



PATENTS ACT 1977

APPLICANT Global Design Corporation Ltd.

ISSUE Whether patent application GB 1808015.0 complies
 with Section 1(2) of the Patents Act 1977

HEARING OFFICER Ben Buchanan

DECISION

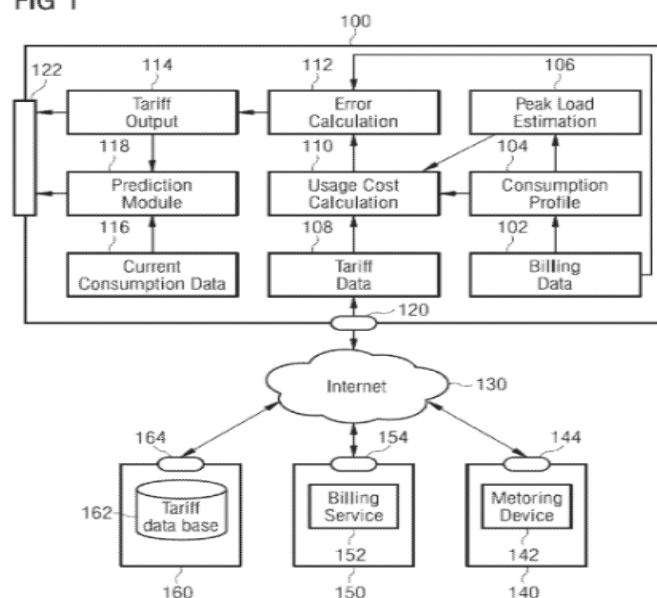
Background

- 1 This decision relates to whether patent application GB 1808015.0 (“the application”) entitled “Cloud-based methods for identifying energy profile and estimating energy consumption and cloud-based energy profile usage identification system” complies with Section 1(2) of the Patents Act 1977 (“the Act”).
- 2 This application is the national phase, published as GB 2560836A, of a PCT application filed on 27 October 2016. The PCT application was originally published as WO 2017/071609 A1 and has an earliest priority date of 30 October 2015.
- 3 A first examination report was issued on 16 July 2021, the report being confined to the issue of patentability. In the examination report the examiner objected that the invention relates to a method for doing business and/or a program for a computer as such and so is excluded from patent protection under section 1(2).
- 4 There followed several rounds of correspondence, with no agreement reached. The latest claims are those filed on 1 September 2022. Two sets of amended claims were filed, a main request and a first auxiliary request.
- 5 With the issue unresolved the applicant asked to be heard and the matter came before me at a hearing on 21 December 2022, at which the applicant was represented by their attorney Mr Ian Bishop of ip21 Ltd. Skeleton arguments were helpfully provided by the attorney in advance of the hearing. In particular, I would like to thank the attorney for the useful analysis provided for each integer of claim 1 of the first auxiliary request.
- 6 I note that the (extended) compliance period for the application expired on 16 September 2022. The examiner has deferred full examination of issues other than excluded matter, although the search for both sets of claims has been updated. If I find the application is allowed to proceed, the application will be remitted to the examiner for full substantive examination as it stands. Given that the compliance period has expired and it is now beyond two months from that expiry, there will be no further opportunity to amend the application.

The invention

- 7 The application relates to a system and method for providing a better estimate of energy consumption (and the associated charges) of an energy user. There are many ways of estimating energy use and the amount a user will have to pay for it at the end of a billing period. Smart meters are commonly used to provide such estimations. An accurate estimation however relies not just on the amount of energy consumed; details of the tariff are also required. The tariff is commonly a flat rate per energy unit consumed, but the rate may change depending on (for example) the amount of energy consumed by a user, the time of day the energy is used, or the peak demand level of the user. This can make estimating energy use and costs an onerous task.
- 8 The method and system of the invention obtains two forms of data relating to a user's past energy consumption - the amount of energy used during a previous billing period, along with the cost of that energy. From those sources the system then estimates a "consumption profile" for a user. In some embodiments of the invention, the consumption profile will also include a contribution from an estimated peak load value, as the charging structure of some profiles take account of the peak load of a user. The claimed invention includes the step of obtaining energy profile (which may be a tariff – for simplicity I will use the term tariff here) information over a data network (preferably from a third party database of tariffs from a range of energy providers) and calculating for each tariff in that database an estimated energy equivalent (or energy cost) for the user's estimated consumption profile. The system then compares each estimated equivalent (cost) with the actual cost of the energy used. Through this process, the system can identify the "best fit" tariff that is highly likely to be the tariff the user is subscribed to. Once this has been identified, the system can present to a user the likely cost of their next bill. The system therefore provides an allegedly more valuable interpretation of data when compared to what a user could learn from smart meter readings alone, for example. Figure 1 below illustrates the components of the system that may carry out the method:

FIG 1



The law

- 9 The examiner has raised an objection under section 1(2) of the Act that the invention is not patentable because it relates to one or more categories of excluded matter. The relevant provisions of this section of the Act are shown in bold below:

1(2) 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

*(a) a discovery, scientific theory or **mathematical method**;*

(b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever;

*(c) a scheme, rule or **method for performing a mental act, playing a game or doing business, or a program for a computer**;*

(d) the presentation of information;

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.

- 10 It is noted the examiner objected to the claims as a method for doing business and a program for a computer, but did not object to the claims as defining a mathematical method. The method claims do however involve many steps that are mathematical calculations, and some claims define a mathematical formula. As mathematical methods are mentioned in section 1(2) under which objection has been raised and which is to be decided here, I will therefore consider this provision of the Act when assessing the claims where appropriate.
- 11 The examiner and the applicant agree that the assessment of patentability under section 1(2) is governed by the judgement of the Court of Appeal in *Aerotel*¹, as further interpreted by the Court of Appeal in *Symbian*².
- 12 In *Aerotel* the court reviewed the case law on the interpretation of Section 1(2) and set out a four-step test to decide whether a claimed invention is patentable:
- (1) Properly construe the claim;*
- (2) identify the actual contribution;*
- (3) ask whether it falls solely within the excluded subject matter;*
- (4) check whether the actual or alleged contribution is actually technical in nature.*
- 13 Subsequently, the Court of Appeal in *Symbian* made it clear that the four-step test in *Aerotel* was not intended to be a new departure in domestic law; it was confirmed that the test is consistent with the previous requirement set out in case law that the

¹ *Aerotel Ltd v Telco Holdings Ltd & Ors Rev 1* [2007] RPC 7

² *Symbian Ltd v Comptroller General of Patents* [2009] RPC 1

invention must provide a “technical contribution”. Paragraph 46 of *Aerotel* states that applying the fourth step of the test may not be necessary because the third step should have covered the question of whether the contribution is technical in nature. It was further confirmed in *Symbian* that the question of whether the invention makes a technical contribution can take place at step 3 or 4.

- 14 Lewison J (as he then was) in *AT&T/CVON*³ set out five signposts that he considered to be helpful when considering whether a computer program makes a technical contribution. In *HTC/Apple*⁴ the signposts were reformulated slightly in light of the decision in *Gemstar*⁵. The signposts are:

i) whether the claimed technical effect has a technical effect on a process which is carried on outside the computer

ii) whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run

iii) whether the claimed technical effect results in the computer being made to operate in a new way

iv) whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer

v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

Application of the Aerotel approach

Step (1): Properly construe the claim

- 15 The latest claims are those filed on 1 September 2022. They consist of a main request and a first auxiliary request. Somewhat unconventionally, the Mr Bishop requested at the hearing that the first auxiliary request be considered before the main request. I note the skeleton arguments provided relate to the first auxiliary request. In accordance with them I will begin by considering whether the claims of the first auxiliary request are allowable. If I find those claims to be excluded, I will go on to consider the main request.

