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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ENERGY HISTORY BUFFER

Accumulator
(Total resource request = 1268) ~ 10

Temporary
(Previous total resource request = 1267) ~ 12

History Array Minute No. 6 (1234)	History Array Minute No. 7 (1256)	History Array Minute No. 8 (952)	History Array Minute No. 9 (967)	~ 14
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(57) Abstract: A method for time-synchronous data collection allowing for the performance of time-critical calculations. More specifically, successive measurements of the amount of a resource used per unit of time are taken and stored in a series of memories. The first memory (10) is a current value of the cumulative total use of the resource. The second memory (12) is the immediately preceding cumulative total usage of the resource. The third memory (14) is a ring buffer that holds measured totals of resource usage that are time-stamped to correspond to the unit of time during which they were measured. These values are then used to determine total resource usage, the time of use, the peak times of usage and demand/load profiles on the resource's delivery system over different time periods. Such periods, for example, may be as short as one minute or as long as one hour.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US01/11496

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(7) : Please See Extra Sheet.
 US CL : 340/870.02, 870.03; 702/178, 62; 324/142, 103
 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)
 U.S. : 340/870.02, 870.03; 702/178, 62; 324/142, 103

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 practicable, search terms used)
 EAST
 search terms: ring buffer, fifo, tou, time of use, time-of-use, buffer, energy, meter

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,473,322 A (CARNEY) 05 DECEMBER 1995, ALL	1-19
X	US 6,006,212 A (SCHLEICH et al) 21 DECEMBER 1999, all	1-19
A	US 4,792,677 A (EDWARDS et al) 20 DECEMBER 1988, ALL	1-19
A	US 4,783,623 A (EDWARDS et al) 08 NOVEMBER 1988, ALL	1-19
A	US 5,377,114 A (GROSS) 27 DECEMBER 1994, ALL	1-19
A	US 5,270,639 A (MOORE) 14 DECEMBER 1993, ALL	1-19
A	US 5,311,068 A (MILLER) 10 MAY 1994, ALL	1-19

Further documents are listed in the continuation of Box C. See patent family annex.

<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"Z" document member of the same patent family</p>
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Date of the actual completion of the international search 28 JULY 2001	Date of mailing of the international search report 15 AUG 2001
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,852,030 A (MUNDAY) 25 JULY 1989, ALL	1-19
X	US 5,918,380 A (SCHLEICH et al) 06 JULY 1999, ALL	1-19
A	US 5,994,892 A (TURINO et al) 30 NOVEMBER 1999, ALL	1-19

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IPC (7):

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