

Bellovin & Karnas, P.C.
Matthew David Karnas, Esq.
Arizona State Bar No. 013728
131 East Broadway Blvd.
Tucson, AZ 85701
(520) 571-9700
karnas@bellovinkarnas.com
Attorneys for Plaintiff

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ARIZONA**

<p>ENDEAVOR ENERGY, INC.,</p> <p>Plaintiff,</p> <p>v.</p> <p>TUCSON ELECTRIC POWER COMPANY, an Arizona corporation,</p> <p>Defendant.</p>	<p>Civil Action No. 4:13-CV-02396-RCC</p> <p>FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT</p>
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Plaintiff Endeavor Energy, Inc. (“Plaintiff” or “Endeavor Energy”), by and through its undersigned counsel, files this First Amended Complaint for Patent Infringement against Defendant Tucson Electric Power Company (“Defendant”; also referred to as “TEP”) as follows:

NATURE OF THE ACTION

1. This is a patent infringement action to stop Defendant’s infringement of Plaintiff’s United States Patent No. 7,336,201 entitled “*Remote Access Energy Meter System and Method*” (hereinafter, the “’201 Patent” or the “Patent-in-Suit”; a copy of which is attached hereto as Exhibit A).

PARTIES

2. Endeavor Energy is a corporation duly organized and existing under the laws of the State of Delaware with its principal place of business located at 36 Fairway Place, Half Moon Bay, CA 94019. Plaintiff is the owner of the Patent-in-Suit, and possesses all rights thereto, including the exclusive right to exclude the Defendant from making, using, selling, offering to sell or importing in this district and elsewhere into the United States the patented invention(s) of the Patent-in-Suit, the right to sublicense the Patent-in-Suit, and to sue the Defendant for infringement and recover past damages.

3. Upon information and belief, TEP is a corporation duly organized and existing under the laws of the State of Arizona, with its corporate headquarters and principal place of business located at 88 East Broadway Boulevard, Tucson, Arizona, 85701. TEP may be served through its registered agent, Diana K. Durako, 88 East Broadway Boulevard, Tucson, Arizona, 85701.

JURISDICTION AND VENUE

4. This action arises under the Patent Laws of the United States, 35 U.S.C. § 1 *et seq.*, including 35 U.S.C. §§ 271, 281, 283, 284, and 285. This Court has subject matter jurisdiction over this case for patent infringement under 28 U.S.C. §§ 1331 and 1338(a).

5. The Court has personal jurisdiction over Defendant because: Defendant is present within or has minimum contacts within the State of Arizona and the District of Arizona; Defendant has purposefully availed itself of the privileges of conducting business in the State of Arizona and in the District of Arizona; Defendant has sought protection and benefit from the laws of the State of Arizona; Defendant regularly conducts business within the State of Arizona and within the District of Arizona, and Plaintiff's causes of action arise directly from

Defendant's business contacts and other activities in the State of Arizona and in the District of Arizona.

6. More specifically, Defendant, directly and/or through its intermediaries, makes, ships, distributes, uses, offers for sale, sells, and/or advertises (including via the provision of an interactive web page) its products and services in the United States, the State of Arizona, and the District of Arizona, which products and services infringe the '201 Patent. Upon information and belief, Defendant has committed patent infringement in the State of Arizona and in the District of Arizona. Defendant solicits customers for its products and services in the State of Arizona and in the District of Arizona. Defendant has many paying customers who are residents of the State of Arizona and the District of Arizona and who use Defendant's products and services in the State of Arizona and in the District of Arizona.

7. Venue is proper in the District of Arizona pursuant to 28 U.S.C. §§ 1391 and 1400(b).

COUNT I:
INFRINGEMENT OF U.S. PATENT NO. 7,336,201

8. Plaintiff re-alleges and incorporates by reference each of Paragraph 1-7 above.

9. Endeavor Energy is the owner by assignment of the '201 Patent. Endeavor Energy owns all right, title and interest in and to the '201 Patent, including the right to exclude Defendant from making, using, selling, offering to sell or importing in this district and elsewhere in the United States the patented invention(s) of the '201 Patent, and the right to sublicense the '201 Patent, collect damages and initiate lawsuits against the Defendant. The '201 Patent issued on February 26, 2008 and is in full force and effect.

10. Upon information and belief, Defendant had actual knowledge of the specification and issued claims of the Patent-in-Suit, at least since the commencement of this lawsuit.

