

Title: METHOD AND SYSTEM FOR ENERGY EFFICIENCY AND SUSTAINABILITY MANAGEMENT

Abstract: A system and method for sustainability management of energy consumption of a selected resource, including a memory and a processor to calculate a global sustainability quantification value. The global sustainability quantification value may be a resultant quantity of the selected resource which may be produced by exploitation of a predetermined quantity of a predetermined second resource.

Classifications:

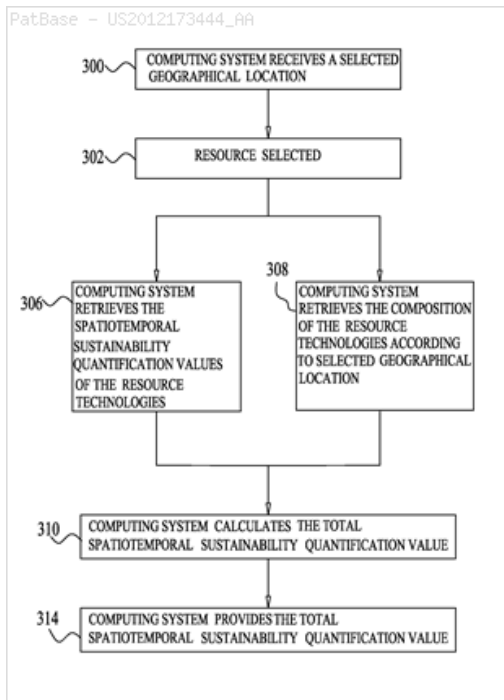
International (IPC 8-9): G01R G01R21/00 G01R22/00 G06F17/50 G06Q50/06 G06Q99/00 G1R21/00 (Advanced/Invention);

G01R (Subclass/Invention)

CPC: G06F17/5009 G06Q10/10 G06Q30/018 Y02P90/84 Y02P90/845

European: G06Q10/10 G06Q30/018

US: 703/2 705/317 705/317P



Family:

Publication number	Publication date	Application number	Application date
AU2012204454 AA	20120712	AU20120204454	20120104
CA2823554 AA	20130702	CA20122823554	20120104
IL227350 A0	20130930	IL20120227350	20120104
IN05512CN2013 A	20150213	IN2013CN05512	20130711
SG191407 A1	20130830	SG20130050281	20120104
US2012173444 AA	20120705	US20120343382	20120104
US2014012552 AA	20140109	US20130023053	20130910
WO12094373 A1	20120712	WO2012US20148	20120104

Priority:

US20110429572P 20110104 US20120343382 20120104 WO2012US20148 20120104
 US20130023053 20130910

Probable Assignee: LUX RESEARCH INC

Assignee(s): (std): ZIK ENERGY POINTS INC ; ZIK ORY

Assignee(s): LUX RESEARCH INC

Inventor(s): (std): ZIK ORY

Agent(s): DAVIES COLLISON CAVE; DAVIES COLLISON CAVE PTY LTD; SMART AND BIGGAR; POLLACK CALEB

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: METHOD TO IDENTIFY HEATING AND COOLING SYSTEM POWER-DEMAND

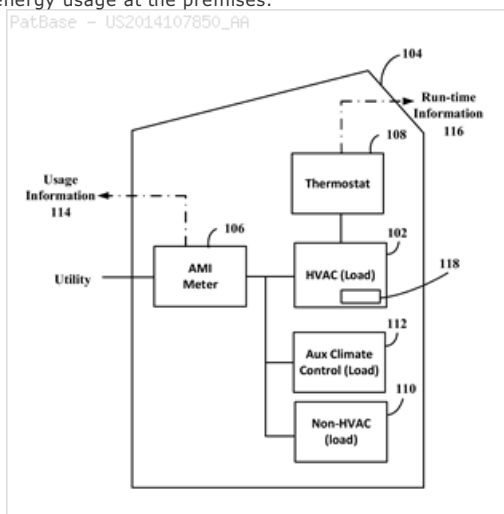
Abstract: Methods and computer systems are disclosed for identifying the power-demand of a climate-control system at a premises to reduce usage of energy at the premises. A computer system receives energy usage data and run-time data of the climate-control system. The operational data includes an on-time and/or off-time associated with the climate-control system. The computer system determines a power-draw of the climate-control system using the energy usage data and the run-time data and outputs the power-draw to be used to reduce the energy usage at the premises.

