

**Doc. No. SSE/8/a
Case Ref. 2032278**

Appeal by BAA Ltd and Stansted Airport Ltd following the refusal by Uttlesford District Council of planning application UTT/0717/06/FUL

Proof of Evidence on behalf of Stop Stansted Expansion

Economic Impacts

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1 INTRODUCTION

1.1 Personal details

- 1.1.1 My name is Brian Ross and I appear at the Public Inquiry on behalf of Stop Stansted Expansion ('SSE'). I have been assisted in the preparation of this proof of evidence by other members of SSE, particularly Mike Young.

1.2 Qualifications and experience

Brian Ross

- 1.2.1 I have the degrees of Bachelor of Commerce (hons) and Master of Business Administration (distinction) and I am also a graduate of the Stanford Executive Programme. I have 25 years experience with a major UK plc in operational and corporate finance roles, interrupted by two and a half-years in the Prime Minister's Office advising on efficiency matters within Government. I am now semi-retired and spend most of my time assisting SSE. I also do some part-time consulting, providing economic and financial analysis and advice mostly to clients in the City, including on matters relating to the air transport industry.

Mike Young

- 1.2.2 I have the degree of Bachelor of Arts (hons) and I am a Fellow of the Institute of Chartered Accountants in England and Wales and hold the Financial Planning Certificate. Most of my career has been with a major international oil company in a variety of senior management positions. I took early retirement six years ago. I moved to Uttlesford in 1991 and am involved in a number of local organisations, including serving as a parish councillor in Wimbish, a director of a charity, chairman of the district road safety working group and a volunteer for SSE.

2 SCOPE OF EVIDENCE

2.1 Core evidence

- 2.1.1 Our evidence on the economic impacts of the proposed development was originally set out in Volume 1, Chapter 7, of SSE's response submitted to UDC in July 2006 [CD/201]. That evidence is superseded by this submission which incorporates more recent data now available and further analysis carried out since July 2006.

3 ECONOMIC IMPACT OF THE PROPOSED DEVELOPMENT

3.1 Characteristics of Stansted Airport

- 3.1.1 Business travel presently accounts for just 19% of Stansted's passengers. BAA projects that this would remain at 19% if the application were to be approved but would increase to 23% if the application were to be refused.
- 3.1.2 Outbound UK leisure travellers outnumber incoming foreign visitors by about two to one. BAA projects that this would remain the case whether the application is approved or refused.
- 3.1.3 Stansted currently has about 11,000 annual cargo flights (about 5% of all aircraft movements). BAA projects 20,500 cargo flights if the application were approved but a higher number, 22,500, if the application were refused (although tonnage handled remains constant under both scenarios).
- 3.1.4 Non-ATMs (including business jets, air taxis, etc) accounted for 16,700 aircraft movements at Stansted in 2006 (8.0% of all aircraft movements). BAA projects this would reduce to 10,000 (3.6%) if the application were to be approved.
- 3.1.5 In para 4.1.1 of ES Vol 5 [CD/8], BAA points out that:
'The three largest operators at Stansted (Ryanair, Easyjet and Air Berlin) accounted for the majority of all passenger traffic in 2004'
 and (self-evidently) that:
'Together these three airlines carried more passengers through Stansted than all other scheduled airlines combined.'
- 3.1.6 In fact, just one airline carries more passengers than all other scheduled airlines combined. Irish airline Ryanair accounted for 66% of all Stansted scheduled passenger traffic in both 2004/05 and 2005/06.

Ryanair: Stansted

Year	Passengers carried	% of all scheduled passengers
2005/06	14.0m	66%
2004/05	13.1m	66%

- 3.1.7 This is glossed over – perhaps to avoid highlighting Stansted's dependence on a single airline for fear that this would raise wider concerns about the dependence of Stansted Airport on the fortunes of Ryanair and thereby the dependency of the local employment market upon the fortunes of Ryanair. We deal with this matter in our evidence on employment and housing impacts [SSE/10/a].
- 3.1.8 If Stansted were to remain capped at 25mppa this would lead to greater diversity of Stansted's operations (e.g. towards business travel and cargo) and less dependence upon a single airline. However, if the proposed expansion beyond

25mppa were to be approved we can see no reason to expect Stansted's dependence on Ryanair to materially change and sooner or later Ryanair is expected to commence transatlantic flights.

- 3.1.9 A recurring theme in the economic analysis provided by BAA is to downplay the role of Stansted as a gateway to Europe for UK leisure travellers and to play up its role in attracting overseas tourists to the East of England and its contribution to the business community. However, despite already being the UK's third largest airport, it is still not possible to fly direct from Stansted to the main European business centres of Paris, Brussels and Frankfurt¹. Stansted's focus continues to be on catering for the leisure market.

Table 1: Stansted passenger journeys in 2004

Type of Traffic	UK residents '000		Foreign visitors '000		Total
	Leisure	Business	Leisure	Business	
International	4,442	752	2,299	517	8,010
Domestic	645	427	46	13	1,131
Total	5,087	1,179	2,345	530	9,141
Share of total	55.6%	12.9%	25.7%	5.8%	100%

Source: CAA Passenger Survey Report 2004, Table 4 [CD/211]. For the purposes of reconciling the data, note that Stansted handled a total of 20.909m passengers in 2004, of whom 2.626m were transfer passengers. This leaves 18.283m who started or finished their journey at Stansted, i.e. 9.141m return journeys.²

- 3.1.10 From the above table it can be seen that leisure trips accounted for about 81% of Stansted passengers in 2004 and business travel for about 19% and that there are almost twice as many outbound international leisure trips by UK residents compared to the number of inbound foreign leisure visitors.
- 3.1.11 As an example of BAA playing up the role of Stansted in attracting overseas tourists to the East of England Region, foreign tourists are 'double counted' by including departures as well as arrivals e.g.