11. On information and belief, Defendant owns and operates at least certain solar energy generation facilities designated as Prairie Fire in Marana, Arizona, and Springerville Generating Station in Springerville, Arizona.

12. Plaintiff is informed and believes that Defendant infringes the '201 Patent either literally or under the doctrine of equivalents. Upon information and belief, Defendant has infringed and continues to infringe one or more claims of the '201 Patent by making, using, selling, offering for sale, advertising and/or providing (directly or through intermediaries) a remote energy meter system for monitoring an energy generation facility as claimed in the '201 Patent, including, but not limited to, solar and wind energy installations. Specifically, Defendant designs, builds, monitors, and maintains solar power energy generation facilities. These facilities consist of solar photovoltaic panels which produce electrical energy by turning photons of light into DC power. An inverter is then used to convert DC power into AC power. In addition to solar panels and inverters, the energy generation facility also contains meters which measure various parameters of energy output. These measurements are gathered, compiled, and processed by computers located at the facility. These facility computers are further connected to remote servers which can be accessed over a remote interface in order to monitor energy production at the facility and analyze the data gathered at the solar energy generation facility. These activities take place in this district and elsewhere in the United States.

13. Defendant's aforesaid activities have been without authority and/or license from Plaintiff.

14. Plaintiff is entitled to recover from Defendant the damages sustained by Plaintiff as a result of Defendant's wrongful acts in an amount subject to proof at trial, which, by law,

cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

15. Defendant's infringement of Plaintiff's rights under the '201 Patent will continue to damage Plaintiff, causing irreparable harm for which there is no adequate remedy at law, unless enjoined by this Court.

JURY DEMAND

16. Plaintiff demands a trial by jury on all issues.

PRAYER FOR RELIEF

Plaintiff respectfully requests the following relief:

- A. An adjudication that one or more claims of the Patent-in-Suit has been infringed, either literally and/or under the doctrine of equivalents, by the Defendant and that such infringement is willful;
- B. An award of damages to be paid by Defendant adequate to compensate Plaintiff for its past infringement and any continuing or future infringement up until the date such judgment is entered, including interest, costs, and disbursements as justified under 35 U.S.C. § 284 and, if necessary to adequately compensate Plaintiff for Defendant's infringement, an accounting of all infringing sales including, but not limited to, those sales not presented at trial;
- C. That, should Defendant's acts of infringement be found to be willful from the time that Defendant became aware of the infringing nature of its actions, the Court award treble damages for the period of such willful infringement pursuant to 35 U.S.C. § 284.

- D. A grant of permanent injunction pursuant to 35 U.S.C. § 283, enjoining the Defendant from further acts of infringement with respect to the claims of the Patent-in-Suit;
- E. That this Court declare this to be an exceptional case and award Plaintiff its reasonable attorneys' fees and costs in accordance with 35 U.S.C. § 285; and,
- F. Any further relief that this Court deems just and proper.

Respectfully submitted this 2nd day of January, 2013

***Attorneys for Plaintiff
Endeavor Energy, Inc.***

/s/ Matthew David Karnas, Esq.
Matthew David Karnas, Esq.
BELLOVIN & KARNAS, P.C.
131 East Broadway Blvd.
Tucson, AZ 85701
(520) 571-9700
karnas@bellovinkarnas.com

Jacqueline K. Burt, *Pro Hac Vice* Anticipated
James F. McDonough, III, *Pro Hac Vice* Anticipated
Dara T. Jeffries, *Pro Hac Vice* Anticipated
HENINGER GARRISON DAVIS, LLC
3621 Vinings Slope, Suite 4320
Atlanta, Georgia 30339
Telephone: (404) 996-0861
Facsimile: (205) 547-5502
Email: jburt@hgdllawfirm.com
Email: jmcDonough@hgdllawfirm.com
Email: djeffries@hgdllawfirm.com

M. Blair Clinton *Pro Hac Vice* Anticipated
HENINGER GARRISON DAVIS, LLC
2224 First Avenue North
Birmingham, AL 35203
Telephone: (205) 327-9116
Facsimile: (205) 326-3332
Email: bclinton@hgdllawfirm.com

EXHIBIT A

(12) **United States Patent**
Green et al.(10) **Patent No.:** **US 7,336,201 B2**
(45) **Date of Patent:** **Feb. 26, 2008**(54) **REMOTE ACCESS ENERGY METER
SYSTEM AND METHOD**(76) Inventors: **Ezra Green**, 757 Harrison St., West
Hempstead, NY (US) 11552; **Robert
Dockweiler**, 1186 Flower La., Wantagh,
NY (US) 11793-2717; **William
O'Connor**, 3656 Farm Ranch Rd. S.,
Bethpage, NY (US) 11714(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 179 days.(21) Appl. No.: **11/177,035**(22) Filed: **Jul. 8, 2005**(65) **Prior Publication Data**