Classifications:

International (IPC 8-9): F24F11/00 G06Q10/06 G06Q50/06
H02J13/00 H02J3/00 (Advanced/Invention)

CPC: G06Q50/06 H02J3/00 H02J13/001 H02J2003/007 Y04S10/40
F24F11/30 F24F11/64 F24F2110/00 F24F2140/60

US: 700/291



Family:

Publication number	Publication date	Application number	Application date
US2014107850 AA	20140417	US20130839082	20130315
US9633401 BB	20170425	US20130839082	20130315
WO14062388 A1	20140424	WO2013US63210	20131003

Priority:

US20120713740P 20121015 US20120722445P 20121105 US20130839082 20130315

Probable Assignee: OPOWER INC

Assignee(s): (std): OPOWER INC

Inventor(s): (std): CURTIS RICHARD TYLER

Agent(s): SUNSTEIN BRUCE D ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: HYBRID TRIGENERATION SYSTEM BASED MICROGRID COMBINED COOLING, HEAT AND POWER PROVIDING HEATING, COOLING, ELECTRICAL GENERATION AND ENERGY STORAGE USING AN INTEGRATED AUTOMATION SYSTEM FOR MONITOR, ANALYSIS AND CONTROL

Abstract: Provided is a consumer to industrial scale energy trigeneration process based microgrid combined cooling, heat and power. The present invention includes conversion, processing, extraction and/or storage systems for electrical, chemical and thermal energy. The invention provides a quintessential renewable energy ecosystem incorporating vital energy generation, thermal heating and cooling processes with integrated components installed to encompass a distributed renewable energy generation, energy storage and integrated automation system. The automation system of the invention provides the ability to view, monitor, analyze, control and interact with system components.

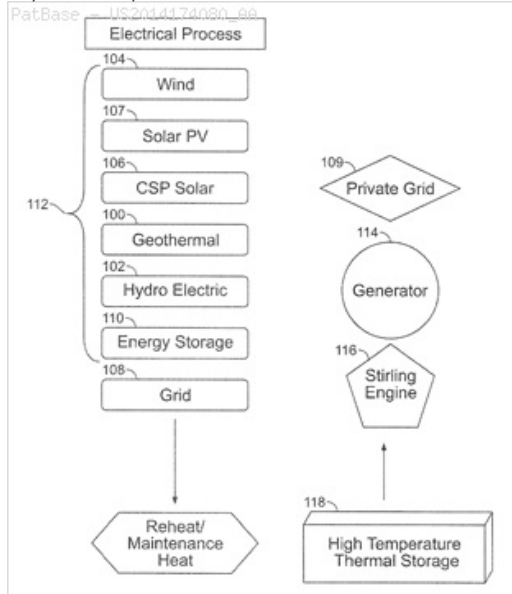
Classifications:

International (IPC 8-9): A01G31/02 A01G7/04 B29C45/17 C04B7/36 C10B53/00 C10B57/00 C10B57/10 C12M1/00 C12M1/34 C12M1/36 C12P7/06 C12P7/10 C21C5/52 C21D1/32 C22C33/08 C25C3/06 D01F9/12 D01F9/32 F01K13/00 F01K13/02 F01K23/10 F01K25/00 F01K25/10 F01K27/02 F01K3/00 F01K3/02 F01K3/12 F02C1/05 F02G1/043 F02G1/044 F02G1/053 F02G1/055 F02G1/057 F02G5/02 F03D7/04 F03D9/18 F03G4/00 F03G6/00 F03G6/06 F03G7/00 F03G7/04 F03G7/10 F22B1/00 F24J2/00 F24J2/12 F24J3/00 F25B15/00 F25B27/00 F25B27/02 F25B9/14 F28D20/00 H01M8/00 H01M8/04 H01M8/0662 H02J3/28 H02J3/38 H02K7/18 H02S10/10 H02S40/22 H05B37/02 (Advanced/Invention); F01K F02C F03G F22B F28D H02K (Subclass/Invention)

International (IPC 1-7): F01K13/00 F01K13/02 F01K25/00 F01K3/00 F02G1/043 F03G6/00 F03G7/04

CPC: A01G31/02 A01G7/045 H05B37/0245 C12M21/02 C12M21/04 C12M41/06 C12M41/12 C12M41/48 C12M43/00 Y02P20/59 Y02T10/166 A01G31/00 F03G6/064 F22B1/006 F28D20/003 F28D20/0082 F28D20/0086 Y02E10/52 Y02E50/16 Y02E50/17 Y02P10/138 Y02P60/216 F01K3/02 F01K3/12 F01K23/10 F03G6/00 Y02B10/20 Y02P80/15 Y02P10/32 Y02P80/25 A01K63/04 F02G2254/30 Y02A20/142 F28D20/00 A01G22/00 F01K3/00 F01K13/00 F01K13/02 F01K25/00 F02G1/043 F03G6/067 F03G6/068 F03G7/04 F28D20/0039 Y02E10/41 Y02E10/45 Y02E10/46 Y02E10/47 Y02E20/14 Y02E60/142 Y02E70/30 Y02P80/24 F24S20/20 F24S23/74 F24S23/79 F24S25/50 F24S30/425 F24S40/20 F24S2030/134

US: 126/694 220/592.2 315/297 47/58.1LS 47/62R 60/516 60/517 60/641.1 60/698 62/331



Family:

Publication number	Publication date	Application number	Application date
AU2015203118 AA	20150709	AU20150203118	20150611
AU2017204250 AA	20170713	AU20170204250	20170622
BR112015011248 A2	20171219	BR20151111248	20131115
CA2891435 AA	20151211	CA20152891435	20150514
CA2930794 AA	20160513	CA20132930794	20131115
CA2973565 AA	20170711	CA20142973565	20140501
CN104919144 A	20150916	CN201380070520	20131115
CN105257425 A	20160120	CN201510589238	20150611
EP2920432 A2	20150923	EP20130799442	20131115
EP2955372 A2	20151216	EP20150275151	20150610
EP2955372 A3	20160629	EP20150275151	20150610
HK1218148 A1	20170203	HK20160106103	20160530
JP2016000995 A2	20160107	JP20150116207	20150609
JP2016503477 A2	20160204	JP20150542822	20131115
JP2016503477 T2	20160204	JP20150542822T	20131115
US2014174080 AA	20140626	US20130081271	20131115
US2015143806 AA	20150528	US20150613994	20150204
US2015196002 AA	20150716	US20140267580	20140501
US2017204806 AA	20170720	US20170475995	20170331
US9624913 BB	20170418	US20130081271	20131115
WO14078659 A2	20140522	WO2013US70313	20131115
WO14078659 A3	20150702	WO2013US70313	20131115
WO15105523 A1	20150716	WO2014US36410	20140501

Priority:

US20120727108P 20121115	US20130859377P 20130729	US20130877467P 20130913
US20130886213P 20131003	US20130896039P 20131026	US20130081271 20131115
WO2013US70313 20131115	US20140926372P 20140112	US20140954178P 20140317
US20140972365P 20140330	US20140267580 20140501	WO2014US36410 20140501
US20140010784P 20140611	US20150613994 20150204	AU20150203118 20150611
US20170475995 20170331	AU20170204250 20170622	

