assess the impact on DfT's revised estimate. See App 2 for explanation.

3.3 Using the DfT carbon traded scenario, we estimate there is a (residual) cost of carbon of £3.0bn. Non-CO2 emissions contribute a further £1.8bn, giving a total of £4.8bn. See App 2.

3.4 Using AC's analysis of carbon traded v carbon capped scenarios, we estimate that the NPV for a carbon capped scenario is £10.4bn less than DfT's carbon traded scenario.

4. Air pollution costs

As detailed in answers to question 5.1, there is compelling evidence that the air pollution impacts have been significantly under-estimated. It is follows that the economic cost of air pollution will have been under-estimated.

5. Revised NPV

The effect of these under-estimates is as follows:

NPV before adjustment	£0.2bn to £6.1bn
Less extra noise cost of £2bn	-£1.8bn to £4.1bn
Less extra surface access cost of £1.6bn to £3.6bn	-£3.4bn to £0.5bn
Less climate cost of £4.8bn– carbon traded assumptions	-£6.4bn to -£2.5bn
Or, less climate cost of £10.4bn – carbon capped assumptions	-£13.8bn to -£10.1bn

Further adjustments not quantified:
Congestion costs (those not mitigated by surface access schemes)
Extra air pollution costs
Social cost of family and community disruption

Appendix 2 - Additional climate costs

1. Carbon trading and damage costs

1.1 The carbon traded scenario assumes that a price for carton is included in ticket costs. The rationale of this approach is an assumption that airlines will have to buy carbon permits and these will come from a worldwide trading scheme where the overall supply of credits is capped. Unfortunately, this is a wild and unjustified assumption. There is no plan for such a worldwide scheme.

1.2 The only scheme that is anywhere close to a plan is Corsia (Carbon Offset Reduction for International Aviation). But this is extremely weak:

- The target is just for "carbon neutral growth from 2020". This is far weaker than the Paris Accord, which requires emission cuts in order to limit temperature increases by 2050 to 2deg or preferably 1.5deg.
- It is voluntary and does not apply to all countries or all routes.
- It ignores non-CO2 emissions (NOx and water). A very conservative estimate by Airport Watch is that a factor of 1.6 should be applied to carbon emissions to account for the non-CO2 emissions.
- It relies on offsets, ie extra reductions being made in the non-aviation sectors in order to offset aviation's lack of reductions. It is very doubtful these would work in the sense of reducing further non-aviation emissions. Evidence to date is that offsets do not usually work. "*Recent analysis by Stockholm Environment Institute (SEI), Öko-Institut and others has found that 73% of CDM (Clean Development Mechanism) credits have a low likelihood of being additional and accurately quantified, while only 7% of CDM credits actually have a high likelihood*." [xxxiii]
- The carbon traded scenario leads to lower levels of emissions than would otherwise occur, due to the dampening of demand caused by a higher ticket prices. To the extent that this carbon is not emitted under the carbon traded scenario there is no economic cost of carbon. However, a third runway still increases UK's emissions as compared with a no third runway (base case) scenario. And, as explained above, there is no good reason to assume that this extra carbon will be offset anywhere else in the world economy. Therefore, the cost of those emissions needs to be accounted for.

1.3 Work has been done on the 'damage costs' of carbon and perhaps the most authoritative recent estimate comes from the US EPA (Environmental Protection Agency). [xxxiv] The damage or social cost is perhaps more appropriate than costs used by the UK government, because the latter are 'abatement costs'. Abatement costs relate to the cost for other sectors to reduce emission to some pre-determined level, in the UK's case the level being determined by the target in the Climate Act. The abatement costs are based on an arbitrary policy-defined limit to emissions (as well as complex sets of assumptions about nationwide responses to higher carbon prices) and do not therefore relate to the actual impacts of C02 and their economic cost.

1.4 Using the cost of carbon from EPA and the AC's forecast of additional emissions, we calculate the present value (at 2014) cost of extra carbon from a third runway as £3.0 billion.

