Title

Automatic quotes for solar power installations

Cross-Reference to Related Applications

The present application claims priority from Australian Patent Application No. 2011902711 entitled "Automatic quotes for solar power installations" filed 7 July 2011 the content of which is incorporated herein by reference.

Technical field

This invention concerns solar energy, in particular providing and receiving quote information for solar power installations. Aspects of the invention include computer-implemented methods, computer systems and software.

Background art

Solar energy is 100% carbon free, renewable, clean, silent and highly durable.

Solar energy is generated from photo-voltaic panels that are installed on vacant and sunny areas, typically on rooves of buildings.

Quotes for solar power installations often include costs for the supply of photo-voltaic panels and services for their installation.

Throughout this specification the word "comprise", or variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated element, integer or step, or group of elements, integers or steps, but not the exclusion of any other element, integer or step, or group of elements, integers or steps.

Any discussion of documents, acts, materials, devices, articles or the like which has been included in the present specification is not to be taken as an admission that any or all of these matters form part of the prior art base or were common general knowledge in the field relevant to the present invention as it existed before the priority date of each claim of this application.

Summary of the invention

In a first aspect of the invention there is provided a computer-implemented method for automatically providing quote information for solar power installations comprising:

storing for each of a plurality of suppliers:

quote information for solar power installations including information on a set of criteria, and

an indication of the geographic area the quote information for that supplier applies to;

receiving from a potential customer a request for quote information, the quote request including an indication of a geographical area that the quote request applies to;

automatically comparing geographic areas of the quote request and suppliers to identify candidate suppliers; and

automatically sending to the potential customer quote information of the identified

candidate suppliers for presentation to the potential customer.

It is an advantage of the invention that quote information is stored for a plurality of suppliers but only those suppliers who match the geographic area of the quote request are presented. This intelligent reduction in the number of quotes that are presented ensures that all the information presented is relevant, reduces the overall information presented to the potential client and in turn makes the information easier to understand.

It is also an advantage of the invention that quote information can be provided automatically. Existing methods simply operate as lead generation meaning that manual steps are required, such as a telephone call to the potential client, before even a single quote can be provided.

The method may further comprise:

receiving a selection of a candidate supplier; and

automatically providing to the potential customer a formal quote for the solar panels by the selected supplier, wherein the formal quote includes a selectable option of accepting the formal quote.

The method may further comprise follow through capacity for receiving and delivering acceptance of the quote. It is an advantage of at least one embodiment of the invention that a legally binding contract between the potential client and supplier can be facilitated.

The geographical area that the quote request applies to may be received from the potential client as a postal or zip code, or a specific address.

Receiving a request for quote information comprises:

automatically identifying a satellite image that includes the geographical area that the quote request applies to; and

automatically providing to the potential customer the satellite image; and

receiving from the potential customer an indication of a roof of a building captured in the satellite image that the quote request relates to.

It is an advantage of at least one embodiment of the invention that satellite images, such as public-resource satellite images, can be automatically obtained and used to provide rich information in the quote request, since the roof of a building will dictate the type of panels that can be suitably supplied.

Presentation to the potential customers is such that the quote information of the same criteria of each candidate supplier may be provided for presentation substantially adjacent. It is also an advantage of at least one embodiment of the invention that quote information is stored according to a set of criteria enforcing a standard form on the quote information. The same criteria of each quote is to be presented substantially adjacent allowing the potential client to easily review and compare the quote information. In existing manual methods a potential client may separately seek and receive two or more quotes for solar panels, however the forms of these quotes are varied so that a direct comparison of the content, criteria by criteria, is not possible.

The request for quote information may be a request for a comparison of quote information from two or more suppliers.

Quote information may include terms and conditions of the supplier should a formal quote from that supplier be accepted using this method.

The computer-implemented method may be provided in the form of a website.

Information of the same criteria for each quote may be presented substantially adjacent, such as in a table of quote information when the rows are criteria and the columns candidate suppliers, or vice-versa.

A second aspect the invention provides software, being computer readable instructions stored on computer readable media, that when executed causes a computer to perform the method described above.