Probable Assignee: FRIESTH KEVIN LEE

Assignee(s): (std): FRIESTH KEVIN ; FRIESTH KEVIN LEE ; KEVIN LEE FRIESTH

Inventor(s): (std): FRIESTH KEVIN ; FRIESTH KEVIN LEE ; KEVIN LEE FRIESTH

Agent(s): SPRUSON AND FERGUSON; BORDEN LADNER GERVAIS LLP; POTTER CLARKSON LLP; HIROE AND ASSOCIATES PATENT PROFESSIONAL CORP; BRIAN J; JESSICA L; BRICK GENTRY PC; LAURENZO BRIAN J

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: SYSTEM AND APPARATUS FOR INTEGRATED HVACR AND OTHER ENERGY EFFICIENCY AND DEMAND RESPONSE

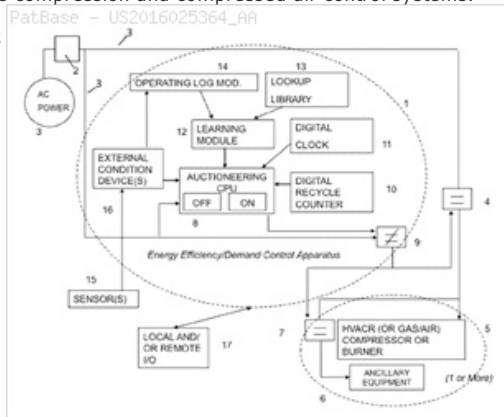
Abstract: Electronic controller apparatus for automatically controlling and managing load demand and operation of energy-consuming equipment powered by alternating electrical power current, whereby feedback signals from a vapor compression evaporator or other source, and possibly other physical signals, are used to supplement the pre-fixed, learned, or default settings to optimize compressor operation (run time) in cooling and refrigeration equipment, and thereby to improve heat transfer in the evaporator. The effect is to improve the Energy Efficiency Ratio (EER), Seasonal Energy Efficiency Ratio (SEER), and Coefficient of Performance (COP) for the unit, and provide other advantages and improvements. In gas-, oil-, and propane-fired HVAC and R heating systems, the apparatus can also optimize burner operation and thereby improve heat transfer across the burner heat exchanger. HVAC and R systems that incorporate the demand controller and methods of their operation also are provided. The apparatus can also be applied to gas compression and compressed air control systems.

Classifications:

International (IPC 8-9): F24D19/10 F24F11/00 F24F11/02 G05B13/02 H02J13/00 H02J3/00 H02J3/14 (Advanced/Invention)

CPC: H02J2003/007 Y02B70/3225 Y02E40/76 Y02E60/76 Y04S10/545 Y04S20/222 Y04S40/22 F24F11/006 G05B13/0265 H02J3/14 F24F11/30 F24F11/62

US: 700/278 700/295



Family:

Publication number	Publication date	Application number	Application date
AU2014227781 AA	20140918	AU20140227781	20140314
AU2014227781 BB	20180301	AU20140227781	20140314
BR112015023587 A2	20170718	BR20151123587	20140314
CA2910244 AA	20151029	CA20142910244	20140314
CN105247753 A	20160113	CN201480027531	20140314
EP2973926 A1	20160120	EP20140765699	20140314
EP2973926 A4	20161221	EP20140765699	20140314
IN09305DN2015 A	20160212	IN2015DN09305	20151008
JP2016519747 T2	20160707	JP20160502798T	20140314
KR20160042809 A	20160420	KR20157029720	20140314
MX2015012283 A1	20160616	MX20150012283	20140314
US2016025364 AA	20160128	US20140775747	20140314
WO14144175 A1	20140918	WO2014US28473	20140314

Priority:

US20130799501P 20130315 US20140775747 20140314 WO2014US28473 20140314

Probable Assignee: PACECONTROLS LLC

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Assignee(s): BUDNEY STANLEY ; MILLS THOMAS A JR

Inventor(s): (std): MILLS JR THOMAS A ; MILLS THOMAS A ; MILLS THOMAS A JR ; STANLEY BUDNEY ; THOMAS A MILLS JR ; BUDNEY STANLEY

Inventor(s): MILLS JR

Agent(s): WATERMARK PATENT AND TRADE MARKS ATTORNEYS; WATERMARK INTELLECTUAL PROPERTY PTY LTD; DIMOCK STRATTON LLP; WILSON LUE LLP; CRITTEN MATTHEW PETER; KILYK LUKE A

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: OPTIMIZING ENERGY EFFICIENCY RATIO FEEDBACK CONTROL FOR DIRECT EXPANSION AIR-CONDITIONERS AND HEAT PUMPS

Abstract: A system for maximizing the measured efficiency of an HVAC and R system including two pressure sensors, two temperature sensors, a flow sensor, a power voltage sensor, a power current sensor, and a controller. Each pressure sensor may be adapted to measure different refrigerant pressures and generate respective pressure signals. Each temperature sensor may be adapted to measure different refrigerant temperatures and generate respective temperature signals. The flow sensor may be adapted to measure a refrigerant flow rate and to generate a flow signal. The power voltage sensor may be configured to measure an electrical voltage input and generate a power voltage signal. The power current sensor configured to measure an electrical current input and to generate a power current signal. The controller may be adapted to receive the signals, calculate a measured efficiency, and output a first voltage output signal having a value dependent upon the measured efficiency.

Classifications:

International (IPC 8-9): F25B41/00 F25B49/00 F25B49/02

G01R19/25 (Advanced/Invention)

CPC: F25B2700/15 F25B2700/1931 F25B2700/195 F25B2700/21161

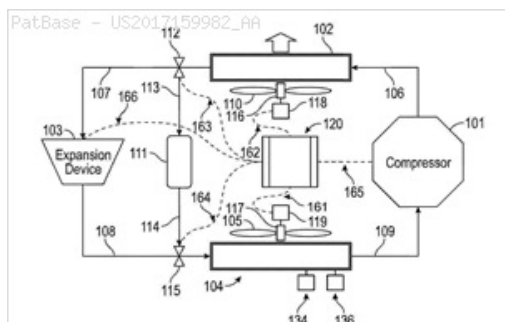
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F25B2400/0415 F25B2400/16 F25B2600/2501 F25B2600/2523

F25B2500/19 F25B2700/1332 F25B2700/1933 F25B2700/21151

F25B2700/21152 F25B49/00 F25B2500/18

US: 1/1



Family:

Publication number	Publication date	Application number	Application date
US2017159982 AA	20170608	US20170436942	20170220
US2018080695 AA	20180322	US20170824088	20171128
US9261542 BA	20160216	US20140162387	20140123
US9574810 BA	20170221	US20140162424	20140123
US9958190 BB	20180501	US20170436942	20170220

Priority:

US20130756017P 20130124 US20140162387 20140123 US20140162424 20140123
US20170436942 20170220 US20170824088 20171128

Probable Assignee: ADVANTEK CONSULTING ENGINEERING INC

Assignee(s): (std): ADVANTEK CONSULTING ENG INC ; ADVANTEK CONSULTING ENGINEERING INC ; WEST MICHAEL KENNETH ; ADVANTEK CONSULTNG ENGINEERING INC

