

Building Energy Analyzer (BEA)

- Developed by InterEnergy Software (Gas Technology Institute)
- Primary use: Screening of CHP applications in commercial buildings using DOE-2 simulation engine
- Provides grid-based baseline comparison
- Data libraries: 8 types of generation equipment, 17 types of HVAC equipment, utility rates, weather, 15 specific building types (e.g., hospital, office, hotel, school, retail)
- CHP applications: Hot water, space heating/cooling, thermal storage, dehumidification
- Analysis duration/time step: maximum of 35 years; monthly
- Economic analyses: cash flow, payback, IRR
- Cost: \$800 (<http://www.interenergysoftware.com/>)

Input to BEA Is Through On-Screen Windows

BEA - PG - Input Module File ;

File Edit Help

BUILDING ENERGY ANALYZER

Geographical Location		Application Size and Type		more
State	Illinois	Chicago; O'hare Airport IL - Lat./Long. 42N/88W Summer 1%	60030 sq. ft	Retail Store; 1-story slab on grade construction typical of a larger department store with
City	Chicago, IL	Design Dry Bulb/Mean-Coincident	Retail Store	

Baseline Configuration Alternative Configuration

Energy Rates				more
more	Electric: Chicago ComEd Schedule 6 - T	Electric	Electric: Chicago ComEd Standby Rate 18	
	Gas:Chicago: Nicor Gas: Schedule 4	Gas	Gas:Chicago: Nicor Gas: Schedule 4	

Equipment				more
more	Electric Screw	Cooling	Electric Screw	
	Gas	Heating	Gas	
	Reheat	HVAC Options	Desiccant Dehumidifier	
more	Ice on Coil	Cold Storage	None	
more	Microturbine	Power Generation	Internal Combustion Engine	

Project Description Calculate

BEA Output Is Through On-screen or Printed Tables



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75%

Total:1

100%

1 of 1

Print: 7/9/2002 1:12:37PM **Building Energy Analyzer - PG** Run: 7/9/2002 1:02:38 PM
 Input/Output Data Short Report
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BASELINE | **OUTPUT DATA** | **ALTERNATIVE**
 HVAC and POWER GENERATION EQUIPMENT DESIGN CAPACITY

Cooling Capacity:	203.17	RT	Cooling Capacity:	159.17	RT
Heating Capacity:	0	Btu/hr	Heating Capacity:	3,182,000	Btu/hr
Total Supply Air:	137,488	CFM	Total Supply Air:	137,488	CFM
Outside Air:	9,627	CFM	Outside Air:	9,627	CFM
Cool Storage:	0.00	MMBtu	Cool Storage:	0.00	MMBtu
Power Generation:	0	1W	Power Generation:	101	1W

QUALITY OF HUMIDITY CONTROL - TOTAL ANNUALLY DURING OCCUPIED HOURS

Hours @ RH > 80 %	101	Hours @ RH > 70 %	0
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ANNUAL ELECTRIC ENERGY CONSUMPTION/GENERATION and GRID SUPPLIED ELECTRIC UTILITY COST

Total Consumption:	2,413,875	kWh	Total Consumption:	630,910	kWh
Utility Supplied:	2,420,228	kWh	Utility Supplied:	349,303	kWh
Generated On-Site:	0	kWh	Generated On-Site:	288,024	kWh
Elect. Gen. Overproduction:	0	0h	Elect. Gen. Overproduction:	2	0h
Cooling:	\$ 122,743		Cooling:	\$ 4,343	
Desiccant Dehumidifier:	\$ 0		Desiccant Dehumidifier:	\$ 0	
Heating/Reheating:	\$ 0		Heating/Reheating:	\$ 277	
Fans:	\$ 5,944		Fans:	\$ 1,547	
Refrigeration:	\$ 0		Refrigeration:	\$ 0	
Other Electric:	\$ 32,083		Other Electric:	\$ 4,790	
Standby Charge:	\$ 0		Standby Charge:	\$ 3,407	
Grid Electric Energy Cost:	\$ 160,774		Grid Electric Energy Cost:	\$ 16,786	