A third aspect the invention provides a computer to automatically provide quote information for solar power installations comprising:

computer storage that stores for each of a plurality of suppliers:

quote information for solar panels including information on a set of criteria, and

an indication of the geographic area the quote information for that supplier applies to;

an input port to receive a request for quote information from a potential customer, the quote request including an indication of a geographical area that the quote request applies to;

a processor to automatically compare geographic areas of the quote request and suppliers to identify candidate suppliers, and to automatically provide to the potential customer quote information of the identified candidate suppliers for presentation to the potential customer.

In a fourth aspect the invention provides a computer-implemented method for receiving quote information for solar power installations comprising:

sending a request for quote information, the quote request including an indication of a geographical area that the quote request applies to; and

receiving and presenting quote information of candidate suppliers of solar power installations, wherein the candidate suppliers are a sub-set of suppliers where the sub-set is selected based on suppliers providing installation in the geographical area, and the quote information of the same criteria of each candidate supplier is presented substantially adjacent.

In a fifth aspect the invention provides software, being computer readable instructions stored on computer readable media, that when executed causes a computer to perform the method of the fourth aspect.

In a sixth aspect the invention provides a computer to receive quote information for solar power installations comprising a processor, one or more communications ports and a presentation device, such that the processor controls the communication port to send a request for quote information, the quote request including an indication of a geographic area

that the quote request applies to, and to receive quote information of candidate suppliers of solar power installations, wherein the candidate suppliers are a sub-set of suppliers and the sub-set is selected based on suppliers providing installation in the geographical area, and the processor controls the presentation device to present the quote information of the same criteria of each candidate supplier substantially adjacent.

The presentation device will typically be a monitor, screen display or printer.

In a seventh aspect the invention provides a computer-implemented method for automatically receiving information on received quote information for solar power installations by potential customers comprising:

sending quote information for solar power installations including information on a set of criteria, and an indication of the geographic area the quote information applies to; and

receiving and presenting information on potential customers that received the quote information, wherein the potential customers are a sub-set of customers where the sub-set is selected based on customers having sent requests for quote information for solar power installations in the geographic area.

In an eighth aspect the invention provides software, being computer readable instructions stored on computer readable media, that when executed causes a computer to perform the method of the seventh aspect.

In a ninth aspect the invention provides a computer to receive information on received quote information for solar power installations by potential customers comprising a processor, one or more communications ports and a presentation device, such that the processor controls the communication port to send quote information for solar power installations including information on a set of criteria, and an indication of the geographic area the quote information applies to, and to receive information on potential customers that received the quote information, wherein the potential customers are a sub-set of customers where the sub-set is selected based on customers having sent requests for quote information for solar power installations in the geographic area, and the processor controls the presentation device to present the information on potential customers that received the quote information.

Optional features of a single aspect of the invention also equally apply to the other aspects of the invention.

Brief description of the drawings

An example of the invention will now be described with reference to the accompanying drawings, in which:

Fig. 1 is a schematic diagram of a computer network that can host and interact with the website of this example;

Fig. 2 is a simplified flow diagram of the method performed by the webserver of this example; and

Figs. 3 to 18 are sample webpages and emails generated by the webserver of this example.

Best Modes

A person skilled in the art would appreciate that there are many of variations of the hardware, software and communications systems that can provide the functionality of the invention. In this example a website provides the functionality. This example is simply one embodiment of the invention and is not limiting of the invention claimed. A person skilled in the art will also appreciate that many variations on the method described with this example.

The website hosted by a server 10 that is in local communication with a datastore 20, such as a database stored on permanent storage.

Users of the website include a plurality of suppliers 14, customers 16 (only one shown here for simplicity) and brokers 18 (only one shown here for simplicity).

All users of the website 14, 16 and 18 interact with the website by communicating with the server 10 over the internet 12.

The webserver 10 of this example is connected to the internet 12 using an I/O port through which requests and information are received from the users 14, 16 and 18 and information is provided to the users 14, 16 and 18 for presentation on their respective internet enabled devices.

