Doc. No. SSE/33
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
by Saffron Walden Friends of the Earth and Stop Stansted Expansion in Rebuttal of BAA/4/a
by Mr Malcolm Pratt
(Air Quality)

Dr Patricia Elliott

23 May 2007

Friends of the Earth

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1 INTRODUCTION

1.1 Personal details

1.1.1 This rebuttal proof of evidence has been prepared by Dr Patricia Elliott on behalf of Saffron Walden branch of Friends of the Earth and Stop Stansted Expansion ('SSE').

1.1.2 I am a retired Occupational Health Physician and have an MD in Public Health and Industrial Medicine. I am a member of the Faculty of Occupational Medicine of the Royal College of Physicians and I have Diplomas in Public Health and Occupational Health. Prior to my retirement I was Medical Director of the Harlow Occupational Health Service and Occupational Health Adviser to Kings College Hospital, London.

1.2 Scope of rebuttal evidence

1.2.1 This rebuttal proof does not attempt to deal with every issue raised by Mr Malcolm Pratt with which I disagree. In particular, I have sought to avoid repetition of points which have already been dealt with in my proof of evidence (SSE/7a). Absence of comment in this rebuttal proof on any matters raised by Mr Pratt in his proof of evidence should not be taken to indicate my agreement with those matters.

2 REBUTTAL POINTS RELATING TO BAA/4/A AND BAA/4/C

2.1 Air quality issues

2.1.1 Much of Mr Pratt's proof of evidence is in the form of a defence of Volume 3 of the BAA environmental statement [CD/6] in the light of points made by SSE and others which expressed doubts as to the validity of the modelled predictions, notably of NOX and NO2 for the proposed Stansted Generation 1 development.

2.1.2 Mr Pratt expresses complete confidence in the real time monitoring, the methodology and the modelling. He points out that the model used has been improved since used at Stansted in 2003 and has been used at both Heathrow and Gatwick.

2.1.3 In my proof of evidence, SSE/7/a, I listed my concerns over uncertainties in this modelling process, using the advice given in the Report of the Air Quality Technical Panels set up by the Government for the Project for the Sustainable Development of Heathrow[1] ('PSDH'). This was established expressly to advise on 'ways to strengthen and update the air quality assessment of Heathrow Airport'[2]. The Technical Panels had the task of reviewing all aspects of airport air quality monitoring and their advice is applicable to any airport. Accordingly, I relied upon their advice when evaluating the modelling used for this (Stansted Generation 1) planning application.[3]

[1] CD/280.
[2] Ibid, Executive Summary, p8.
[3] SSE/7/a, para 4.2.

2.1.4 In BAA/4/C, Appendix II, there are several references to the 'ADMS Airport' model chosen for the PSDH (especially paras 11.26 to 11.31). In view of the comments made I approached the developers of the ADMS Airport model (see Annex 1), namely, Cambridge Environmental Research Consultants Ltd ('CERC') and asked for their opinion. The response of the consultant, David Carruthers is attached at Annex 2.

2.1.5 Recent research and advice confirms considerable uncertainties in the BAA predictions of NOX at 35 mppa and suggests that the statutory Limit Value of NOX for vegetation will be exceeded in the SSSIs Hatfield Forest and Eastend Wood.

2.2 Carbon dioxide emissions

2.2.1 In para 5.3.19 of Mr Pratt's proof of evidence he concludes:

> *'My quantification of the carbon dioxide emissions from the proposed G1 development is broadly consistent with those of the NT and SSE when compared on an equivalent basis.'*

We welcome this broad endorsement of the original estimates submitted by SSE in July 2006. Moreover, it is important to point out that SSE subsequently revised its original estimates and it is the revised (lower) estimates that are included in our proof of evidence SSE/8/a submitted to the Inquiry on 20 April 2007. SSE's estimates are now in fact about 10% lower than Mr Pratt's projections both in respect of the 35mppa case and the difference between the 35mppa case and the 25mppa case. (The main difficulty for SSE in estimating carbon dioxide emissions from Stansted Airport has always been the previous lack of information from BAA. We have been able to draw upon other reliable data sources in almost all areas of Stansted's operations with the notable exception of cargo aircraft movements. We suspect that this is the main reason for our c.10% underestimation.)

2.2.2 Despite the fact that BAA's overall estimate is higher than ours, we believe that Mr Pratt may have underestimated Stansted's carbon dioxide emissions for the 35mppa case in two areas:

- Airport-related surface access traffic: in BAA/4/c, Table 5.3, Mr Pratt estimates that surface access related carbon dioxide emissions would increase by less than 14% for the 35mppa case as compared to the 25mppa case. This seems low and indeed the absolute numbers also appear low in both the 25mppa case and the 35mppa case. We suspect this may have something to do with the limited traffic model area (43km by 45km) and we would welcome clarification.
- Energy usage on site: we are unable to reconcile the data shown in Table 6 of Volume 7 of the BAA Environmental Statement [CD/10] with the data shown In BAA/4/c, Table 5.3. Again we would welcome clarification.