US 2006/0028354 A1 Feb. 9, 2006

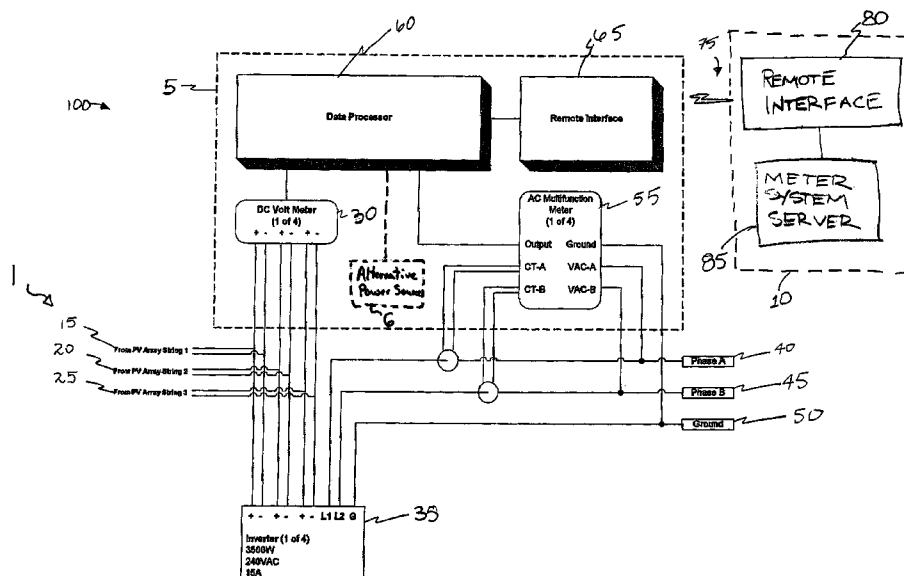
Related U.S. Application Data(60) Provisional application No. 60/586,993, filed on Jul.
9, 2004.(51) **Int. Cl.**
G08B 23/00 (2006.01)(52) **U.S. Cl.** **340/870.02**; 340/870.2;
340/870.28; 700/22; 700/286(58) **Field of Classification Search** 340/870.02,
340/870.28, 870.2; 375/222; 700/286
See application file for complete search history.(56) **References Cited****U.S. PATENT DOCUMENTS**

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2006 based on PCT application No. PCT/US05/24382.*Primary Examiner*—Jeffery Hofsass*Assistant Examiner*—Sisay Yacob(74) *Attorney, Agent, or Firm*—Ohlandt, Greeley, Ruggiero
& Perle, L.L.P.(57) **ABSTRACT**

A remote energy meter system and method is provided having a meter server and a client module located remotely from the meter server. The meter server communicates with the client via a wireless communications link to recover energy production parameter values. The remote energy meter system preferably provides real-time and automated monitoring of, at least, energy production and system failure parameters.