The webserver 10 includes a processor and installed software that when executed, causes the processor to processes requests received and received information and in response provide information to the users 14, 16 and 18 from the I/O port. The processor operates to automatically provide the information in the form of webpages to the user, typically dynamically generating the content of the webpages based on information retrieved from the datastore 20 to form part of the provided webpage. The datastore 20 primarily stores the following:

static content of the webpages forming the website;

information relating to each supplier stored in a related fashion in a database, the information including information on a set of criteria to be used in quotes and the geographic area that the quote information of the supplier applies to; and

information relating to each request for quote information received including geographic area that the request applies to, information on quote information previously provided and the status of the quote request.

The use of the website will now be described from the various user perspectives and with reference to the flowchart of Fig. 2.

<u>Supplier's use of the website to provide quote information</u>

The use of the website from the supplier's 14 perspective will now be described with reference to Fig. 3, 4, 5, 17 and 18.

The supplier 16 accesses the website using a computer which is web enabled, such as a portable computer having an internet browser installed. The computer which is a portable computer includes a processor to control the computer and perform the method including

sending a request for quote information and receiving quote information for presentation on their computer, such as displayed on a screen of the computer or printed.

As part of the registration process (not shown) the supplier 16 provides their contact information and also an indication of the geographic area they operate in, that is the geographic area that the quote information they provide applies to. The indication may be by selecting regions of a map, for example one of 14 regions of a map of Australia. Alternatively, the indication may be by providing an area code, such as postal or zip codes that their business is based in. The processor then uses each of the provided codes as a look-up value in a table stored in the datastore 20 that associates each possible code to one of the 14 geographical regions. An indication of the geographic area of the supplier, in this example the geographic region, is stored 60 in the relational database 20.

Initially the supplier logs into the website user their username and password (80, Fig. 3).

Once logged in, the supplier 16 is able to navigate to the price summaries tab (Fig. 4). Using this page the supplier 16 is able to enter and provide to the webserver 10 information on quotes for solar power installations on a set of criteria. In this example, the supplier is providing information on two quotes for different solar panel systems of similar size, in this case a premium offering 84 and primary offering 86 for the 1.5kw 82 power measure. The quote information 84 and 86 includes information on a set of criteria as shown at 88. The criteria includes information on components included in the quote, the value of reimbursement from the sale of Renewable Energy Certificates, extra costs that may be involved, any system upgrades that may be available and pricing of the systems. Once the information is entered into the text boxes shown at 100 the installer clicks ‘save’ 103. This causes the entered information to be provided as input to the webserver 10 and stored 60 in the datastore 20.

This process is repeated by the supplier 16 for the different power ranges 102 that they wish to provide quote information for.

As many suppliers 16 repeat this process, the relational database 20 stores 60 quote information for many suppliers 16.

Using the website, suppliers 14 can access the webpage of Fig. 4 and update their quote information which is then also amended in real-time in the database 20.

The supplier 14 also provides their sales details (Fig. 5). This includes the details of a sales representative that potential customers should contact regarding received quote information 106, a logo to appear on any quote information provided to potential customers 108, payment details 110 and terms and conditions 112 to be agreed upon by a client when accepting a quote from this supplier. Again the supplier 14 clicks ‘save’ 114. This causes the information entered to be provided as input to the webserver 10 and stored in the datastore 20.

A supplier 14 is able to view a list of potential clients that have been provided with their quote information as shown in Fig. 13. This list represents a subset of all clients that requested

quotes since only those clients that requested a quote for a location in the suppliers geographic area would receive that suppliers quote information. Each row in this table represents a client request that the supplier 16 can click on to view more details of as shown in Fig. 14, which includes the client's details and the quote request (job) details. The supplier 14 can also provide through this webpage an upload of an initial formal quote 160 and a final customer invoice 162 that is then saved in the database 20.

Once a customer has accepted a formal quote (see Fig. 10 or Fig. 17) the supplier 14 receives confirmation. Once a customer pays a deposit to the supplier 14, the supplier updates this on the website so that a broker 18 responsible for this job can be notified.