*'Nonetheless some additional 1.9 million foreign leisure passengers are forecast in 2014 with almost 80% of these having a destination in the East of England and Greater London. These passengers will contribute to the tourism industry in these regions.'*³

- 3.1.12 These quoted comparisons relate to 35mppa vs 25mppa where the additional number of foreign leisure passengers would in fact be 950,000, not 1.9m, and whilst it is true that these passengers would contribute to the UK economy and to the economy of the East of England, a much greater increase would arise in relation to outbound tourism if the expansion were to be permitted. For example, it can be seen from Table 5 that there would be an additional 1,450,000 outbound leisure trips by residents of the East of England and Greater London. It can also

¹ Flights are available to Frankfurt Hahn but this airport is some 130kms (80 miles) from Frankfurt.

² ONS survey data, as published annually in 'Travel Trends', shows higher figures for both outbound and inbound international visitors than those published by the CAA. The CAA data is used in this report wherever possible because (a) the CAA survey is based on a much higher sample size and (b) it provides more detailed analysis e.g. on the split between business and leisure passengers.

³ CD/8, para 4.2.5.

be seen that, for the East of England alone, there would be an additional 1,000,000 outbound leisure trips compared to 200,000 additional foreign visitors.⁴

4 FINANCIAL ASSESSMENT

4.1 General

- 4.1.1 A study commissioned by the ODPM and undertaken by Colin Buchanan & Partners in August 2004 concluded: 'The economic impact of this expansion is very much open to debate.'⁵ Whilst the study was primarily referring to a second runway the same rationale applies to expansion on the existing runway.
- 4.1.2 The development as proposed by BAA would, according to BAA's own projections (comparing its 35mppa scenario to its 25mppa scenario):
- Make no difference to the volume of freight handled by Stansted Airport;⁶
 - Result in fewer foreign business visitors using Stansted Airport;⁷
 - Result in only an additional 200,000 (11%) extra UK business users p.a.⁸
- 4.1.3 In view of the above it is difficult to see how any significant direct benefits to business would arise from the development that is proposed.
- 4.1.4 This is not surprising because the main purpose of the proposed development, as is clear from BAA's projections, is to accommodate more leisure passengers. More particularly, the emphasis is upon accommodating more outbound overseas leisure trips by UK residents. Whether this constitutes 'need' in the proper sense of the word is a moot point. There is however no doubt that the increasing appetite by UK residents for overseas leisure trips is having a significant adverse impact upon the UK trade deficit, to which we now turn our attention.

4.2 Balance of Payments impact

- 4.2.1 The UK trade deficit on international air travel has grown sharply over the past ten years, from £2.0bn in 1995 to £18.8bn in 2005. International air travel accounted for 43% of the total UK trade deficit in 2005.
- 4.2.2 There are two main components to the air travel deficit:
- The difference between the amounts spent by UK residents in overseas destinations compared to the amounts spent by foreign visitors in the UK. This amounted to £15.73bn in 2005;

⁴ CD/8, Table 5 comparing 35mppa to 25mppa and removing double counting for arrivals and departures.

⁵ 'Study of the Relationship between Transport and Development in the London Stansted, Cambridge, Peterborough Growth Area', Colin Buchanan & Partners, Aug 2004, para 11.2.5 [SSE/8/c Appendix 1].

⁶ CD/19, Table 6 and CD/8, para 6.4.8.

⁷ CD/8, Table 5.

⁸ Ibid.

- The difference between the amounts spent by UK residents purchasing airline tickets from foreign airlines compared to the amounts spent by foreign residents purchasing air tickets from UK airlines. This amounted to £3.05bn in 2005;

4.2.3 Table 2 below deals with the first point above and shows the growing gap between outward and inward spending. In particular it shows that expenditure on overseas visits by UK residents has increased by 128% since 1996 compared to only a 28% increase in spending by foreign visitors in the UK. The growing disparity between outward and inward tourism coincides with the UK boom in budget air travel.

Table 2 UK trade deficit - international air travel

Year	Tourist visits (million)		Tourism spending (£bn)		
	In	Out	In	Out	Deficit
1995	15.8	28.1	9.6	12.3	2.6
1996	16.3	27.9	9.9	12.9	3.0
1997	16.9	30.3	9.9	13.4	3.5
1998	17.5	34.3	10.4	15.4	5.0
1999	17.3	37.5	10.5	17.6	7.2
2000	17.8	41.4	10.8	19.9	9.1
2001	16.1	43.0	9.5	20.9	11.4
2002	17.1	44.0	10.0	22.3	12.3
2003	17.6	47.1	10.0	23.8	13.8
2004	20.0	50.4	11.0	25.9	14.9
2005	22.0	53.6	12.3	28.0	15.7
<i>Change since 1995</i>	39%	91%	28%	128%	423%

Source: Annual 'Travel Trends' reports, ONS [CD/230], Tables 2.7, 2.8, 3.7 & 3.8. Note that numbers include business travel but this is only a small component of the total deficit, e.g. in 2005 the deficit on leisure travel alone was £15.4bn compared to a total deficit of £15.7bn.