18 Claims, 1 Drawing Sheet

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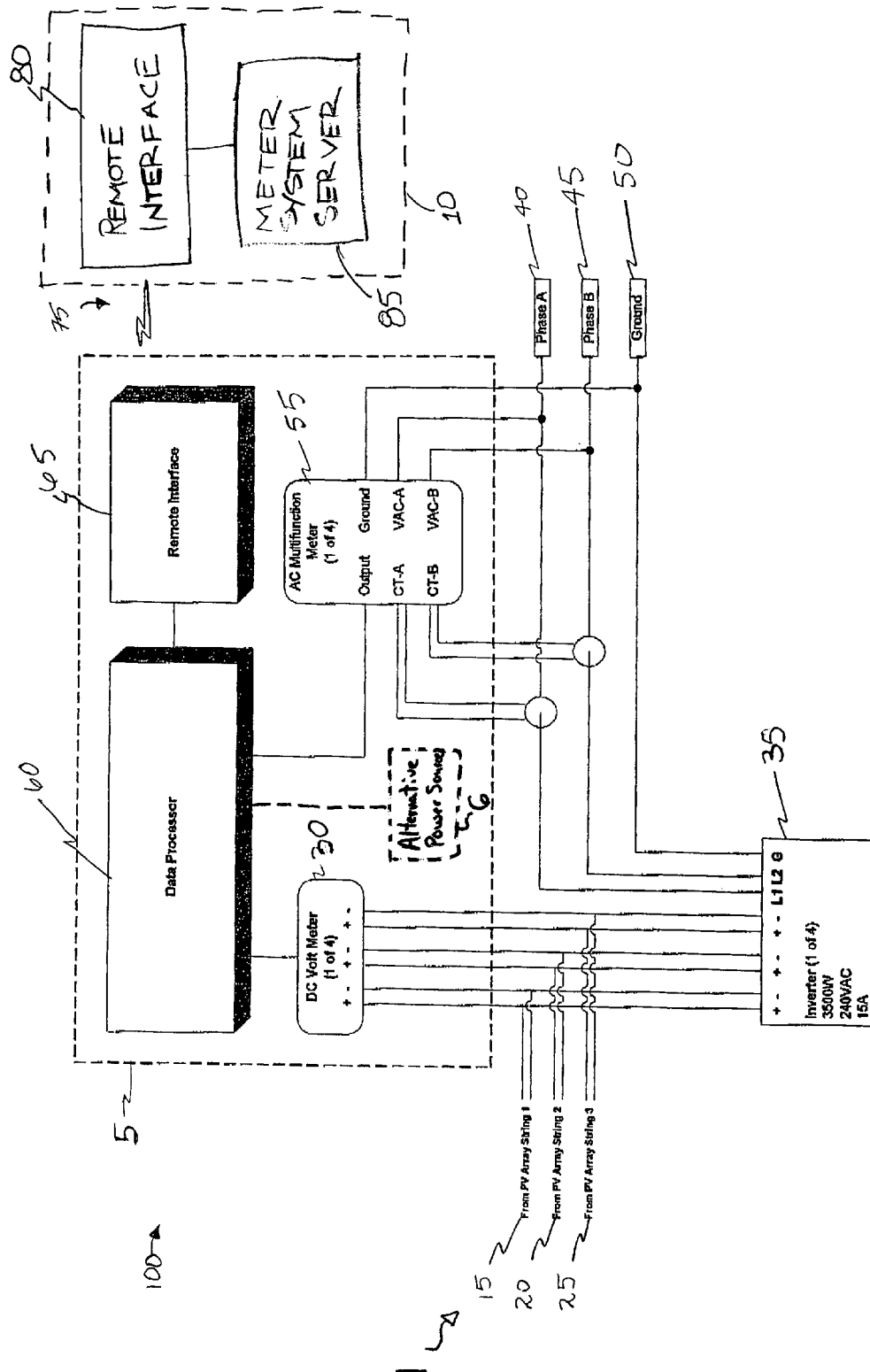


Fig. 1

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REMOTE ACCESS ENERGY METER SYSTEM AND METHOD

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is related to and claims priority in now abandoned U.S. patent application No. 60/586,993 filed on Jul. 9, 2004, the disclosure of which is incorporated by reference herein.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to an energy monitoring system. More particularly, the present invention relates to a remote access energy monitoring system that remotely monitors energy production of an energy generating source.

2. Description of the Related Art

Energy generation systems are complex and costly to establish, operate, and maintain. A key component in the maintenance and operation of energy generation facilities is the accurate monitoring of the system's performance and health status. Accordingly, it is important to accurately and timely monitor and analyze key parameters of the energy generation facility's operating parameters. Such monitoring becomes increasingly vital in remotely located energy generation facilities.

Thus, there exists a need to provide an efficient and reliable system and method of remotely accessing and monitoring energy generation installations.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a remote access energy meter system that provides remote monitoring of an energy generation facility.

It is another object of the present invention to provide such a remote access energy meter system that provides real-time monitoring of the energy generation facility.

It is still another object of the present invention to provide such a remote access energy meter system that can automatically monitor a number of energy production parameters of the energy generation facility.

It is yet another object of the present invention to provide such a remote access energy meter system that facilitates detection of energy production parameters indicative of system failure and/or system degradation.

These and other objects and advantages of the present invention are achieved by a remote energy meter system having a meter system server and a client module located remotely from the metering system server. The meter system server communicates with the client to recover energy production parameter values. The remote energy meter system preferably provides real-time and automated monitoring of, at least, energy production and system failure parameters.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exemplary schematic diagram of the remote access energy meter system of the present invention.

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DETAILED DESCRIPTION OF THE INVENTION

Referring to FIG. 1, there is shown a remote access energy meter system generally represented by reference numeral 100. Remote access energy meter system 100 is also referred to herein as meter system.