Client's use of the website to receive quotes

The use of the website from the client's perspective will now be described with reference to Figs. 6 to 12.

The potential customer 16 accesses the website using a computer which is web enabled, such as a portable computer having an internet browser installed. The computer includes a processor to control the computer and perform the method, including sending and receiving data from an input output communications port.

The webpage shown in Fig. 6 is displayed to the potential client 16 using which the potential client 16 can request 62 a quote for a solar power installation. The request is made by providing at 120 their details, an indication of the geographic area that the solar panels will be installed, such as the physical address, and details of the solar panels that the potential client 16 anticipates they will need. The potential client 16 then clicks 'request quote comparison' 122 causing the request to be send and then received 62 by the server 10.

In this example, the processor of the server 10 operates to identify a satellite image of geographic area provided by the potential client 16 area provided at 120. For example, the datastore 20 may include geographically indexed satellite images of all the geographic areas of the suppliers. Alternatively, the server 10 may use the provided geographic area as a query to a remote datastore that stores these satellite images.

The user is presented with a webpage shown in Fig. 7 which includes the identified satellite image, where the specific location is identified by a marker 124. The user 16, by using a click-and-drag function can move the marker if it is not at the appropriate location. The user 16 then selects from three options being 'the marker is on my roof', 'the marker is on the approximate location of my roof', or 'I cannot identify my roof'. This information forms part of the request for quote and can be used by the brokers 18 or installers 14 to give a better understanding of the request, including approximate roof space for installation of the solar panels, potential access and shading issues.

The processor of the server 10 now operates to identify candidate suppliers for the quote request, that is which suppliers 14 operate in the geographic area of the quote request. In this way the candidate suppliers will represent a subset of all suppliers that have registered with the website. In this example, the postal code received from the potential customer is used a

look-up value in a table stored in the datastore 20 that associates each possible code to one of the 14 geographical regions. With the geographical region of the potential customer 16 known, the processor operates to compare 64 this geographical region with those suppliers 14. In this example, the processor cross matches the potential client's 16 geographical region with those stored for the suppliers to identify matches as candidate suppliers for this quote request.

Next, the processor of the server 10 operates to compile the quote information to be provided to the potential customer 16. That is the processor identifies the quote information of the candidate suppliers at the required power range. Typically, the number of candidate suppliers will be limited to a predetermined number, such as eight. In this example compiled quote information for this quote request, such as a PDF version of the information, is also stored in the datastore 20.

Next the user 16 is automatically provided 68 quote information for presentation on their device. In this example the user 16 is provided with a description of the quote information comparison 126 and a link to a PDF document 128 that contains the quote information. The PDF once downloaded can be displayed as shown in Fig. 9. Here quote information from six suppliers 130 are presented in a table form, where the criteria 88 form the rows of the table and the suppliers form the columns 130. In this way the information on each of the criteria from each suppler can be directly compared as it is presented in an adjacent manner, in this example directly side-by-side in a row of a table.

The potential client can now simply select one of the suppliers by clicking 'pay deposit' (one indicated at 132) directly underneath the quote information of the selected supplier.

The potential client is now presented with a formal quote as shown in Fig. 10 from the selected supplier. The potential client can make changes for additional costs 136, such as indicating whether a larger inverter is required, there is a tiled roof, tile frames are required and whether the building the solar panels will be installed on is two storeys or more. Also the user can accept the suppliers terms and conditions 138 which can be reviewed by following the provided link, and select the method of payment for the deposit 140. The customer can then accept this formal quote by clicking 'accept quote' 142.

In this example the description 126 and PDF document 128 are also provided to the potential customer as an email. The PDF includes the 'pay deposit' button that once selected by the potential customer, returns the customer to the website at Fig. 10.

Having accepted the quote the user is now presented with the webpage shown in Fig. 11. Or alternatively, the content of the webpage of Fig. 11 can be emailed to the client. The email includes information on how to pay the deposit 150 that is dependent on the deposit method previously selected 140. Attached to this email is a PDF version of the accepted quote. The email includes information on how to contact the supplier 14 and also how to advise that the deposit has been paid. The sample PDF accepted quote is shown in Fig. 12.

