

A brief recap of auditing.

Why the traditional audit is not longer good enough.

The critical elements of the Investment Grade Audit (IGA) that really make the difference.

Why the IGA is fundamental to risk management.

INVESTMENT GRADE AUDITS

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In the beginning ...

Started in France over 100 years ago

1962 The Survey [prices too low to make it viable]

1970's Convincing Congress that engineers could predict energy savings
Saving Schoolhouse Energy project

1977 Regulations – CPA

1978 Regulations for a traditional energy audit

1981 Revised regulations

1980-90 CGC expanded its work: 20 countries;
29,000 employees doing PC

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**Our surveys kept looking for
equipment/modifications that
would save energy. [period]**

**Gradually we began to recognize that
was not enough.**

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The Wake-Up Call

**Texas A&M University study: off
an AVERAGE of 25%**

**Achieved savings ranged from 5.5% to
414% of predicted savings!**

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SITE #	NAME	SOFT	1993 ANN. UTIL \$	EST \$ SAVE	MEAS \$ SAVE	MEAS/ EST \$	MEAS \$/SOFT	EST \$/SOFT	ANN UTL\$ /SOFT
1	ZEC	324,000	\$584,972	\$411,066	\$165,520	40.3%	\$0.51	\$1.27	\$1.81
100	EDU	251,161	\$261,276	\$161,956	\$249,209	153.9%	\$0.99	\$0.64	\$1.04
101	UTC	152,690	\$139,782	\$118,179	\$143,980	121.8%	\$0.94	\$0.77	\$0.92
102	PCL	483,895	\$649,474	\$373,621	\$709,271	189.8%	\$1.47	\$0.77	\$1.34
103	GAR	54,069	\$41,738	\$10,485	\$35,090	334.7%	\$0.65	\$0.19	\$0.77
104	GEA	61,000	\$57,784	\$26,367	\$46,476	176.3%	\$0.76	\$0.43	\$0.95
105	WAG	57,600	\$84,482	\$20,400	\$30,496	149.5%	\$0.53	\$0.35	\$1.47
106	WEL	439,540	\$1,111,240	\$303,435	\$95,522	31.5%	\$0.22	\$0.69	\$2.53
107	BUR	103,441	\$105,296	\$42,049	\$90,034	214.1%	\$0.87	\$0.41	\$1.02
108	NUR	94,815	\$114,741	\$41,235	\$59,573	144.5%	\$0.63	\$0.43	\$1.21
109	RAS	56,849	\$54,048	\$5,768	\$4,404	76.4%	\$0.08	\$0.10	\$0.95
109	WIN	109,000	\$188,269	\$44,881	\$177,447	395.4%	\$1.63	\$0.41	\$1.73
110	PAI	128,409	\$278,985	\$65,955	\$83,333	126.3%	\$0.65	\$0.51	\$2.17
110	WCH	48,905	\$64,197	\$15,682	\$69,189	441.2%	\$1.41	\$0.32	\$1.31
112	BUS	149,900	\$147,743	\$83,960	\$33,991	40.5%	\$0.23	\$0.56	\$0.99
113	FNA	223,000	\$239,569	\$109,334	\$48,903	44.7%	\$0.22	\$0.49	\$1.07
120	MES	887,187	\$3,677,292	\$664,589	\$82,416	12.4%	\$0.09	\$0.75	\$4.14
126	SHS(1)	210,500	\$52,342	\$33,094	\$43,339	131.0%	\$0.21	\$0.16	\$0.25
127	VHS(1)	257,000	\$76,440	\$12,754	\$38,281	300.1%	\$0.15	\$0.05	\$0.30
128	SIM	62,400	\$55,064	\$17,240	\$7,691	44.6%	\$0.12	\$0.28	\$0.88
149	MCC(2)	90,100	\$47,229	\$27,069	\$19,660	72.6%	\$0.22	\$0.30	\$0.52
151	NHS	202,615	\$171,504	\$83,416	\$31,649	37.9%	\$0.16	\$0.41	\$0.85
165	UNV	123,450	\$77,532	\$81,077	\$25,998	32.1%	\$0.21	\$0.66	\$0.63
300	SPH	233,738	\$473,094	\$330,984	\$18,263	5.5%	\$0.08	\$1.42	\$2.02
	AVG	200,219	\$364,754	\$128,525	\$96,239	74.9%	\$0.48	\$0.64	\$1.82

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**Facilities and process are part of your clients
investment portfolio**

**An energy audit should inform the client how to
enhance that portfolio through energy efficiency**

**Would you invest in an audit that may be off 94.5%?
Or 414%?**

That is not an “investment grade” energy audit!

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The traditional audit is
no longer good enough

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The Traditional Energy Audit

- ... is a snap shot**
- ... assumes all conditions will stay the same**
- ... pretends paybacks are the same in varying conditions**
- ... ignores the human element**
- ... is just not good enough anymore**

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**Is the payback for a given
measure always the same . . .
even in two similar facilities?**

How do we gauge the difference?

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The IGA goes beyond science and becomes an art.



**subjective judgment on the
people factors**



**assess the people impact on
paybacks**



how great is the uncertainty; risks



other mitigating strategies; cost

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Key factors to weigh...

- management's real commitment to energy efficiency
- occupant behavior
- operations and maintenance (O&M) manpower, skills, training needs
- equipment constraints due to O&M limitations
- conditions of energy-related mechanical equipment
- budget allocations for repairs and replacement
- attitude of O&M to energy program

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ADDING IN THE FINANCIAL COMPONENT

Convert issues and human factors to "price tags"

Add in actual cost of money and net present value

Adding financial aspects is what puts "investment" in the IGA

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Determining factor:

Predictive Consistency

**The savings from a quality IGA should fall
within \pm 10% of predictions.**

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Need more information?

**Fall of 2003, the Association of Energy
Engineers will publish**

***The Investment Grade Energy Audit:
Making Smart Energy Decisions***

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Any questions?

Comments?

Thoughts?

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