First auxiliary request

- 16 There are two independent claims; claim 1 to a cloud based method and claim 11 to a cloud based energy profile identification system. Although these claims relate to different categories of protection they do not differ in substance, so they will stand or fall together. Claim 1 of the first auxiliary request reads as follows:

³ *AT&T Knowledge Ventures/CVON Innovations v Comptroller General of Patents* [2009] EWHC 343 (Pat)

⁴ *HTC v Apple* [2013] EWCA Civ 451

⁵ *Gemstar-TV Guide International Inc v Virgin Media Ltd* [2010] RPC 10

A cloud based method for identifying an energy profile of an end user, the method comprising:

measuring a total amount of energy consumed using a metering device at a location of the end user, connected with a web service interface;

obtaining, over a data network, via a consumption data module, information including the total amount of consumed energy and a total equivalent for at least one previous period from at least one listing of the end user; wherein in the step of obtaining information, a total amount of consumed energy and a total equivalent is obtained for a plurality of different billing periods;

estimating, at one or more processors, via a consumption profile estimation module, a consumption profile for a plurality of timeslots based on the total amount of consumed energy; wherein in the step of estimation the consumption profile, the obtained total amount of consumed energy is divided by the number of calendar days of the period to obtain an average daily energy consumption, and an energy consumption for each time slot of the consumption profile is based on a normal Gaussian distribution of the average daily energy consumption over the plurality of timeslots;

estimating, at one or more processors, via a peak load estimation module, a peak load for a given period based on the estimated consumption profile;

obtaining via energy profile data module a plurality of schedules provided over a data network, each schedule corresponding to an energy profile provided by a utility provider;

calculating at the one or more processors, for each energy profile, via a usage equivalent calculation module, an estimated equivalent by calculating at least a first contribution based on the estimated consumption profile and the schedule corresponding to the respective energy profile and calculating a second contribution based on the estimated peak load and the demand fee schedule corresponding to the respective energy profile by calculating a peak demand fee for the peak demand based on the estimated peak load and the rates comprised in the schedule and by selecting a rate corresponding to a band in accordance with the estimated peak energy consumption based on the following formula:

$$f_{demand}(c, \rho, S) = h_1(\max_i(c_i) \times (1 + \rho))$$

wherein $h_1(x)$ corresponds to rates for a peak demand of a given schedule S , c_i is the predicted consumption for a timeslot i , and ρ corresponds to a peak demand modification parameter;

calculating at the one or more processors, for each energy profile, via error calculation module, an error between the obtained total equivalent for the period and each one of the respective calculated estimated equivalents comprising at least the first contribution and the second contribution; the steps

of estimation a consumption profile and calculating the estimated equivalent and calculating an error are performed for each period; and

selecting, at the one or more processors, via an energy profile output module an energy profile from the plurality of energy profiles corresponding to the smallest calculated error;

obtaining, at the one or more processors, via a current consumption data module, current energy consumption data for the end user; and

calculating, at the one or more processors, via a usage equivalent calculation module a current energy equivalent based on the schedule corresponding to the selected energy profile and obtained current energy consumption data of the end user;

wherein each of said modules is implemented in hardware or software or a combination thereof.

- 17 The method is implemented on one or more computers and the associated hardware is not described or claimed to be anything other than conventional.

Main request

- 18 There are two independent claims; claim 1 to a cloud based method and claim 17 to a cloud based energy profile identification system. It was agreed in the hearing that claim 17 is the broader claim, as it omits the step of calculating a peak demand fee that is present in claim 1, but nonetheless that the claims would stand or fall together. Claim 17 of the main request reads as follows:

A cloud based energy profile identification system comprising a processor including a non-transitory computer-readable medium storing program modules executable by the computer, the modules including:

a data module configured to obtain information including a total amount of consumed energy and a total equivalent for a period from at least one listing of the end user;

a consumption profile estimation module configured to estimate a consumption profile for a plurality of timeslots based on the total amount of consumed energy;

a peak load estimation module configured to estimate a peak load for a given period based on the estimated consumption profile;

an energy profile data module configured to obtain a plurality of rate schedules provided over a data network, each schedule corresponding to an energy profile provided by a utility provider;

a usage equivalent calculation module configured to calculate, for each energy profile, an estimated equivalent by calculating a first contribution based on the estimated consumption profile and the schedule corresponding to the energy