1.5 These are only the costs for carbon (dioxide) emissions. As noted above, non-CO2 emission are conservatively estimated to add another 60% to global warming impacts; 3.0 x 60% = £1.8bn.

2. Carbon capping

2.1 A different approach to addressing the cost of carbon is to use the 'policy/target based' approach adopted by the AC. Here, aviation emissions and thus traffic are constrained so to meet the limit recommended by CCC as necessary to meet the target in the Climate Act.

2.2 AC estimated the economic benefit using a carbon traded scenario of £11.8bn and a benefit of £1.4bn under a carbon capped scenario. The real net economic benefit, addressing climate change, is therefore £10.4bn lower.

2.3 The DfT, in its revision of AC's cost-benefit analysis, only re-calculates costs for the carbon traded scenario. This is reprehensible, signalling a government intent to ignore climate when it comes to airport expansion. However, a first order approximation can be made by applying the AC's difference between carbon traded and carbon capped benefits to the revised DfT estimate. DfT's estimate of NPV is £0.2 to 6.1bn; subtracting £10.4bn gives a net economic benefit of -£10.2 to 4.3bn.

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[i] https://www.dropbox.com/home/Truth%20about%20Heathrow%20expansion Demand.docx. Alternatively, located at http://www.airportwatch.org.uk/wp-content/uploads/2011/10/Demand-NF-West-London-FoE-May-2017.docx (click on link and save and/or download). This analysis is based entirely on AC forecasts.

[ii] ibid

[iii] ibid

[iv] https://www.dropbox.com/home/Truth%20about%20Heathrow%20expansion Destinations.docx. Alternatively, located at http://www.airportwatch.org.uk/wp-content/uploads/2011/10/Destinations-NF-West-London-FoE-May-2017.docx (click on link and save and/or download). This analysis is based entirely on AC forecasts.

[v] ibid

[vi] ibid

[vii] http://www.iata.org/publications/Pages/brexit-impact-uk.aspx

[viii] https://www.dropbox.com/home/Truth%20about%20Heathrow%20expansion TaxAvoid.docx. Alternatively, located at http://www.airportwatch.org.uk/wp-content/uploads/2011/10/TaxAvoid-NF-West-London-FoE-May-2017.docx (click on link and save and/or download). This is based on government and public web data.

[ix] https://www.dropbox.com/home/Truth%20about%20Heathrow%20expansion TaxEffect.docx. Alternatively, located at http://www.airportwatch.org.uk/wp-content/uploads/2011/10/TaxEffect-NF-West-London-FoE-May-2017.docx (click on link and save and/or download). This is based on AC forecast data.

[x] We recognise that direct fuel taxes are not currently allowed due to certain international treaties. However, in the longer term – post Brexit – we would expect all treaties to be reviewed. But even if a fuel tax was not imposed, it would be perfectly possible to introduce an alternative tax as a proxy. For example, an emissions tax could reflect accurately fuel consumption. Increase of APD would reflect fuel consumption less precisely, but would nonetheless have a very similar effect to a fuel tax.

[xi] Airports Commission: Final Report, July 2015, page 147, table 7.1

[xii] Further review and sensitivities report' published Oct 2016. ES2 (page 9)

[xiii] Ibid

[xiv] Examples of comments from 'A note from expert advisors Prof Peter Mackie and Mr Brian Pearce, on key issues considering the Airports Commission economic case', May 2015:

a) "While the content of the model itself has been well tested, the same cannot be said of the front end, where an increase in capacity is converted into an increase in trip-making, trade, tourism and finally productivity. Furthermore the interpretation of the result – what exactly do they mean and is their basis transparent – is an issue. Overall, therefore, we counsel caution in attaching significant weight either to the absolute or relative results of the GDP/GVA SCGE approach (PwC report) within the Economic Case".

b) "A key feature of PWC's model is that of general imperfect markets and apparent underutilisation of resources, so that the project represents a net injection into the economy relative to the reference case. If resources are fully utilized, which is not an unusual assumption to make for a 45-year appraisal, then demand shocks will over the long term simply pull resources from other regions and/or drive wages and prices higher, leaving national GDP unchanged." (page 6).