Broker's use of the website

Brokers 18 also interacts with the website in order to facilitate the accepting of quotes. The use of the website from the broker's 18 perspective will now be described with reference to Figs. 15 and 16.

Again a broker logs in (not shown) and is able to view all the customer 16 requests for a quote information as shown in Fig. 15. Each row represents a separate request and is assigned a unique job number 170. Duplicate requests by clients 16, detected based on an automatic comparison of the address provided by the client 16, is either removed or as shown in this example displayed in a different colour.

The broker 18 can select any row and be presented with a webpage shown in Fig. 16 that provides details of the job, including the information provided by the customer and the quote information that was provided to the customer.

The broker 18 will typically contact a customer, and based on new or different information updated quote comparisons 182 can be sent to the client that can take account any additional costs whether they be fixed prices for extras or miscellaneous extras that will attract extra costs. An example updated (formal) quote for a particular supplier is shown in Fig. 17.

The broker can also make a record of contact that is made with the customer 184.

Once a customer has accepted a quote (see Fig. 10 or Fig. 18) the broker 18 receives confirmation, in this example by email, as shown in Fig. 19.

It should be understood that the techniques described here might be implemented using a variety of technologies. For example, the methods described herein may be implemented by a series of computer executable instructions residing on a suitable computer readable medium. Suitable computer readable media may include volatile (e.g. RAM) and/or non-volatile (e.g. ROM, disk) memory, carrier waves and transmission media (e.g. copper wire, coaxial cable, fibre optic media). Exemplary carrier waves may take the form of electrical, electromagnetic or optical signals conveying digital data steams along a local network or a publically accessible network such as the internet.

While the service described here is offered as a website a person skilled in the art would appreciate that the same functionality could be delivered in an alternative form, such as an 'ap' on a smart phone. Accordingly, connection to the server 10 need not be through the web 12. Instead connection may be through telephony communications network or other wired or unwired networks, or combinations of any of these.

The devices of the user's here are described as portable computing devices. A person skilled in the art will appreciate that many devices can be used with this embodiment, including tablets, smart phones and personal computers.

The computer system of Fig. 1 is simply one example. Many alternative arrangements of the hardware shown can be configured while still achieving the same result. For example, the datastore 20 and server 10 may be distributed and may be remote from each other.

It should also be understood that, unless specifically stated otherwise as apparent from the following discussion, it is appreciated that throughout the description, discussions utilizing terms such as "processing" or "computing" or "calculating" or "determining" or "displaying" or the like, refer to the action and processes of a computer system, or similar electronic computing device, that processes and transforms data represented as physical (electronic) quantities within the computer system's registers and memories into other data similarly represented as physical quantities within the computer system memories or registers or other such information storage, transmission or display devices.

The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.

It will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the above-described embodiments, without departing from the broad general scope of the present disclosure. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.

CLAIMS:

1. A computer-implemented method for automatically providing quote information for solar power installations comprising:

storing for each of a plurality of suppliers:

quote information for solar power installations including information on a set of criteria, and

an indication of the geographic area the quote information for that supplier applies to;

receiving from a potential customer a request for quote information, the quote request including an indication of a geographical area that the quote request applies to;

automatically comparing geographic areas of the quote request and suppliers to identify candidate suppliers; and

automatically sending to the potential customer quote information of the identified candidate suppliers for presentation to the potential customer.

2. The computer-implemented method of claim 1, wherein the method further comprises:

receiving a selection of a candidate supplier; and

automatically providing to the potential customer a formal quote for the solar panels by the selected supplier, wherein the formal quote includes a selectable option of accepting the formal quote.

3. The computer-implemented method of claim 1 or 2, wherein the geographical area that the quote request applies to is received from the potential client as a postal or zip code.