4.2.4 Table 3 shows the steadily worsening position of the second component to the air travel deficit. A surplus of £0.6bn in 1995 had become a deficit of £3.0bn by 2005.⁹

Table 3 UK trade deficit - Balance of Payments – air ticket : imports & exports

Year	Spending by UK residents on purchase of air tickets from foreign airlines (£bn)	Spending by foreign residents on purchase of air tickets from UK airlines (£bn)	Surplus (+) of Deficit (-) £bn
1995	3.1	3.7	+0.6
1996	3.5	4.2	+0.7
1997	3.9	4.0	+0.2
1998	4.2	4.2	0.0
1999	4.7	4.4	-0.2
2000	5.2	4.7	-0.5
2001	5.3	4.5	-0.8
2002	5.6	4.2	-1.4
2003	5.9	3.9	-2.1
2004	6.4	3.9	-2.5
2005	7.1	4.1	-3.0

Source: 'The United Kingdom Balance of Payments 2006, Table 3.2 (The Pink Book), ONS, 2005 [CD/228]
Note: Numbers in right hand column may not add due to rounding.

⁹ Source: 'The United Kingdom Balance of Payments: 'The Pink Book', ONS, 2006, Table 3.2 [CD/228].

- 4.2.5 BAA has not provided a forecast for the Balance of Payments impact of its expansion proposals for Stansted but we can estimate this.
- 4.2.6 Stansted's 2004 deficit can be estimated relatively easily based on the number of inbound and outbound trips and an average spend per trip of £505.85 on overseas visits by UK residents and £533.26 per trip by foreign visitors to the UK.¹⁰ In addition we can estimate the impact (at constant 2004 per capita spend) for BAA's projections for 25mppa and 35mppa and our own projections for higher levels of passenger throughput, as follows:

Table 4 Stansted tourism deficit – international leisure

Year/projection	Tourist visits (million)		Tourism spending (£bn)		
	In	Out	In	Out	Deficit
2004	2.30	4.44	1.17	2.25	1.08
25mppa	2.75	5.32	1.41	2.69	1.29
35mppa	3.85	7.44	1.97	3.77	1.80
40mppa	4.40	8.51	2.25	4.31	2.06
45mppa	4.95	9.57	2.53	4.85	2.32
50mppa	5.50	10.64	2.81	5.39	2.58

Source: CAA Passenger Survey Reports for 2004 (Table 4) [CD/211]. Spending figures are based on constant 2004 spend per trip i.e. £505.85 by outbound tourists and £533.26 by foreign visitors – see footnote below. Numbers in right hand column may not add due to rounding.

- 4.2.7 The Balance of Payments deficits shown in the above table arise purely from tourism spending and do not include the deficit arising from the fact that UK residents spend more on purchasing air tickets from foreign airlines than foreign residents spend on purchasing air tickets from UK airlines. This increased the UK air travel tourism deficit by 17% in 2004. We have estimated this for Stansted and arrived at a figure of 16%. The slightly lower percentage seems to arise because whilst more than 70% of Stansted flights are with foreign-owned airlines, average ticket prices are relatively low.
- 4.2.8 The following table incorporates the additional Balance of Payments impact arising from air ticket sales relating to Stansted:

Table 4(a): Stansted impact on UK trade deficit

Year/projection	Tourist spend (£bn)	Air Tickets (£bn)	Total Deficit (£bn)
2004	1.08	0.19	1.27
25mppa	1.29	0.22	1.51
35mppa	1.80	0.31	2.11
40mppa	2.06	0.35	2.41
45mppa	2.32	0.39	2.71
50mppa	2.58	0.44	3.02

Note: Numbers in right hand column may not add due to rounding.

- 4.2.9 We can see from the above table that the adverse impact on the UK Balance of Payments arising from Stansted's leisure passenger operations was about £1.27bn in 2004 and is estimated to be £1.51bn at 25mppa. If the application

¹⁰ Based on ONS regional spend data for 2004. These are weighted averages which take account of Stansted passenger origins/destinations, separately calculated for inbound and outbound visitors.

were to be approved, it would rise to £2.11bn at 35mppa, £2.41bn at 40mppa, £2.71bn at 45mppa and £3.02bn at 50mppa (all at 2004 prices).

- 4.2.10 Similar analysis can be carried out in respect of the East of England Region. In 2004 the Region received 1.492m foreign visitors via air compared to 4.720m overseas trips by air by East of England residents. The expenditure balance was even more pronounced. Overseas visitors spent £517m in the East of England in 2004, whilst spending by East of England residents on overseas trips amounted to £2.430bn in 2004, equivalent to 4.7 times the inflow. In other words, for every £1 earned from foreign visitors, residents of the East of England spent £4.70 overseas. The net outflow from the East of England in 2004 as a result of this imbalance was £1.9bn.¹¹
- 4.2.11 Overseas visitors to the East of England in 2004 would have used airports other than Stansted and East of England residents travelling overseas would also have used airports other than Stansted. However the ONS calculates average per capita spend per visit and we can use these data to estimate the impact of the proposed expansion of Stansted upon East of England, as follows.