profile and a second contribution based on the estimated peak load and the schedule corresponding to the energy profile;

an error calculation module configured to calculate, for each energy profile, an error between the obtained total equivalent for the period and the calculated estimated equivalent comprising the first contribution and the second contribution;

an energy profile output module configured to output parameters corresponding to a schedule of an energy profile from the plurality of energy profiles corresponding to the smallest calculated error; and wherein the modules further comprise a current consumption data module configured to obtain current energy consumption data for the end user, wherein the usage equivalent calculation module is further configured to calculating a current energy equivalent based on the schedule corresponding to the identified energy profile and obtained current energy consumption data of the end user.

- 19 Again the hardware used is conventional.
- 20 The claims have not been formally examined for clarity. I believe several terms in the claims merit clarification, and there was discussion of some of these terms at the hearing.
- 21 The term “energy profiles” used throughout the claims may be equivalent to a tariff as stated in paragraph [15] of the description. Mr Bishop explained that an energy profile may be considered similar to a tariff, but it does not necessarily contain a monetary component as a tariff would. He explained the term as being energy usage in kWh versus time. There is no explicit confirmation of this interpretation in the description, but when reading the claim as a whole Mr Bishop’s definition appears to be sensible, and so I will interpret the term in this way.
- 22 The terms “equivalent” or “usage equivalent” may refer to a respective cost associated with energy usage as explained in paragraph [15] of the description. Paragraphs [20], [45] and [46] refer to the equivalent as having a value in US\$; paragraph [20] in particular refers to a “monetary equivalent”. I have therefore construed all references to an “equivalent” as a reference to a monetary cost. It is noted however that although equivalent/cost values are used in the claimed system/method, the end product of the method is an identification of the best fit energy profile for a user; this energy profile does not necessarily have an associated monetary component.
- 23 Claim 1 of the first auxiliary and main requests includes a measuring step using a metering device, along with a step of obtaining information *“including the total amount of consumed energy and a total equivalent for at least one previous period from at least one listing of the end user”*. Claim 17 of the main request (the broadest claim) excludes the measuring step, having only the obtaining step; the obtaining step having slightly different wording (difference underlined): *“including the total amount of consumed energy and a total equivalent for a previous period from at least one listing of the end user”*. Some discussion was had about the distinction between the “measuring” step and the “obtaining” step, and what difference is in the information gathered. Although the obtaining step refers to at least one “listing” of the

end user, this term is not defined in the specification. My best understanding when reading the application as a whole is that it is equivalent to a user's previous bill. Mr Bishop suggested that all the information in either step would have originated at a metering device at some point, but that the historical data obtained about a "previous period" would necessarily need to be stored somewhere. He pointed to Figure 1 (reproduced above) as explaining the sources of the information in both steps; the measuring step collecting information from the metering device 142/144, and the obtaining step collecting information on past energy usage from billing service 152/154. This is consistent with the explanation in paragraph [17] of the description and I am happy to construe the terms as such.

- 24 A "rate schedule" or "schedule" is defined in the claims as corresponding to an energy profile provided by a utility provider. Although no further definition of these terms are provided in the specification, it would seem reasonable to assume a schedule is effectively an energy profile with a cost structure associated with it. Claims 1 and 11 of the first auxiliary request, along with claim 1 of the main request also refer to a "demand fee schedule" and refer to "the rates comprised in the schedule" and we could not unambiguously satisfy ourselves at the hearing of the precise definition of these terms. Nevertheless, in construing the claims it appears sufficient to assume that a schedule defines a specific pricing structure. The distinction between a schedule and a tariff is not clear as a tariff can also be described as a pricing structure. This issue is not thought to affect the assessment of the contribution however, and so I am satisfied the precise definition of this term will not affect my decision.

Step (2): Identify the actual or alleged contribution

- 25 Guidance on how to identify the contribution is given in paragraph 43 of *Aerotel*, where the court accepted the proposition that identifying the contribution is:

"an exercise in judgment probably involving the problem said to be solved, how the invention works, what its advantages are. What has the inventor really added to human knowledge perhaps best sums up the exercise. The formulation involves looking at substance not form."

