



PATENTS ACT 1977

APPLICANT General Electric Company

ISSUE Whether patent application number
GB0624556.7 complies with section 1(2)

HEARING OFFICER H Jones

DECISION

Introduction

- 1 Application number GB0624556.7 was filed on 8th December 2006, claiming priority from US application number 11/297,034. It was published as GB2433145. The examiner has consistently objected that the invention is excluded from patentability under section 1(2) of the Patents Act 1977. In addition, objections to the novelty and inventiveness of the claims have been addressed by amendment. However, the search has not been completed to identify documents relevant to the amended claims.
- 2 The issue of exclusion under section 1(2) came before me at a hearing on 18th January 2012. The applicant was represented by patent attorney Ms Fidelma Cleary of the applicant's Global Patent Operation, who attended by telephone. Also present were the examiner, Mr Joseph Mitchell and my assistant, Mr Mark Simms.

The application

- 3 The application relates to a method of predicting the behaviour of a process. The method is particularly relevant to power generation systems, such as turbines and boilers, but is applicable to many industrial processes. The method takes sensor readings from the process and uses a number of different models to predict the behaviour of the system. The results of these models are then combined or "fused" using various weightings to produce at least one prediction about the system.

The law

- 4 The examiner has argued that the invention is excluded from patentability as it is a computer program as such. Section 1(2) of the Patents Act 1977 states that:

It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of -

(c)...a program for a computer;

...but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such.

5 Although it is clear that the invention is implemented as a computer program, it is established case law that a computer implemented invention is not excluded under section 1(2) if it makes a technical contribution (cf *Symbian*¹, *Aerotel*²).

6 In addition, any amendment made to the claims must not add matter to the application as filed. Section 76(2) states that:

No amendment of an application for a patent shall be allowed under section 15A(6), 18(3) or 19(1) if it results in the application disclosing matter extending beyond that disclosed in the application as filed.

7 Since the examiner has stated that the amendments necessary to make the claims patentable would add matter to the application, it is necessary to consider this additional point of whether a saving amendment is supported by the application as filed.

Arguments and analysis

8 At the hearing, Ms Cleary accepted the objection made by the examiner that the claims filed on 8th November 2011 related to a computer program as such and were excluded from patentability under section 1(2). She admitted that making a prediction about a process does not have a technical effect, whether on the process itself or on the computer making the prediction.

9 However, she argued that it was clear that from the description of the invention that the prediction was intended to be used to evaluate or control the process. At the hearing, she submitted proposed amendments to the claims which included these features.

10 Given that the examination report of 8th November 2011 had suggested that the use of the prediction for control or diagnostic purposes would sufficiently tether the claims to the technical nature of the process, the proposed amendments would overcome the objection under section 1(2), provided they did not add matter.

11 Ms Cleary pointed to the second paragraph of page 1 of the description, which refers to optimising asset utilisation, including optimising the heat rate, NO_x emissions and plant load in a turbine or boiler for generating electricity supplied to a power grid. Given that this is the background to the invention, it suggests that such optimisation is the intended use of the predictions described in the application.

12 Ms Cleary also indicated that the last but one paragraph on page 3 of the description refers to the fused output of the models being used to evaluate the output of a process. This, she argued, clearly indicated that evaluation of the process is disclosed as one purpose of the fused model outputs.

13 Ms Cleary referred to the first two paragraphs of page 4, which make it clear that the inputs to the model are real world sensor values measuring actual characteristics of

¹ *Symbian Ltd. v Comptroller-General of Patents* [2008] EWCA Civ 1066

² *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371

the process and that the outputs are predictions of real world values. Examples of the inputs in these paragraphs include temperature, pressure, flow, position, NO_x, CO and speed. Predicted outputs include emission characteristics, fuel usage, heat rate and bearable load.

- 14 Ms Cleary argued that these paragraphs from the description clearly disclosed that the invention was intended to take sensor values from a real world process and make a prediction about a real world characteristic, which then could be used to evaluate or optimise the actual process. I agreed that the proposed amendments were supported by the description and did not add matter, as well as making a technical contribution.

Conclusions

- 15 The invention as it is currently claimed is excluded from patentability as a computer program as such. However, amendment of the application is possible, which would produce a set of claims that are not excluded. As such I refer the application back to the examiner for continued processing.
- 16 Since the date for getting the application in order is 24th January 2012, and the applicant has already filed a form for an as-of-right extension to this date, I give leave for the applicant to file a request for a further, discretionary, extension.

H JONES

Deputy Director, acting for the Comptroller