Meter system 100 includes, in general, a client module 5 and a meter server 10. Client module 5 interfaces with and monitors a source of energy, such as an energy generation or production facility or installation. Various parameters related to the production of energy by the energy generation facility can be monitored by client module 5.

The energy source may vary. In one aspect of the present invention, the energy source is an alternative energy source. The alternative energy sources can include solar, wind, geo-thermal, tidal, and other types of non-fossil fuel dependent energy generation facilities. It should be appreciated however that the particular type of energy source monitored by meter system 100 can vary. The energy source may be a conventional fossil fuel driven energy installation.

Notwithstanding the particular energy source being monitored by meter system 100, data received by client 5 can be communicated to meter server 10 that is located remotely, some distance apart from client module 5. While alternative energy facilities may be located in sparsely populated areas or even dispersed over geographically large areas, any energy source can be monitored by remote meter system 100.

Client module 5 is preferably powered from the energy generation facility's standard AC service. Client module 5 may be non-functional during blackout and severe brownout conditions. If a power failure exceeds a predetermined period of time, for example two hours, then meter system 100 preferably automatically reports the failure to meter sever 10 upon resumption of net power. In certain embodiments hereof, an uninterruptible power source or alternative power source 6, preferably including a backup power management system, can be used to provide an alternative or secondary power source for client module 5.

Client module 5 preferably provides real-time monitoring of operating parameters in order to detect, for example, system production, status, and failures. Referring to FIG. 1, client 5 is shown monitoring a solar energy facility 1. A number of photovoltaic (PV) arrays 15, 20, 25 are provided to directly convert solar energy (e.g., sunlight) into electricity. PV arrays 15, 20, and 25 generate DC electricity. AC current is monitored using, for example, external toroidal sensor coils (not shown). Energy totals are preferably registered and stored in a non-volatile memory in case of power failure. DC voltmeter 30 monitors the output voltage of the individual PV array strings 15, 20, 25. Data processor 60 monitors the AC and DC inputs to the client module 5 in order to detect system failure and status. Client module 5 preferably detects and reports, at least, PV array string failures and power inverter failures to sever 10.

The DC electricity is converted to AC electricity by one of a number of inverters 35. DC electricity is an input to inverter 35 and AC electricity is an output of inverter 35. AC meter 55 accepts current and voltage data from the AC output of each inverter 35.

The output of inverter 35 includes a phase A 40, phase B 45, and a ground potential 50. The output of the inverter is monitored by an AC meter 55. AC meter 55 accepts current and voltage data from the AC output of each inverter 35. AC meter 55 preferably measures various parameters of AC electricity output by inverter 35. For example, AC meter 55

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measures the currents and voltages of the AC electricity output by inverter **35**. It should be appreciated that additional characteristic parameters of the AC energy can be monitored and measured by AC meter **55**.

Client module **5** further includes a data processor **50** for processing the data measured by DC voltmeter **30** and AC multifunction meter **55**. The processes can include formatting, reading, storing, and determining various relationships between the measured parameters and/or relative to desired or preset values for the parameters.

Remote interface **65** provides access to client module **5** from the server for monitoring energy produced. Remote interface **65** can be used by client module **5** to report system failure to meter server **10**. Remote interface **65** provides a communication gateway for communicating data processed by data processor **60** to remotely located meter server **10**. Remote interface **65** may perform numerous functions, including converting data from data processor **60** into a format suitable for transmitting to server **10**. The output of remote interface **65** is preferably in a condition for transmission over communication link **75** without the need of further signal conditioning by communications link **75**.

In some embodiments hereof, communication link **75** is preferably a wireless communication system such as a cellular link, microwave link, a satellite communication link and any combinations including these and other wireless communication links. It should be appreciated that at least a portion of communication link **75** may not be wireless since, for example, cellular and satellite communication links may interface with terrestrial communication systems such as a PSTN that includes non-wireless communication links.

Meter server **10** is an automated data retrieval system. Meter server **10** includes, generally, a remote interface **80** that provides a communication gateway for communicating data received over communications link **75**. Remote interface **80** may perform numerous functions, including converting data from communications link **75** into a format suitable for being received and processed by meter system server **85**. Meter system server **85** preferably maintains a database of meter system **100** client data. The processing can be done via a microprocessor.