- 26 The examiner identifies the contribution for the first auxiliary request as:

"Providing a way to identify an energy profile of an end user and estimating energy consumption charges of an end user".

- 27 At the hearing Mr Bishop had a different view of the contribution. He identified it as a method of providing an estimate of a user's energy profile from a "sea of data" being collected by smart meters, by carrying out steps including calculations using a Gaussian distribution, filtering the most relevant results, specifically looking for peak load data, selecting this data and using it to include the impact of the peak load, and then calculating the errors in the estimations for each energy profile to identify the energy profile that most closely matches that of the user. He pointed out that he did not consider predicting the cost of future bills as part of the contribution; rather the contribution lies in an accurate determination of the energy profile of a user.

- 28 In considering these positions, I return to the quote from *Aerotel* above. What is the problem said to be solved? That is laid out in paragraphs [50] and [51] of the published application and I would summarise it as how to provide a method that enables a user to obtain a faster more accurate predicted bill based on previous energy consumption, using only limited openly available information.
- 29 The application has not been fully examined and as such I do not have the benefit of the examiner's assessment in light of the prior art to assist me. However, I am mindful of the emphasis the attorney has placed on the financial aspects of providing a prediction to a user as being non-essential, and the allegedly technical nature of the mathematical steps in the independent claims as being the crux of the invention. I agree with the examiner that the hardware per se as claimed in claim 11 is conventional and the attorney has not challenged this.
- 30 I therefore identify the contribution for the first auxiliary request as:

“A method and associated system for providing an accurate estimate of a user’s energy profile by obtaining energy usage information along with billing information from a previous billing period for that user; estimating a consumption profile for the user using a normal Gaussian distribution; estimating the impact of peak load usage data from the user; obtaining schedule information where each schedule corresponds to an energy profile from a utility provider; calculating an estimated equivalent (cost) for each energy profile/schedule and calculating an error between the actual equivalent and the estimated equivalent (cost) for each energy profile, then selecting the energy profile with the smallest error as the best fit energy profile of the user. The selected energy profile may be used to predict a future energy bill based on current usage in accordance with the estimated profile.”

- 31 The attorney has not specified what they consider the contribution is for the main request. Nor was this covered at the hearing. The examiner assessed the contribution to be:

“Processing data, received from a user, a utility provider and a third party, to identify an energy profile of an end user and estimating energy consumption charges of an end user”.

- 32 I consider the contribution for the main request to be largely the same as that for the first auxiliary request but without the details of how the consumption profile is calculated. The contribution is therefore assessed as:

“A method and associated system for providing an accurate estimate of a user’s energy profile by obtaining energy usage information along with billing information from a previous billing period for that user; estimating a consumption profile for the user; estimating the impact of peak load usage data from the user; obtaining schedule information where each schedule corresponds to an energy profile from a utility provider; calculating an estimated equivalent (cost) for each energy profile/schedule and calculating an error between the actual equivalent and the estimated equivalent (cost) for each energy profile, then selecting the energy profile with the smallest error as the best fit energy profile of the user. The selected energy profile may be used to

predict a future energy bill based on current usage in accordance with the estimated profile”

Steps (3) & (4): Does the contribution fall solely within excluded subject matter; check if the contribution is actually technical.

33 The argument put forward by Mr Bishop in his skeleton arguments in relation to the patentability of the application was essentially that the invention is not a method of doing business, or a program for a computer, overall. He claimed the steps of the method are technical in character to the extent that there is a technical contribution. In particular, he referred to the “layer-wise processing” of the “digital filter” (exemplified in Figure 3 of the specification) as providing technical steps to improve the accuracy of data outputs.