[xv] Further Review and Sensitivities, Oct 2016, p9.

[xvi] https://www.dropbox.com/home/Truth%20about%20Heathrow%20expansion BusTrips.docx. Alternatively, located at http://www.airportwatch.org.uk/wp-content/uploads/2011/10/BusTrips-NF-West-London-FoE-May-2017.docx (click on link and save and/or download). This is based entirely on ONS data.

[xvii] Para 3.3 of the consultation document and figure shown on infographic lower on page 12.
[xviii] Airports Commission: 'Economy: Wider Economic Impacts Assessment' (July 2015), Para 3.19, page16. [This was at .https://www.gov.uk/government/publications/airports-commission-final-report-economy-impacts - 3rd document. But it appears to have been deleted or moved.]

[xix] Airports Commission: 'Heathrow Airport North West Runway: Business Case and Sustainability Assessment' (Nov 2014). https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/374664/evidence-base-heathrow-north-west-final.pdf . Para 1.56, page 25.

[xx] Back Heathrow newsletter (undated, but prior to Nov 2015): article on page 2 col 3 by John Holland-Kaye.

[xxi] Airports Commission: 'Heathrow Airport North West Runway: Business Case and Sustainability Assessment' (Nov 2014). https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/374664/evidence-base-heathrow-north-west-final.pdf . Para 8.16, page 99.

[xxii] Further review and sensitivities report' published Oct 2016. ES2 (page 9)
[xxiii] 'Friends in high places'. 21/7/08. http://news.bbc.co.uk/1/hi/programmes/panorama/7513330.stm ; http://www.aef.org.uk/2008/07/22/bbc-panorama-programme-on-heathrow/
[xxiv] Module 6: Air Quality Local Assessment. Detailed Emissions Inventory and Dispersion Modelling. Prepared for the Airports Commission. May 2015', Jacobs.
[xxv] The area within a distance (radius) x of a pollution source increases as the square of the radius. Therefore the area within 2km of a source is 4 times as great as the area within 1km. The population impacted will be correspondingly greater. And so on for progressively larger radii.
[xxvi] Air quality impacts of UK airport capacity expansion. Steven Barrett, Steve Yim, Marc Stettler and Sebastian Eastham. A report by the Laboratory for Aviation and the Environment at MIT in collaboration with the Energy Efficient Cities Initiative at Cambridge University. Page 3.
[xxvii] The diagram shows the effects of UK airports generally, not just Heathrow. But the spreading out of pollution for individual airports at progressively lower levels but over progressively larger areas is well shown.
[xxviii] The pollution may not come to ground in the form of NO2. That gas may be converted to other nitrogen compounds such as nitric acid, nitrates and ammonium compounds which are washed down. These then pollute soil, water and ecosystems.
[xxix] Module 6: Air Quality Local Assessment. Detailed Emissions Inventory and Dispersion Modelling. Prepared for the Airports Commission. May 2015', Jacobs. Page 62.
[xxx] http://www.airportwatch.org.uk/wp-content/uploads/AirportWatch_Briefing_on_RF__19.6.2015.pdf
[xxxi] 'Landing the right airport', p30. The figures are for a 'carbon capped' scenario.
[xxxii] The numbers may be found in 'Environmental Research and Consultancy Department, Noise Modelling for the Airports Commission: Compendium of Results, June 2015' table A29 titled "H50-2R: Heathrow 2050 do-minimum" and table A41 titled "H50-3R-T: Heathrow 2050 do-something, HAL - Minimise total affected". They are annual average Lden figures and the figure for 3 runways is the 'minimise total [people] affected' scenario. (There are also 'minimise newly affected' and 'respite' scenarios.) These numbers are quoted in 'Landing the right airport', page 30 and are for a carbon capped scenario.

[xxxiii] Reproduced from Worldwide Fund for Nature report 'Grounded: Ten reasons why international offsetting won't solve Heathrow's climate change problem', May 2017.
[xxxiv] EPA Fact sheet: social cost of carbon', Dec 2015.