Table 5: Stansted impact on regional tourism deficit – international leisure

Year/projection	Tourist visits (million)		Tourism spending (£bn)		
	In	Out	In	Out	Deficit
2004	0.43	1.54	0.22	0.78	0.56
25mppa	0.52	1.85	0.26	0.94	0.67
35mppa	0.73	2.59	0.37	1.31	0.94
40mppa	0.83	2.96	0.42	1.50	1.07
45mppa	0.93	3.33	0.48	1.68	1.21
50mppa	1.04	3.70	0.53	1.87	1.34

Source: SSE estimates based on CAA passenger data and ONS regional spend data.

Note: Numbers in right hand column may not add due to rounding.

- 4.2.12 Again, the Balance of Payments deficits shown in the above table arise purely from tourism spending and do not include the deficit arising in relation to spending on air tickets. The following table incorporates the additional Balance of Payments impact arising from air ticket sales relating to Stansted.

Table 5(a): Stansted impact on regional trade deficit

Year/projection	Tourist spend (£bn)	Air Tickets (£bn)	Total Deficit (£bn)
2004	0.56	0.09	0.65
25mppa	0.67	0.11	0.78
35mppa	0.94	0.15	1.09
40mppa	1.07	0.17	1.24
45mppa	1.21	0.19	1.40
50mppa	1.34	0.21	1.55

Note: Numbers in right hand column may not add due to rounding.

- 4.2.13 We can see from the Table 5(a) above that the adverse impact on the regional economy arising from Stansted (leisure passengers only) was about £0.65bn in

¹¹ Numbers relate to all foreign visitors to the East of England Region arriving in the UK by air and all overseas air travel by East of England residents, not to Stansted operations alone. The regional figures were provided by the ONS upon request and were published in 'Why Aviation is bad for Regional Economies', FoE, Aug 2005 [SSE/8/c – Appendix 2].

2004 and is estimated to be £0.78bn at 25mppa. If the application were to be approved, it would rise to £1.09bn at 35mppa, £1.24bn at 40mppa, £1.40bn at 45mppa and £1.55bn at 50mppa (all at 2004 prices).

- 4.2.14 In examining the Balance of Payments impacts, it is important to recognise that **supply creates demand** for low-cost leisure flights. A report in December 2005 by the CAA¹² concluded that despite the recent rapid growth in leisure travel, the market was still relatively immature and that, subject to the continued availability of low-cost flights, outbound leisure travel was likely to continue its recent rapid growth.
- 4.2.15 It is agreed, as BAA states in CD/8, that the GVA¹³ for the East of England in 2004 amounted to £100bn.¹⁴ BAA claims that Stansted contributes £400m to the regional economy.¹⁵ This equates to 0.4% of regional GVA and consists largely of the employment (salaries) contribution. If Stansted were to expand as BAA proposes, we estimate that its contribution to regional GVA would increase to about £550m a year at 35mppa rising to about £700m a year at 50mppa.
- 4.2.16 However, this takes no account of the outflow from the UK and East of England economies arising from Stansted's expansion as a consequence of the impact on outbound tourism outstripping the impact upon inbound tourism. The following table summarises the impact.

Table 6: Summary of Balance of Payments impact – Stansted leisure travel

Year/ projection	UK		East of England	
	Annual Deficit £bn	Increase vs 2004 £bn	Annual Deficit £bn	Increase vs 2004 £bn
2004	1.27	0	0.65	0
25mppa	1.51	0.24	0.78	0.13
35mppa	2.11	0.84	1.09	0.44
40mppa	2.41	1.14	1.24	0.59
45mppa	2.71	1.44	1.40	0.75
50mppa	3.02	1.75	1.55	0.90

Source: Tables 4(a) and 5(a) above. All at 2004 prices.

- 4.2.17 In summary the proposed development would have an adverse UK Balance of Payments impact (over and above the 2004 impact), arising from the increase in international leisure travel, of about £0.84bn per annum at 35mppa rising to about £1.75bn per annum at 50mppa. At a regional level, the adverse impact (over and above the 2004 impact) would be about £0.44bn per annum at 35mppa rising to about £0.90bn per annum at 50mppa.
- 4.2.18 On a Net Present Value ('NPV') basis, the Balance of Payments impact arising from the expansion of Stansted would be as set out in Table 7 below.

¹² 'Demand for Outbound Leisure Air Travel and its Key Drivers', CAA, Dec 2005.

¹³ The term Gross Value Added (GVA) is used to denote estimates that were previously expressed as Gross Domestic Product (GDP) at basic prices. (GDP = GVA plus taxes (less subsidies) on products.)

¹⁴ Office of National Statistics (ONS) at www.statistics.gov.uk/cci/hugget.asp?id=420.

¹⁵ 'Stansted Generation 2', December 2005 consultation document.

Table 7: Balance of Payments impact – NPV

Year/ projection	Increase in Annual Deficit vs 2004 £bn	Net Present Value (NPV) £bn
2004	0	0
25mppa	0.24	6.2
35mppa	0.84	18.8
40mppa	1.14	25.8
45mppa	1.44	30.7
50mppa	1.75	34.4

Note –all at 2004 prices.

