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- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM,

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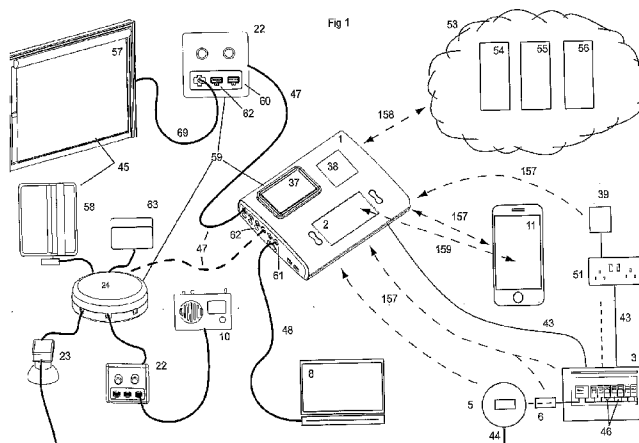
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- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

- (88) **Date of publication of the international search report:**
11 August 2011

(54) **Title:** SYSTEMS, DEVICES AND METHODS FOR ELECTRICITY PROVISION, USAGE MONITORING, ANALYSIS, AND ENABLING IMPROVEMENTS IN EFFICIENCY



(57) **Abstract:** The present invention relates generally to systems, devices and methods for the efficient use of utilities, more particularly to the distribution and provision of electricity supply at appropriate voltages, monitoring and usage by end devices, and to facilitating consumers in changing their energy usage behaviour, and to adopt and easily install appropriate sustainable, energy efficient or renewable technologies. Said end devices typically including traditional electric, electronic and lighting appliances requiring AC or DC power provision or low voltage DC power via AC/DC converters.

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2009/002193

A. CLASSIFICATION OF SUBJECT MATTER
INV. H02J1/14 H02J3/28
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H02J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2008/140565 A1 (DEBENEDETTI VITTORIO G [US] ET AL) 12 June 2008 (2008-06-12) the whole document	1-4,6,9, 12-22, 27,28
X	WO 01/06612 A1 (PEROT SYSTEMS CORP [US]; SMITH EDWARD M [US]; SEWELL DAVID R [GB]; GOL) 25 January 2001 (2001-01-25) the whole document	1,7,8
X	WO 2008/073453 A1 (V2GREEN INC [US]; KAPLAN DAVID L [US]; BRIDGES SETH W [US]; POLLACK SE) 19 June 2008 (2008-06-19) the whole document	1
X	US 2004/117330 A1 (EHLERS GREGORY A [US] ET AL) 17 June 2004 (2004-06-17)	1
A	the whole document	19
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Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

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17/06/2011

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2009/002193

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2007/248877 A1 (QAHOUG JABER A [US] ET AL) 25 October 2007 (2007-10-25)	1
A	the whole document	19
X	US 2008/185451 A1 (SIMON TIMOTHY M [US] ET AL) 7 August 2008 (2008-08-07)	1
A	the whole document	20
X	US 2003/126060 A1 (LOF PER-ANDERS KRISTIAN [SE] ET AL) 3 July 2003 (2003-07-03)	1
A	the whole document	20
X	EP 0 409 226 A2 (HITACHI LTD [JP]) 23 January 1991 (1991-01-23)	5,24,25
X	US 4 990 099 A (MARIN JORGE G [US] ET AL) 5 February 1991 (1991-02-05)	5,24,25
X	US 7 108 560 B1 (CHOU HORNG-YEE [US] ET AL) 19 September 2006 (2006-09-19)	5,24,25
X	abstract; figures 1,3-7	
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X	abstract; figures 3,4,5	
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	abstract; figures 1-16	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2009/002193

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
1-9, 12-22, 24, 25, 27, 28
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2009/002193

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2008140565	A1	12-06-2008	NONE
WO 0106612	A1	25-01-2001	AU 6213900 A 05-02-2001
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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4, 6-9, 12-22, 27, 28

Provision, distribution and control of electric energy

2. claims: 5, 24, 25

Coded connectors, plugs and sockets

3. claims: 10, 11, 26

Solar or wind powered renewable source

4. claim: 23

Portable battery charger