In an embodiment hereof, a primary client identification is the remote energy generation facility's access number. For an installation using a dedicated telephone line or cellular modem, the primary client identification can be the eleven digit phone number. For installations using LAN or WiFi, the primary client identification can be a twelve digit fixed system IP address. Meter server **10** can regularly and automatically access the remote client module(s) **5** to recover and record current energy totals. Current energy totals can be compared to previously retrieved data to calculate energy production.

Client access can be configured to occur daily, weekly, monthly or any other customized time period. Automated remote access can be scheduled to occur, for example, between 11:00 AM and 1:00 PM at the remote site. Remote client module(s) **5** can be non-functional during blackout and severe brownout conditions. In the instance meter server **10** fails to connect to a client module **5** then site access is rescheduled, as an example, for the following day. In the event a second no connect condition occurs then an error report is transmitted (e.g., by email) a system administrator of meter system **100**. In the instance subsequent contact is successful then meter system **100** assumes a utility power failure or brownout and logs the event.

Sites suspected or known to have frequent power failures can be flagged for more frequent contact. If the problem

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persists the site history logs can be used to document the utility failures to the power authority responsible for the client's site.

While the instant disclosure has been described with reference to one or more exemplary embodiments, it will be understood by those skilled in the art that various changes may be made and equivalents may be substituted for elements thereof without departing from the scope thereof. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the disclosure without departing from the scope thereof. Therefore, it is intended that the disclosure not be limited to the particular embodiment(s) disclosed as the best mode contemplated for carrying out this invention, but that the invention will include all embodiments falling within the scope of the appended claims.

What is claimed is:

1. A remote energy meter system for monitoring an energy generation facility comprising:

- a client module operably connected to the energy generation facility for collecting data representative of energy production parameters of the energy generation facility;
- an energy production source that generates an input;
- an inverter that converts the input generated by the energy production source into an output;
- a meter that measures data of the output converted by the inverter;
- a data processor that processes the data measured by the meter;
- a server located remotely from the client module, wherein the server communicates with the client module to recover the energy production parameters; and
- a remote interface that provides access to the client module from the server for monitoring the energy production parameters.

2. The remote energy meter system of claim 1, wherein the server receives real-time energy production parameters.

3. The remote energy meter system of claim 1, wherein the energy production parameters comprise system failure parameters.

4. The remote energy meter system of claim 1, wherein the server communicates with the client module via a wireless communications link.

5. The remote energy meter system of claim 1, wherein the server communicates with the client module via a communications link comprising a cellular link.

6. The remote energy meter system of claim 1, wherein the server communicates with the client module via a communications link comprising a microwave link.

7. The remote energy meter system of claim 1, wherein the server communicates with the client module via a communications link comprising a satellite link.

8. The remote energy meter system of claim 1, wherein the client module further comprises a secondary power source.

9. An energy generation facility comprising:

- a plurality of photovoltaic arrays that directly convert solar energy into DC electricity having a current and a voltage;
- a client module operably connected to the plurality of photovoltaic arrays for collecting data representative of energy production parameters of the plurality of photovoltaic arrays;
- an inverter that converts the DC electricity to AC electricity having a current and a voltage;
- a plurality of external toroidal sensor coils that monitor the current of the AC electricity;

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an AC meter that measures the current and the voltage of the AC electricity;
 a data processor that processes the current and the voltage measured by the AC meter; and
 a server located remotely from the plurality of photovoltaic arrays and client module, wherein the server communicates with the client module to recover the energy production parameters.

10. The energy generation facility of claim 9, wherein the server receives real-time energy production parameters.

11. The energy generation facility of claim 9, wherein the energy production parameters comprise system failure parameters.

12. The energy generation facility of claim 9, wherein the server communicates with the client module via a wireless communications link.

13. The energy generation facility of claim 9, wherein the server communicates with the client module via a communications link comprising a cellular link, a microwave link or a satellite link.

14. The energy generation facility of claim 9, wherein the client module further comprises a secondary power source.

15. A method of monitoring a solar energy facility comprising:

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converting solar energy into DC electricity by a plurality of photovoltaic arrays;

collecting data representative of energy production parameters of the solar energy facility;

converting the DC electricity into AC electricity with an inverter, wherein the AC electricity has a current and a voltage;

measuring the current and the voltage of the AC electricity with a meter;

generating signals representative of the data; and

communicating the signals to a server located remotely from the solar energy facility.

16. The method of claim 15, wherein the communication of the signals to the server is via a wireless communications link.

17. The method of claim 15, wherein the collection of the data is done periodically.

18. The method of claim 15, further comprising converting the signals into the data and processing the data via a microprocessor.

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