2.2.3 Carbon emissions are an extremely important issue in relation to this planning application and it could save valuable Inquiry time if we were able to reconcile our own estimates with those produced by BAA in advance of this matter being raised at the Inquiry.

2.2.4 We note that Mr Pratt makes no estimates of CO2 emissions for a scale of operation greater than 35mppa and does not reflect radiative forcing in any of his quantifications.

ANNEX 1: LETTER FROM DR PAT ELLIOTT TO DR DAVID CARRUTHERS

The Old Vicarage
Ashdon
Saffron Walden
CB10 2HG

11 May 2007

David Carruthers,
Cambridge Environmental Research Consultants Ltd.
3 Kings Parade,
Cambridge. CB2 1SJ

Dear Dr Carruthers,

Re: Public Inquiry into application for the expansion of Stansted Airport, Generation 1

Air Quality at the airport is one of the subjects about which evidence will be presented at the above inquiry, which starts on May 30th. You will see in the accompanying documents, proof of evidence of Malcolm Pratt, appearing for BAA, Stansted Airport Ltd., that CERC's work on a suitable model for airport dispersion modelling, ADMS Airport, is commented on in relation to tests made in connection with the development of the Project for the Sustainable Development of Heathrow.

I am writing to ask if you wish to comment on the statement made as to the performance of the new model.

I am presenting evidence on behalf of Friends of the Earth and Stop Stansted Expansion.

I appreciate that as an independent consultant you would be unable to present evidence for either side but as this is a purely factual question you may feel able to clarify the situation.

Yours sincerely,

Dr Pat Elliott

ANNEX 2: LETTER FROM DR DAVID CARRUTHERS

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17 May 2007

Ref: DJC/SW/2341

D Patricia Elliott
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Dear Dr Elliot,

Thank you for your letter of 11 May 2007 and your request for my comments on the proof of evidence of Malcolm Pratt and in particular its references to ADMS. As the managing director of CERC responsible for the development of the ADMS software, I am indeed uniquely qualified to provide accurate statements with regard to the details of the software and its development. On reading the proof I have found that there are some statements regarding ADMS which require correction and clarification. I cover these in turn below.

Proof of evidence of Malcolm Pratt

Appendix 1
Data Issues
Para 1.9 Pratt states '*I am satisfied that the assessment is robust and provides our best estimate of future concentrations'*. The assessment may provide a reasonable assessment of concentrations, however, based on its model inter-comparison study which included consideration of AEA's ADMS3 methodology used for Pratt's proof and ADMS-Airport and panel discussions, PSDH[†] recommended ADMS-Airport, so the Pratt approach can hardly be claimed to be a best estimate.

Appendix II
Modelling and Monitoring Issues
Para II 15 He ignores the recommendations of PSDH which recommended a different approach.
Para II 28 Pratt states that the AEA methodology he utilizes showed similar performance in PSDH to the other models considered. This statement is incorrect In the PSDH model inter-comparison study ADMS-Airport gave better performance than the AEA methodology which incorporates ADMS 3. Note that a number of different diagnostic techniques were used for comparing the models, not just scatter plots to which he refers (Figure II.1, II.3) and which can give a very incomplete picture of model performance if considered alone. Consideration of all the diagnostic tests together showed that there were marked differences in the performances of the different models considered in the inter-comparison study.

Para II 30 Our work with the ADMS and other models suggests Pratt should be careful in using comparisons between the AEA methodology and monitored data at Heathrow to infer model

[†] DfTs project for the Sustainable Development of Heathrow

performance (i.e. tendency to over-predict) at Stansted without an understanding of the cause of the tendency for over-prediction of Heathrow and hence whether the processes involved are transferable.

Appendix II
General Modelling

Modelling Methodology
Para II 46 Pratt's timeline is incorrect. In fact ADMS Urban was modified into ADMS-Airport with the inclusion of explicit representation of aircraft engine sources (jet engine source model) **before** PSDH. Some of the PSDH recommendations related to options for further improvement in the implementation of the jet engine source model, however further sensitivity studies showed that no significant modifications could be justified based on current knowledge.

Pratt is correct that the licence for ADMS-Airport is not commercially available yet (release planned for late summer 2007), but neither is the AEA airport methodology using ADMS 3. This methodology was run by AEA on behalf of Entec for this project; equally ADMS-Airport could have been run for Entec by CERC.

II 47 Pratt states *'the new term in the dispersion model effectively reduces the concentration at receptors close to the airport; this effect reduces with distance from the runway'*. This is not necessarily a correct argument. Especially close to the aircraft the use of explicit sources for jet engines (as in ADMS Airport) may give higher concentrations than if the sources are represented by volume sources (as in AEA approach).

Yours sincerely

Dr D J Carruthers
Director