- 4.2.19 The above NPV calculations are based on HM Treasury guidance/methodology for calculating NPVs as set down in 'The Green Book'¹⁶ and use the higher discount rate of 3.5% recommended for long term projects - i.e. more conservative than the 3.0% discount rate used by the DfT when estimating the economic benefits of airport expansion (and which excluded the Balance of Payments impact).
- 4.2.20 The above NPVs have been calculated allowing phased growth using BAA's projections to 2014 for the 35mppa scenario and SSE's projections for 39.8mppa by 2014 with phased growth to 44.6mppa in 2021 and to 49.7mppa in 2030.
- 4.2.21 The NPVs represent the projected cost to the UK Balance of Payments of allowing the permitted expansion (i.e. they are only the incremental costs). Thus:
- Expansion to **35mppa** would represent a cost to the UK Balance of Payments of **£18.8bn** compared to today, although 'only' £12.6bn on the basis presented by BAA, namely the difference between its 35mppa and its 25mppa scenarios;
 - Expansion to **40mppa** would represent a cost to the UK Balance of Payments of **£25.8bn** compared to today, although 'only' £19.6bn on the basis presented by BAA, namely the difference between 40mppa and its 25mppa scenario;
 - Expansion to **45mppa** would represent a cost to the UK Balance of Payments of **£30.7bn** compared to today, although 'only' £24.1bn on the basis presented by BAA, namely the difference between 45mppa and its 25mppa scenario;
 - Expansion to **50mppa** would represent a cost to the UK Balance of Payments of **£34.4bn** compared to today, although 'only' £28.2bn on the basis presented by BAA, namely the difference between 50mppa and its 25mppa scenario.

All of the above are at constant 2004 prices, i.e. no account has been taken of inflation.

- 4.2.22 Our assessment above has been based purely upon the impact on the Balance of Payments current account. There may also be an adverse impact on the capital account due to the boom in low-cost air travel. HM Treasury have advised us that no official statistics are kept on overseas home purchases or ownership by UK residents but unofficial estimates (by overseas estate agents) put the number at about 1.3m in France, Spain and Portugal alone. Anecdotal evidence suggests that increased availability of low cost flights is a significant factor behind the growing trend for UK residents to purchase second homes on the Continent. (This

¹⁶ See Annex 6 of Green Book [SSE/8/c Appendix 3] which recommends a discount rate of 3.5% for the first 30 years followed by 3.0%. Note that airport projects were assessed over a 60-year period by the DfT in the ATWP. We have applied the same methodology.

resonates with our own knowledge of individuals who purchase multiple airline tickets (at favourable prices) at the start of the season so as to be able to travel to and from their second homes on the Continent throughout the year).

- 4.2.23 Overseas estate agents advise that proximity to an airport linked to the UK by Ryanair or Easyjet can add significantly to local house prices. This seemed to be borne out when Ryanair axed a number of Buzz routes after its acquisition of this airline in 2003. This led to a group of UK residents who had purchased second homes in the vicinity of airports previously served by Buzz complaining openly to the media that they had been left 'high and dry' by the closure of these routes.¹⁷
- 4.2.24 It is also known that Ryanair has been able to secure subsidies from provincial/local governments when it has opened new routes to 'off the beaten track' European destinations in the expectation that the new routes would bring not only tourists from the UK but also second home buyers and that both categories of UK residents would contribute to the local economy.
- 4.2.25 Given the absence of reliable data it would be inappropriate to attempt to quantify this issue. Nevertheless, the anecdotal and other 'soft' evidence should not be entirely discounted and we believe it is reasonable to say that the expansion in low cost flights encourages outward personal capital flows relating to the purchase of second homes abroad. However we are unable to quantify this impact.

4.3 Economics of climate change

- 4.3.1 In October 2006, the Government published a report which it had commissioned from Sir Nicholas Stern, the former Chief Economist of the World Bank, entitled 'The Stern Review on the Economics of Climate Change'. The central conclusion of the Stern Report was that the economic cost of inaction in relation to climate change would far exceed the economic cost of action to combat climate change.
- 4.3.2 The Stern Report was of landmark importance in highlighting that climate change is not simply an environmental issue but also an economic issue and thus Stern recommended that the 'polluter should pay' principle should be applied to the decision-making process with the social cost of carbon reflected in that process.
- 4.3.3 Stern arrived at an estimate of £238 per tonne (at year 2000 prices) for the social cost of carbon. This equates to about £281 per tonne today, or to about £76.50 per tonne of carbon dioxide (CO₂).¹⁸
- 4.3.4 Stern specifically addressed the issue of the unsustainable growth in aviation emissions, reinforcing the similar conclusions that have been reached by the Intergovernmental Panel on Climate Change¹⁹, the Sustainable Development Commission²⁰, the Royal Commission on Environmental Pollution²¹, the Institute of Public Policy Research²², the Tyndall Centre²³ and the Oxford University Environmental Change Institute²⁴. Stern recommended that:

¹⁷ Financial Times', 22 February 2003.

¹⁸ CD/157 (Stern Report), p.xvi of Executive Summary and Box 13.1, page 288 of main report. Note that 1 tonne of carbon equates to 3.67 tonnes of carbon dioxide (CO₂).

¹⁹ 'Aviation and the Global Atmosphere', IPCC, 1999 [CD/153].

²⁰ 'Air Transport and Sustainable Development', SDC, 2001 [CD/245].

