U.S. Department of Energy
Energy Efficiency and Renewable Energy

Building Technologies Program

Tax Deduction Qualified Software

EnergyGauge Summit version 3.20

On this page you'll find information about the EnergyGauge Summit version 3.20 (incorporating DOE-2.1E (v120)) qualified computer software (buildings.energy.gov/qualified_software.html), which calculates energy and power cost savings that meet federal tax incentive requirements for commercial buildings.

Date Documentation Received by DOE: 5 June 2009

Statements in quotes are from the software developer.

Internal Revenue Code §179D (c)(1) and (d) Regulations Notice 2006-52, Section 6 requirements as amplified by Notice 2008-40, Section 4 requirements.	
(1) The name, address, and (if applicable) web site of the software developer;	Florida Solar Energy Center 1679 Clearlake Road Cocoa, Florida 39922 http://www.energygauge.com
(2) The name, email address, and telephone number of the person to contact for further information regarding the software;	Dr. Muthusamy Swami swami@fsec.ucf.edu +1 (321) 638-1410
(3) The name, version, or other identifier of the software as it will appear on the list;	EnergyGauge Summit version 3.20
(4) All test results, input files, output files, weather data, modeler reports, and the executable version of the software with which the tests were conducted; and	Provided to DOE.
(5) A declaration by the developer of the software, made under penalties of perjury, that—	"On behalf of the EnergyGauge development team I certify the following:"
(a) The software has been tested according to ANSI/ASHRAE Standard 140-2007 Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs;	"The DOE-2.1E (v12) building simulation engine that is incorporated in EnergyGauge Summit 3.20 has been tested according to ANSI/ASHRAE Standard 140-2007 Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs."
(b) The software can model explicitly—	"The EnergyGauge software is fully compliant with ASHRAE 90.1-2001 and meets all of the below requirements."
(i) 8,760 hours per year;	"Yes."
(ii) Calculation methodologies for the building components being modeled;	"Yes."
(iii) Hourly variations in occupancy, lighting power, miscellaneous equipment power, thermostat setpoints, and HVAC system	"Yes."

operation, defined separately for each day of the week and holidays;	
(iv) Thermal mass effects;	"Yes."
(v) Ten or more thermal zones;	"Yes."
(vi) Part-load performance curves for mechanical equipment;	"Yes."
(vii) Capacity and efficiency correction curves for mechanical heating and cooling equipment; and	"Yes."
(viii) Air-side and water-side economizers with integrated control.	"Due to limitations of the DOE-2.1E (v120) simulation engine, only air side economizers can be modeled. **EnergyGauge Summit 3.20 cannot, therefore, fulfill the water-side economizer requirement, and may not be used in such cases."**
(c) The software can explicitly model each of the following HVAC systems listed in Appendix G of Standard 90.1-2004:	
(i) Packaged Terminal Air Conditioner (PTAC) (air source), single-zone package (through the wall), multi-zone hydronic loop, air-to-air DX coil cooling, central boiler, hot water coil.	“Yes, except multi-zone hydronic loop.”
(ii) Packaged Terminal Heat Pump (PTHP) (air source), single-zone package (through the wall), air-to-air DX coil heat/cool.	“Yes.”
(iii) Packaged Single Zone Air Conditioner (PSZ-AC), single-zone air, air-to-air DX coil cool, gas coil, constant-speed fan.	“Yes.”
(iv) Packaged Single Zone Heat Pump (PSZ-HP), single-zone air, air-to-air DX coil cool/heat, constant-speed fan.	“Yes.”
(v) Packaged Variable-Air-Volume (PVAV) with reheat, multi-zone hydronic loop, air-to-air DX coil, VAV fan, boiler, hot water VAV terminal boxes.	“Yes, except hot water sources for VAV terminal boxes and hydronic loop.”
(vi) Packaged Variable-Air-Volume with parallel fan powered boxes (PVAV with PFP boxes), multi-zone air, DX coil, VAV fan, fan-powered induction boxes, electric reheat.	“Yes, except parallel fan powered boxes.”
(vii) Variable-Air-Volume (VAV) with reheat, multi-zone air; multi-zone hydronic loop, air-handling unit, chilled water coil, hot water coil, VAV fan, chiller, boiler, hot water VAV boxes.	“Yes, except hot water source for VAV terminal boxes.”
(viii) Variable-Air-Volume with parallel fan powered boxes (VAV with PFP boxes), multi-zone air, air-handling unit, chilled water coil, hot water coil, VAV fan, chiller, fan-powered induction boxes, electric reheat.	“Yes, except parallel fan powered boxes.”
(d) The software can—	
(i) Either directly determine energy and power costs or produce hourly reports of energy use by energy source suitable for determining energy and power costs separately; and	“Yes.”
(ii) Design load calculations to determine required HVAC equipment capacities and air and water flow rates.	“Yes.”
(e) The software can explicitly model:	“None, some of the features listed

	under this section will be available in future versions.”
(i) Natural ventilation.	
(ii) Mixed mode (natural and mechanical) ventilation.	
(iii) Earth tempering of outdoor air.	
(iv) Displacement ventilation.	
(v) Evaporative cooling.	
(vi) Water use by occupants for cooking, cleaning or other domestic uses.	
(vii) Water use by heating, cooling, or other equipment, or for on-site landscaping.	
(viii) Automatic interior or exterior lighting controls (such as occupancy, photocells, or time-clocks).	
(ix) Daylighting (sidelighting, skylights, or tubular daylight devices).	
(x) Improved fan system efficiency through static pressure reset.	
(xi) Radiant heating or cooling (low or high temperature).	
(xii) Multiple or variable-speed control for fans, cooling equipment, or cooling towers.	
(xiii) On-site energy systems (such as combined heat and power systems, fuel cells, solar photovoltaic, solar thermal, or wind).	

Effective Date: 5 June 2009