34 The skeleton arguments helpfully addressed each integer of claim 1 of the first auxiliary request separately. I have summarised the points made in the skeleton arguments and at the hearing by Mr Bishop following this format:

A cloud based method for identifying an energy profile of an end user, the method comprising:

measuring a total amount of energy consumed using a metering device at a location of the end user, connected with a web service interface;

35 Mr Bishop noted the examiner had superficially indicated these were administrative steps without providing any reasoning and disagreed with this assessment, as in his view “*An administrator is incapable of being at the location of an end user whilst being connected with a web service interface*”. At the hearing, Mr Bishop emphasised this point by asserting that the technical steps defined in the claims are beyond the ability of a human administrator due to their complexity and the amount of data processing required. He saw the claims as being beyond even a team of administrators due to their complexity, so, he argued, the invention lay beyond a method of doing business; although there is a business benefit to the invention, that is true of any invention relating to smart metering. Furthermore, he did not see the claims as merely defining a program for a computer as such. The invention in the claims takes account of data from a range of sources and creates a result: a “best fit” energy profile.

obtaining, over a data network, via a consumption data module, information including the total amount of consumed energy and a total equivalent for at least one previous period from at least one listing of the end user; wherein in the step of obtaining information, a total amount of consumed energy and a total equivalent is obtained for a plurality of different billing periods;

estimating, at one or more processors, via a consumption profile estimation module, a consumption profile for a plurality of timeslots based on the total amount of consumed energy; wherein in the step of estimation the consumption profile, the obtained total amount of consumed energy is divided by the number of calendar days of the period to obtain an average daily energy consumption, and an energy consumption for each time slot of the

consumption profile is based on a normal Gaussian distribution of the average daily energy consumption over the plurality of timeslots;

- 36 The skeleton arguments highlighted here that the estimating step, at a processor remote from the end user, is again beyond the administrative capacity of an administrator and that calculation by processors is not an administrative step.

estimating, at one or more processors, via a peak load estimation module, a peak load for a given period based on the estimated consumption profile;

- 37 The skeleton arguments emphasised that the selection of which data to compute is the key technical element. Selecting the peak load for a period based on the consumption profile, out of all the data available, is allegedly a technical selection which enhances the speed of estimating a user's energy profile. It was also argued that estimation, by its very nature, is technical and not a business method; particularly in this case where information from web services is combined with information from an end user to provide a result. It was also argued that the claim does not merely provide computer-based contributions. The steps in the claim cannot be isolated from the practical application of the method. It was explained that user metering devices across a country can generate a very large volume of data – “literally billions of peaks of usage in a country” – and any efficiency gain in processing this is significant. *How* this data is filtered and processed to provide a meaningful output is the technical step. These points were elaborated at the hearing, where Mr Bishop outlined his experiences in a hearing before the EPO relating to an application in the field of smart metering. Producing useful reports to customers from a “sea of smart meter data” was found to have a technical effect. Mr Bishop argued that the present application is comparable to the EPO application. The Gaussian method steps along with the peak load estimation steps are applying digital filters to large amounts of data and compressing the results, to arrive at an accurate estimate of a user's energy profile.

obtaining via energy profile data module a plurality of schedules provided over a data network, each schedule corresponding to an energy profile provided by a utility provider;

calculating at the one or more processors, for each energy profile, via a usage equivalent calculation module, an estimated equivalent by calculating at least a first contribution based on the estimated consumption profile and the schedule corresponding to the respective energy profile and calculating a second contribution based on the estimated peak load and the demand fee schedule corresponding to the respective energy profile by calculating a peak demand fee for the peak demand based on the estimated peak load and the rates comprised in the schedule and by selecting a rate corresponding to a band in accordance with the estimated peak energy consumption based on the following formula:

$$f_{demand}(c, \rho, S) = h_1(\max_i(c_i) \times (1 + \rho))$$

wherein $h_1(x)$ corresponds to rates for a peak demand of a given schedule S , c_i is the predicted consumption for a timeslot i , and ρ corresponds to a peak demand modification parameter;

- 38 Mr Bishop in the skeleton arguments explained that the above mathematical formula is unique and when used in combination with the metering service and web services, provides an additional technical variable in the claim. He stressed that protection is not sought for the mathematical formula as such.

calculating at the one or more processors, for each energy profile, via error calculation module, an error between the obtained total equivalent for the period and each one of the respective calculated estimated equivalents comprising at least the first contribution and the second contribution; the steps of estimation a consumption profile and calculating the estimated equivalent and calculating an error are performed for each period; and