²¹ 'The Environmental Effects of Aircraft in Flight', RCEP, 2002 [CD/298].

²² 'The Sky's the Limit: Policies for Sustainable Aviation', IPPR, 2003 [CD/246].

²³ 'Growth Scenarios for EU & UK Aviation: Contradictions with Climate Policy', Tyndall Centre, 2006 [CD/247].

²⁴ 'Predict and Decide: Aviation, Climate Change and UK Policy', Oxford University ECI, 2006 [CD/155].

'The level of the carbon price faced by aviation should reflect the full contribution of emissions from aviation to climate change. As outlined in Box 15.6, the impact of aviation is two to four times higher than the impact of the CO₂ emissions alone.'

- 4.3.5 Based on our estimate of Stansted's emissions of carbon dioxide in 2006 and our projection for 35mppa (details of which are provided in Annex 1), the additional climate change impact of the proposed development would be between 1.92m and 3.79m tonnes of CO₂e (carbon dioxide equivalent). This reflects a multiplier of 'two to four times' for aviation emissions, based on the scientific advice and as endorsed by Stern and others. It will be noted that the higher end of our range is not precisely twice the lower end which is because airport-related surface access emissions and emissions from airport buildings (both relatively small amounts) are included in our calculations but are not subject to the multiplier.
- 4.3.6 Applying Stern's estimate of the cost of carbon (£76.50) enables an economic value to be applied to the climate change impact of the proposed development. This is between £147m and £290m per annum depending upon whether a multiplier of two or four is applied. This is the annual incremental cost at 35mppa and would increase gradually to these figures during the period 2008 to 2015, if the application were to be approved. This does **not** include the cost of Stansted's current (2006) emissions, i.e. baseline costs.
- 4.3.7 On a Net Present Value ('NPV') basis, allowing for the phased increase, the cost is between **£3.2bn** and **£6.3bn**. As with our Balance of Payments NPV calculation, our climate change NPV is based on HM Treasury guidance/methodology as set down in 'The Green Book'²⁵ and again a 3.5% discount rate has been used.
- 4.3.8 The DfT announced in December 2006:
- 'In accordance with a key conclusion of both the Stern Review and Eddington Study, the Government therefore proposes to introduce a new emissions cost assessment to inform its decisions on major increases in aviation capacity. This assessment would consider whether the aviation sector is meeting its external climate change costs.*
- We will consult on the development of this emissions cost assessment in the first half of 2007. We will also draw on the recommendations of the Eddington Study, in particular the cost-benefit analysis revisions to further enhance our consideration of climate change costs alongside economic benefits when appraising new airport capacity. We shall also consider how an emissions cost assessment could be applied in the shorter term.'*²⁶
- 4.3.9 At time of writing the DfT has not yet commenced this consultation and BAA has not, so far as we are aware, quantified the additional carbon emissions arising from the proposed development or to calculate the social cost of these emissions. However, an emissions cost assessment is clearly emerging Government policy and while we await the details of how this should be carried out, the estimates we have offered will allow this Inquiry to have some insight into the economic cost of the global environmental consequences of BAA's expansion proposals.

4.4 Other financial/economic impacts

²⁵ See Annex 6 of Green Book [SSE/8/c Appendix 3] which recommends a discount rate of 3.5% for the first 30 years followed by 3.0%. Note that airport projects were assessed over a 60-year period by the DfT in the ATWP. We have applied the same methodology.

²⁶ Air Transport White Paper Progress Report, paras 2.34 and 2.35 [CD/88].

- 4.4.1 The proposed development would give rise to further adverse economic impacts in the following areas:

(1) Regional tourism industry – economic multiplier effect;

(2) Impact on inward investment – no evidence of catalytic effect compared to considerable evidence that airport expansion could deter inward investment;

(3) Displacement impacts – including on other airports in the Region;

(4) Impact on local housing market – circa £1 devaluation since 2002.

- 4.4.2 Points (1), (2) and (3) above are dealt with in our evidence relating to employment impacts [SSE/10/a] and to avoid repetition are excluded from this proof of evidence. Point (4) above is the subject of a separate proof of evidence [SSE/11/a] and so will not be addressed here.

5 CONCLUSIONS

- 5.1 The economic analysis provided by BAA in CD/8 starts by stating that negative effects will be identified but it simply ignores them. Not a single *negative impact* is identified. However, it even more interesting that not a single *economic benefit* has been evidenced by BAA.
- 5.2 BAA has relied upon broad generalisations relating to the importance of airports to the UK economy; a great deal of irrelevant argument about the importance of freight traffic (which would be unchanged whether the application was approved or refused); and a one-sided argument about the benefits of increased number of foreign tourists while making no mention of the far greater negative impact (about double the value of the inward benefit) arising from the increase in overseas leisure breaks by UK residents.
- 5.3 We have identified negative economic impacts amounting to between £12.6bn and £34.4bn for the UK Balance of Payments (the actual figure depends upon whether we use the current position or BAA's 25mppa scenario as the baseline and upon the actual level of passenger throughput), and between £3.2bn and £6.3bn for climate change costs, as per Stern. In both cases we have calculated these net present values using HM Treasury methodology and the more conservative discount rate. And these are not the only negative economic impacts, as we will show in other proofs of evidence.
- 5.4 For the approval of any development that would have such significant adverse social and environmental impacts there would need to be substantial and demonstrable economic benefits. These do not exist in this particular case; indeed, the economic impacts are substantially and demonstrably negative.
- 5.5 It follows that the application should be refused.