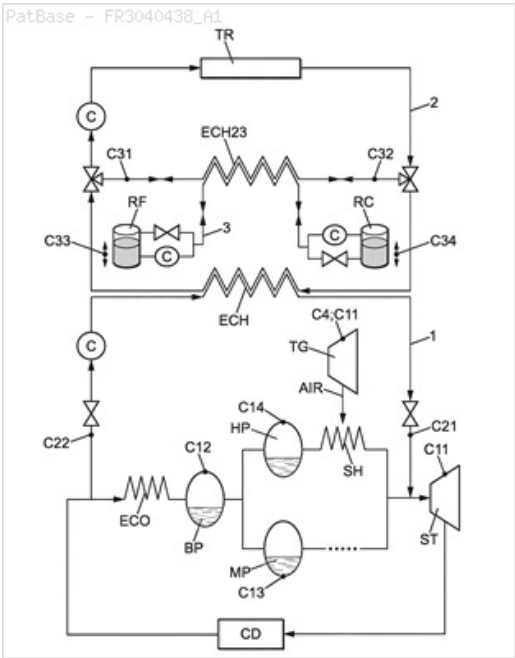
Inventor(s): (std): WEST MCHAEEL KENNETH ; WEST MICHAEL KENNETH

Agent(s): KELLY G; WIDERMAN MALEK PL

Title: INSTALLATION DE PRODUCTION D'ELECTRICITE A CYCLE COMBINE HYBRIDE, PERFECTIONNE INSTALLATION OF ELECTRICITY PRODUCTION HAS CYCLE COMBINED HYBRID, PERFECTED (Machine translation)

Abstract: Source: FR3040438A [FR] L'invention concerne une installation de production d'electricite a partir d'un cycle combine de turbine a combustion et de turbine a vapeur, l'installation comportant: Un premier circuit, d'eau, comprenant ladite turbine a vapeur et un generateur de vapeur recuperant de la chaleur d'un gaz issu de la turbine a combustion. Le cycle combine est en outre hybride et l'installation comporte a cet effet: Un deuxieme circuit d'un fluide caloporteur chauffe par transmission d'energie solaire. L'installation comporte en particulier un echangeur de chaleur (ECH) entre du fluide du deuxieme circuit et de l'eau du premier circuit, ainsi que: Un troisieme circuit de stockage thermique comprenant un echangeur de chaleur (ECH23) avec du fluide du deuxieme circuit. **Machine translation:** The invention for an installation of generating electricity from a cycle combines a combustion turbine and steam turbine, the installation with: A first circuit of water, comprising said turbine steam and a steam warm from the heat of a gas from the turbine generator combustion. The cycle handset is also hybrid and installation has this purpose: A second circuit of a fluid heated by solar energy transmission. Installation includes in particular a heat exchanger (ECH) between the flow of the second circuit and the water in the first circuit, as well as: A third thermal storage system including a heat exchanger (ECH23) with the second circuit fluid.

Classifications:
International (IPC 8-9): F01K23/10 F01K3/00 F01K7/24 F02C6/18 F03G6/00 F24J2/00 (Advanced/Invention)
CPC: F01K3/12 F01K3/02 F01K23/10 Y02E10/46 Y02E20/16



Family:

Publication number	Publication date	Application number	Application date
FR3040438 A1	20170303	FR20150058069	20150831

Priority:
FR20150058069 20150831

Probable Assignee: ELECTRICITE DE FRANCE
Assignee(s): (std): ELECTRICITE DE FRANCE
Inventor(s): (std): BESANCON GILDAS ; BITAM MELHA ; DAVELAAR FRANS ; LEO JESSICA ; VODA ALINA
Inventor(s): ALINA VODA ; MELHA BITAM ; FRANS DAVELAAR ; GILDAS BESANCON ; JESSICA LEO
Agent(s): CABINET PLASSERAUD

Title: METODO Y DISPOSITIVO PARA LA GESTION INTEGRAL DE ENERGIA Method and DEVICE FOR THE INTEGRAL MANAGEMENT OF ENERGY (Machine translation)