- 39 The skeleton arguments stressed that calculating an error is not an administrative step. It is a “technical setup to maximise performance”. The applicant is not aiming to protect the mathematical formula as such, rather the invention is using it to provide a more accurate process. Mr Bishop continued this argument at the hearing by explaining that the claims actually define iterations in computer software where highly technical steps are involved to generate accurate data. There is significant interest in obtaining useful forms of data from the large amounts smart meters generate, particularly in the current climate of high energy bills. The technical contribution lies in the selection of the iterations to arrive at this valuable accurate data, by virtue of the best fit having the least error.

selecting, at the one or more processors, via an energy profile output module an energy profile from the plurality of energy profiles corresponding to the smallest calculated error;

obtaining, at the one or more processors, via a current consumption data module, current energy consumption data for the end user; and

calculating, at the one or more processors, via a usage equivalent calculation module a current energy equivalent based on the schedule corresponding to the selected energy profile and obtained current energy consumption data of the end user;

wherein each of said modules is implemented in hardware or software or a combination thereof.

- 40 In his examination report of 17 October 2022, the examiner argued that the method/system is not outside the capacity of an administrator; it is merely quicker and more accurate. The examiner relied on *Halliburton*⁶ to point out that simply providing an improvement over previous methods, for example by being faster or more efficient as a result of being computerised, is immaterial to section 1(2)(c) considerations regarding a business method.

- 41 In his skeleton arguments and at the hearing Mr Bishop argued that he could not see that the invention of claim 1 could be carried out by an administrator or even a team of administrators, the implication being that as a result it could not be a business method. I think one point of difference between the examiner and the applicant was

⁶ *Halliburton Energy Services Inc's Applications [2012] RPC 129*

that the claimed invention is not merely automating something already known. It is allegedly novel and inventive in its own right. As novelty and inventive step have not been fully considered I will not comment in this regard. However, I will point out that it is the *actual or alleged contribution* which is assessed for technical effect, and in the absence of a technical effect, a method in the field of business (which includes administration) will be excluded irrespective of whether it is novel or not.

- 42 If the attorney's supposition were the test then I think most, if not all, computer implemented inventions would be patentable. The question is whether the steps and the outcome of the method fall solely within the field of business, not whether their manual administration is feasible. I therefore am not persuaded by the attorney's arguments in this regard.
- 43 In *Halliburton*, Birss J at paragraph 35 noted that the use of a computer to implement a better business method did not confer patentability:

"The business method cases can be tricky to analyse by just asking whether the invention has a technical effect or makes a technical contribution. The reason is that computers are self evidently technical in nature. Thus when a business method is implemented on a computer, the patentee has a rich vein of arguments to deploy in seeking to contend that his invention gives rise to a technical effect or makes a technical contribution. For example the computer is said to be a faster, more efficient computerized book keeper than before and surely, says the patentee, that is a technical effect or technical advance. And so it is, in a way, but the law has resolutely sought to hold the line at excluding such things from patents."

- 44 The steps of measuring energy usage and obtaining billing information from a previous period allows the method/system to generate an accurate and efficient determination of the likely energy profile of a user, which may then be used to predict current and/or future energy costs. I can appreciate that such predictions may be a difficult task for a user and the system/method of the claims provides a faster and more convenient way to achieve it. Nevertheless, it is still providing administrative information as the end result. As Fox LJ teaches in *Merrill Lynch*⁷:

"The section draws no distinction between the method by which the mode of doing business is achieved. If what is produced in the end is itself an item excluded from patentability by section 1(2), the matter can go no further."

- 45 Mr Bishop also argued that the selection of the specific steps in the claimed method has a technical character; starting with a "sea of data" and processing this to give a useful and valuable end result is technical. I do not agree. Computers by their very nature enable large amounts of administrative data to be aggregated and analysed. The fact that the computer in this case is analysing the data in an allegedly new way is still not enough to necessarily provide any technical effect that would save the invention from the exclusions. The computer is doing what computers do, under the

⁷ *Merrill Lynch's Application [1089] RPC 561*

instruction of a specific program. The result is an administrative estimation/prediction.