ANNEX 1:

STANSTED – ANALYSIS OF CLIMATE CHANGE IMPACT

Methodology and Calculations

1. Fuel Usage

The first step is to examine the number and type of flights which operated in/out of Stansted in 2006. BAA traffic statistics show a total of 189,995 air transport movements ('ATMs') at Stansted in 2006. In addition, Stansted handled 16,698 'non commercial'²⁷ flights in 2006. In total therefore, we arrive at a figure of 206,693 aircraft movements for 2006.

Annex 1 - Table 1: Stansted aircraft movements in 2006

Passenger ATMs		179,031
Domestic	26,431	
European	149,200	
Long Haul	3,400	
Cargo ATMs		10,964
Domestic	3,650	
European	2,730	
Long Haul	4,584	
Total ATMs		189,995
Non-ATMs	16,698	16,698
Total aircraft movements	206,693	206,693

The next stage is to examine fuel usage which we have carried out in the following way:

- Detailed examination of the BAA Stansted flight timetable (for both scheduled and charter flights) which provides details of all the destinations served and frequency of services in respect of passenger ATMs;
- For cargo ATMs, the data are less readily available and we have had to make certain estimates based on: examination of Stansted airport statistics published by the CAA, the quarterly traffic statistics provided by BAA to the Stansted Airport Consultative Committee and other information such as that published by BAA in its Environmental Statement in support of its 2006 planning application to Uttlesford District Council;
- Trip distances have been derived using the time/distance calculator produced by Air Routing International and available on their website at www.airrouting.com;
- Fuel usage has been calculated using the tables published by the European Environment Agency for a range of main aircraft types. This is available on the EEA website at <http://reports.eea.europa.eu/EMEPCORINAIR4/en/B851vs2.4.pdf>.

Table 2 below shows some examples to demonstrate the methodology used to estimate the fuel usage by Stansted domestic PATMs. Based on a trawling of the BAA Stansted flights schedule/timetable, we arrived at a weighted average of 2,495kg of fuel used per domestic PATM.

²⁷ 'Non commercial' flights consist of aircraft carrying less than 10 passengers, business jets, air taxis (including helicopters) aircraft repositioning, training and testing flights, diplomatic and military flights and the Queens Flight.

Annex 1 - Table 2 Fuel Usage – Domestic PATMs

Typical routes	Distance (kms) ¹	Duration (mins) ¹	Aircraft type	Fuel Usage (kg) ²
Glasgow	538	53	A319	2,685
Edinburgh	510	51	A319/B737	2,590/2,406
Prestwick	512	51	B737	2,410
Manchester	235	32	B737	1,656
<i>Weighted average =</i>				2,495

¹ <http://www.airrouting.com>

² <http://reports.eea.europa.eu/EMEPCORINAIR4/en/B851vs2.4.pdf>

The same approach was applied to non-domestic (European and long haul) PATMs and to domestic, non-domestic (European and long haul) Cargo ATMs.

For non-ATMs, there is only limited data available upon which to make an estimate. Business aviation is the largest component in this category, followed by repositioning flights and air taxis. We do not have a breakdown to enable us to estimate journey distances in this category but they will range from transatlantic to domestic business trips. Repositioning flights will generally be of relatively short distance/duration although it is worth noting that an aircraft's fuel usage is dramatically higher during the first phase of any flight, whilst climbing to cruising altitude. For example, a B737-400 uses about 7.0kg of fuel per km on a trip of 200kms but this falls to 3.5kg per km on a trip of 1500km (i.e. by half).

We have used a nominal figure of 2 tonnes of fuel per flight for all 'non commercial' flights.

The '50:50' principle

The Government's approach to calculating UK aircraft emissions is to divide emissions on international flights by two, based on the argument that emissions should be split 50:50 between the country of origin and the country of destination. It has been argued by some that it is unreasonable, for example, to hold the Maldives responsible for 50% of the carbon emissions created by aircraft delivering and collecting British holidaymakers. Almost 70% of Stansted's passengers are UK residents. Nevertheless, we have applied the 50:50 principle to all our calculations (including domestic) in arriving at our estimate of emissions attributable to Stansted operations.

Annex 1 - Table 3: Summary of Stansted Aircraft Fuel Usage

Type of flight	Number of flights (outbound only) ¹	Fuel used per flight (kg)	Total fuel (tonnes)
Domestic PATMs	13,216	2,495	32,974
European PATMs	74,600	5,260	392,396
Long Haul PATMs	1,700	59,500	101,150
Domestic CATMs	1,825	2,430	4,435
European CATMs	1,365	4,640	6,334
Long Haul CATMs	2,292	97,720	223,974
Sub total	94,998		761,083
Non-ATMs	8,349	2,000	16,698
Total	103,347		777,961

¹ Applying the 50:50 principle.

2. Aircraft Carbon Dioxide Emissions

Conversion of fuel usage to carbon dioxide ('CO₂') is a relatively straightforward calculation; 3.15 tonnes of CO₂ is produced for every tonne of kerosene burned. Applying this to the

777,961 tonnes of kerosene used in the course of aircraft operations at Stansted in 2006 (as per Table 3 above) we can derive that 2.451m tonnes of CO₂ were produced.