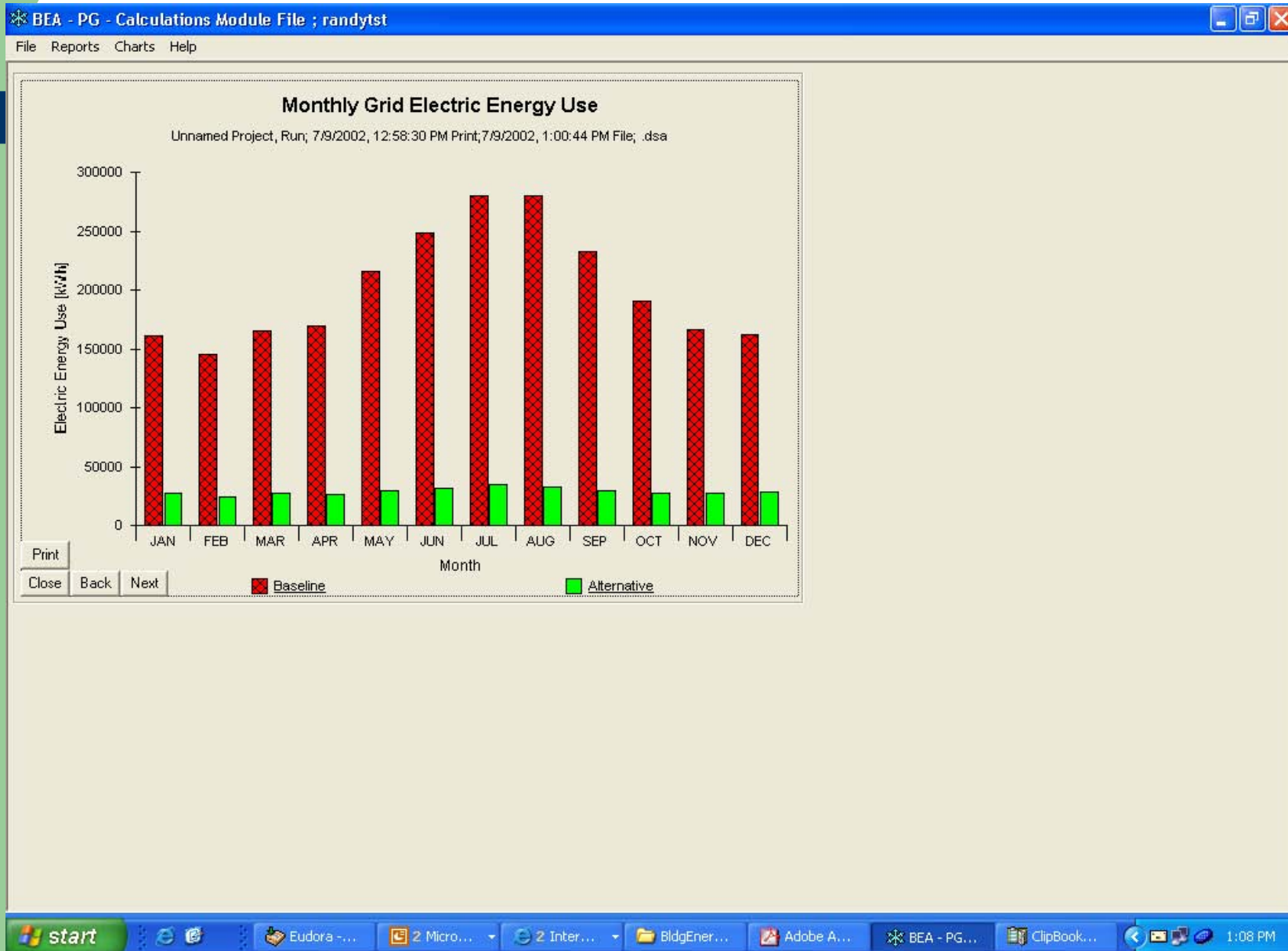
ANNUAL NATURAL GAS ENERGY CONSUMPTION and GAS UTILITY COST

Total Consumption:	129	MMBtu	Total Consumption:	22,808	MMBtu
Building Consumption:	129	MMBtu	Building Consumption:	19,005	MMBtu
Power Generation Consumption:	0	MMBtu	Power Generation Consumption:	3,803	MMBtu
Renewable Thermal Energy:	0	MMBtu	Renewable Thermal Energy:	1,563	MMBtu
Recovered Thermal Energy:	0	MMBtu	Recovered Thermal Energy:	28	MMBtu
Cooling:	\$ 0		Cooling:	\$ 0	
Desiccant Dehumidifier:	\$ 0		Desiccant Dehumidifier:	\$ 2,994	
Heating/Reheating:	\$ 304		Heating/Reheating:	\$ 53,872	
Power Generation:	\$ 0		Power Generation:	\$ 11,518	
Other Gas:	\$ 344		Other Gas:	\$ 215	
Gas Energy Cost:	\$ 652		Gas Energy Cost:	\$ 70,539	

TOTAL ELECTRIC and GAS UTILITY COSTS

Annual Energy Cost	\$ 161,426	Annual Energy Cost	\$ 88,765
		Note: Includes generator O&M cost of \$ 1,440	

... And A Selection of Graphs



Building Energy Analyzer Output

- Tabular reports
 - Two levels of detail
 - Baseline and alternative results on annual or monthly basis
- Nine charts
 - Monthly and annual energy use and cost of electricity and gas
 - Humidity levels
 - Power generation heat recovery utilization