- 46 Mr Bishop has submitted that the invention is a much improved method of providing an estimation of a user's energy profile, and I can accept that this may be correct. Despite this, for the reasons outlined above, it is clear to me that the invention as described and claimed is a business method. As claimed, it uses technical means in the form of a suitably programmed computer carrying out a number of processing steps on data obtained from at least two sources. In view of the teaching in *Merrill Lynch and Halliburton*, this makes no difference if the end result is a method for doing business.
- 47 I note that the contribution includes several calculation steps. Mr Bishop pointed out at the hearing that the mathematical steps that form part of the contribution are not claimed *per se*; rather it is their use in the method of providing a more accurate prediction which is claimed. As the method overall has been deemed to be a method for doing business, the mathematical steps do not save the contribution from that exclusion as mathematical methods are also excluded. The contribution appears to me to provide a method for doing business comprising computer-implemented steps to obtain, process and select data, including mathematical processing.
- 48 The examiner considered the *AT&T* signposts in their examination report of 16 July 2021 in considering whether the contribution provided a technical effect beyond a program for a computer as such. I shall do the same now (in relation to the claims of the first auxiliary request).

(i) Is there a technical effect on a process carried on outside the computer?

- 49 The method/system provides an accurate estimate of a user's energy profile, to allow faster and more accurate prediction of a future energy bill, from a large amount of limited data. Publicly available information on tariffs and pricing structures is vast in its quantity but limited in its usefulness. From all of this information, the system identifies the likely energy profile of a user through a best match process. This process is wholly carried on within a computer however and so I can see no effect on a process outside the computer beyond the provision of the selected energy profile and an associated predicted bill, which I have found above to fall within the field of business and not to provide a *technical* effect.

(ii-iv) Is there a better computer/computer system?

- 50 The method of claim 1 has no effect on how the computer works internally, and the system of claim 11 is formed of entirely conventional hardware. The computer (including a network) functions conventionally. The steps of obtaining data from web-based databases and smart meter devices, and processing that information, does not affect how the computer itself works. Even if the combination of steps in the method is new, this is not an improvement on the computer system itself.

(v) Is a technical problem solved or merely circumvented?

- 51 As discussed above, estimating the likely energy profile of a user is not a technical problem. It is an administrative issue. The challenge of being able to more accurately

reach such an estimation is therefore not technical either. There is not considered to be any technical problem which the invention overcomes and so this signpost does not point to a technical effect.

- 52 Since I can find no technical effect in the contribution of claims 1 or 11 of the first auxiliary request, the invention is considered to be nothing more than a program for a computer and a method for doing business as such. Accordingly, it falls within the categories defined in Section 1(2)(c) of the Act and is excluded from patentability.

Main request

- 53 So far I have fully considered only the contribution identified in the first auxiliary request. I will now go on to consider the contribution of the main requests.
- 54 The difference between the contribution of the first auxiliary request and that of the main request is that although the main request includes the step of estimating a consumption profile, it does not specify this is done based on a normal Gaussian distribution step. There is nothing to suggest that it is done using anything other than an alternative administrative or mathematical process.
- 55 I do not see that there is anything in this difference that points to a technical effect. The broadest claim of the main request is still defining a computer program. There are no different steps in the contribution that define anything other than this or administrative actions.
- 56 In relation to the signposts, the contribution of the main request does not involve any effect outside the computer. It does not provide a solution to a technical problem.
- 57 In summary, the contribution of the main request also lacks a technical effect. The inventions as claimed in the main request therefore also fall within the exclusions of section 1(2)(c) of the Act.

Conclusion

- 58 Since the invention fails to comply with Section 1(2)(c) of the Act because it is a method for doing business and a program for a computer as such, the application is refused under Section 18 of the Act.

Appeal

- 59 Any appeal must be lodged within 28 days after the date of this decision.

BEN BUCHANAN

Deputy Director, acting for the Comptroller