Abstract: Source: CO20160000051A [ES] Por lo general, esta invencion permite la optimizacion de la eficiencia estacional del sistema con la utilizacion del perfil de energia en tiempo real generado operacionalmente por el dispositivo de la presente invencion. Este perfil es comparado con el perfil base o de referencia. Las desviaciones estan asociadas a desviaciones de parametros termodinamicos operacionales y estos a su vez a desviaciones del estado tecnico o condiciones de funcionamiento de los componentes del equipo principal y los sistemas auxiliares, almacenados en el modelo. La deteccion de las causas de las desviaciones y sus posibles soluciones por el modelo son informadas al operador en tiempo real en idioma operacional, por lo que no se requiere de un alto grado de especializacion para su comprension y la ejecucion de la accion de optimizacion. Los resultados de la accion de optimizacion realizada por el operador son reflejados de nuevo por el perfil energetico y almacenado en la base de datos del equipo **Machine translation:** In general, this invention allows the optimization of the efficiency of the system with the use of the seasonal energy profile in real time operationally generated by the device of the present invention. This is compared with the base profile or reference profile. Deviations are associated to deviations of operational thermodynamic parameters and these in turn to deviations of the technical state or operating conditions of the components of the main and the auxiliary systems, equipment stored in the model. The detection of the causes and possible solutions of the deviations by the model are reported to the operator in real time operational language, so it does not require a high degree of specialization for their understanding and the implementation of the optimization action. The results of the optimization action performed by the operator are reflected back by the energetics and stored in the database of the computer

Classifications:

International (IPC 8-9): H03K5/13 (Advanced/Invention)

PatBase - CO20160000051_A1

refrigeración, debe ser realizado por especialistas y requiere de largas horas de análisis para dar alertas tempranas de posibles problemas o soluciones a los ya existentes. Es así que en la actualidad el incremento de la eficiencia estacional de estos sistemas esta fuera de las manos del operador.

El método de la presente invención permite por primera vez al operador ser parte activa del incremento del rendimiento operacional de los sistemas de acondicionamiento de aire y no requiere de un alto costo en la medición de los parámetros termodinámicos necesarios para identificar las causas operacionales de pérdida del rendimiento. Se basa en modelos físico-matemáticos generales que se autoajustan durante el funcionamiento del sistema en un periodo típico de trabajo del mismo y condiciones controladas de operación, para permitir identificar desviaciones en condiciones operacionales diversas, no controladas, mostrando al operador la indicación de las desviaciones cuando éstas se producen, su impacto en el consumo de energía y las posibles soluciones para su mitigación.

La invención está basada en los conceptos de control operacional del desempeño energético establecido en la Norma Internacional ISO 50001 Sistemas de Gestión Energética, por lo que su aplicación hace cumplir la instalación con este requisito de la Norma.

DESCRIPCIÓN DE FIGURAS

La Fig. 1. Es un diagrama de bloques que ilustra el método para el incremento de la eficiencia estacional mediante el control de operaciones de energía estacionaria

La Fig. 2. Es el dispositivo para el incremento de la eficiencia estacional mediante el control de operaciones de energía estacionaria

La Fig. 3. Es el ejemplo de la muestra del proceso de filtrado de datos

7

Family:

Publication number	Publication date	Application number	Application date
CO20160000051 A1	20180131	CO20160000051	20160719

Priority:

CO20160000051 20160719

Probable Assignee: E2 ENERGIA EFICIENTE S A E S P

Assignee(s): (std): E2 ENERGIA EFICIENTE S A E S P ; UNIV DEL ATLANTICO UNIATLANTICO

Assignee(s): E2 ENERGIA EFICIENTE ESP SA ; UNIVERSIDAD DEL ATLANTICO UNIATLANTICO

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Inventor(s): MARLEY CECILIA VANEGAS CHAMORRO ; GUILLERMO VALENCIA OCHOA ; JUAN CARLOS CAMPOS AVELLA ; EDGAR DANIEL LORA FIGUEROA ; FABIAN ALONSO GARCIA BARRIOS

Agent(s): HELENA CAMARGO WILLIAMSON