4. The computer-implemented method of claim 1, 2 or 3, wherein receiving a request for quote information comprises:

automatically identifying a satellite image that includes the geographical area that the quote request applies to; and

automatically providing to the potential customer the satellite image; and

receiving from the potential customer an indication of a roof of a building captured in the satellite image that the quote request relates to.

5. The computer-implemented method according to any one of the preceding claims, wherein presentation to the potential customers is such that the quote information of the same criteria of each candidate supplier is provided for presentation substantially adjacent.

6. The computer-implemented method according to any one of the preceding claims wherein the request for quote information is a request for a comparison of quote information from two or more suppliers.

7. The computer-implemented method according to any one of the preceding claims, wherein quote information includes terms and conditions of the supplier should a quote from that supplier be accepted using this method.

8. Software, being computer readable instructions stored on computer readable media, that when executed causes a computer to perform the method of any one of the preceding

claims.

9. A computer to automatically provide quote information for solar power installations comprising:

computer storage that stores for each of a plurality of suppliers:

quote information for solar power installations including information on a set of criteria, and

an indication of the geographic area the quote information for that supplier applies to;

an input port to receive a request for quote information from a potential customer, the quote request including an indication of a geographical area that the quote request applies to;

a processor to automatically compare geographic areas of the quote request and suppliers to identify candidate suppliers, and to automatically provide to the potential customer quote information of the identified candidate suppliers for presentation to the potential customer.

10. A computer-implemented method for receiving quote information for solar power installations comprising:

sending a request for quote information, the quote request including an indication of a geographical area that the quote request applies to; and

receiving and presenting quote information of candidate suppliers of solar power installations, wherein the candidate suppliers are a sub-set of suppliers where the sub-set is selected based on suppliers providing installation in the geographical area, and the quote information of the same criteria of each candidate supplier is presented substantially adjacent.

11. Software, being computer readable instructions stored on computer readable media, that when executed causes a computer to perform the method of claim 10.

12. A computer to receive quote information for solar power installations comprising a processor, one or more communications ports and a presentation device, such that the processor controls the communication port to send a request for quote information, the quote request including an indication of a geographic area that the quote request applies to, and to receive quote information of candidate suppliers of solar power installations, wherein the candidate suppliers are a sub-set of suppliers and the sub-set is selected based on suppliers providing installation in the geographical area, and the processor controls the presentation device to present the quote information of the same criteria of each candidate supplier substantially adjacent.

13. A computer-implemented method for automatically receiving information on received quote information for solar power installations by potential customers comprising:

sending quote information for solar power installations including information on a set of criteria, and an indication of the geographic area the quote information applies to; and

receiving and presenting information on potential customers that received the quote information, wherein the potential customers are a sub-set of customers where the sub-set is selected based on customers having sent requests for quote information for solar power installations in the geographic area.

14. Software, being computer readable instructions stored on computer readable media, that when executed causes a computer to perform the method of claim 13.

15. A computer to receive information on received quote information for solar power installations by potential customers comprising a processor, one or more communications ports and a presentation device, such that the processor controls the communication port to send quote information for solar power installations including information on a set of criteria, and an indication of the geographic area the quote information applies to, and to receive information on potential customers that received the quote information, wherein the potential customers are a sub-set of customers where the sub-set is selected based on customers having sent requests for quote information for solar power installations in the geographic area, and the processor controls the presentation device to present the information on potential customers that received the quote information.

ABSTRACT

This invention concerns solar energy, in particular providing and receiving quote information for solar power installations. Aspects of the invention include computer-implemented methods, computer systems and software of the quote of broker 18, supplier 14 and customer 16. The invention provides automatically providing quote information for solar power installations including storing 60 for each of a plurality of suppliers, quote information for solar power installations including information on a set of criteria, and an indication of the geographic area the quote information for that supplier applies to, receiving 62 from a potential customer a request for quote information, the quote request including an indication of a geographical area that the quote request applies to, automatically comparing 64 geographic areas of the quote request and suppliers to identify candidate suppliers, and automatically sending 66 to the potential customer quote information of the identified candidate suppliers for presentation to the potential customer.