3. Carbon Emissions from Surface Access Transport

This relates to the carbon emissions arising from passengers and employees travelling to and from the airport by car, bus, train etc. Department for Transport projections of airport carbon dioxide emissions for airports in the South East²⁸ show a range of 3.3% to 6.3% for the emissions generated by surface access in comparison with the emissions generated by the aircraft themselves. Applying the mid-point of this range we can estimate that, for Stansted, the carbon dioxide emissions generated by surface access in 2006 amounted to about 117,600 tonnes (note that RFI is not applied to this).

4. Carbon Emissions from Stansted Airport Buildings & Facilities

Information provided by BAA to UDC in connection with its April 2006 planning application²⁹ provided details of on-site energy usage and the resultant carbon dioxide emissions. This showed carbon dioxide emissions of 41,000 tonnes in 2004/05 rising to 53,000 tonnes at 25mppa. In 2006, Stansted handled 23.7mppa. These are relatively small numbers in the context of aircraft emissions and for the purposes of this exercise we use the mid-point figure of 47,000 tonnes for on-site airport emissions of carbon dioxide.

5. Total Stansted Carbon Dioxide Emissions in 2006

	<u>CO₂-emissions</u>
Aircraft operations	= 2.451mt
Surface Access	= 0.118mt
On-Site	= 0.047mt
Total	= 2.616mt

6. Calculation for 35mppa scenario

	<u>CO₂-emissions</u>
Aircraft operations	= 3.384mt
Surface Access	= 0.162mt
On-Site	= 0.060mt
Total	= 3.606mt

²⁸ SERAS Stage 2 Appraisal Findings Report, 2002, Table 14.18, page 486 [CD/235].

²⁹ 'Generation 1 Environmental Statement, Volume 7: Energy', BAA, April 2006, Table 1, p6 and Table 6, p8 [CD/10].

7. Apply RFI

Using the IPCC estimate that the RFI³⁰ multiplier for aviation is between 2 and 4 (which Stern also uses), the aviation CO2 emissions as above can be adjusted as follows:

Annex 1 – Table 4: Range for Stansted climate change impact (million tonnes CO2e)

	2006 Actual		35mppa	
	RFI = 2	RFI = 4	RFI = 2	RFI = 4
Radiative forcing				
<i>Aviation emissions</i>	<i>2.451</i>	<i>2.451</i>	<i>3.384</i>	<i>3.384</i>
Incorporate RFI	4.902	9.804	6.768	13.536
Surface access	0.118	0.118	0.162	0.162
On-site emissions	0.047	0.047	0.060	0.060
Total	5.067	9.969	6.990	13.758
Additional impact			1.923	3.789

8. Net Impact

We can see from the above that the impact of the proposed expansion would be in the range 1.923m tonnes to 3.789m tonnes of additional CO2e (carbon dioxide equivalent).

³⁰ Radiative forcing (RFI multiplier): A good explanation of this is contained in 'Predict and Decide', Oxford University ECI [CD/155] as follows:

'As well as carbon dioxide, the combustion of kerosene also emits:

- Nitric oxide and nitrogen dioxide, together termed NOx (which form ozone, a greenhouse gas, at altitude);
- Particulates (soot and sulphate particles);
- Water vapour (which leads to the formation of contrails and cirrus clouds at altitude);
- Other compounds including sulphur oxides, carbon monoxide, hydrocarbons and radicals such as hydroxyl.

The combined effect of these other emissions is to add significantly to the climate change impacts of aviation, over and above those caused by its CO2 emissions alone. The fact that aviation's climate impacts are 'significantly worse' than those caused by its carbon dioxide emissions is scientifically uncontroversial.'

REFERENCES

- i. *Tables for the amount of fuel consumed by all major types of aircraft over various distances are published by the European Environment Agency (EEA) available at: <http://reports.eea.europa.eu/EMEPCORINAIR4/en/B851vs2.4.pdf>*
- ii. *Air route distance tables for calculating grand circle distances are published by Air Routing International available at: <http://www.airrouting.com/scripts/tdcalc.asp>.*
- iii. *'Calculating the Environmental Impact of Aviation Emissions', Environmental Change Institute, Oxford University Centre for the Environment, June 2005.*
- iv. *'Aviation and the Global Atmosphere', IPCC, 1999 et seq.*
- v. *'Air Transport and Sustainable Development', Sustainable Development Commission, 2001 - and four subsequent reports by the SDC.*
- vi. *'The Environmental Effects of Aircraft in Flight', Royal Commission on Environmental Pollution, 2002.*
- vii. *'Aviation and the Environment: Using Economic Instruments', H M Treasury, 2003.*
- viii. *'The Sky's the Limit: Policies for Sustainable Aviation', Institute of Public Policy Research (IPPR), 2003.*
- ix. *'Aviation & Global Warming', Department for Transport, 2004.*
- x. *'Growth Scenarios for EU & UK Aviation: Contradictions with Climate Policy', Tyndall Centre, 2006.*
- xi. *Lufthansa Sustainability Report ('Balance') 2006: <http://konzern.lufthansa.com>.*
- xii. *'British Airways Social and Environmental Report 2003' - Supplementary Data (Independent Assurance Statement).*