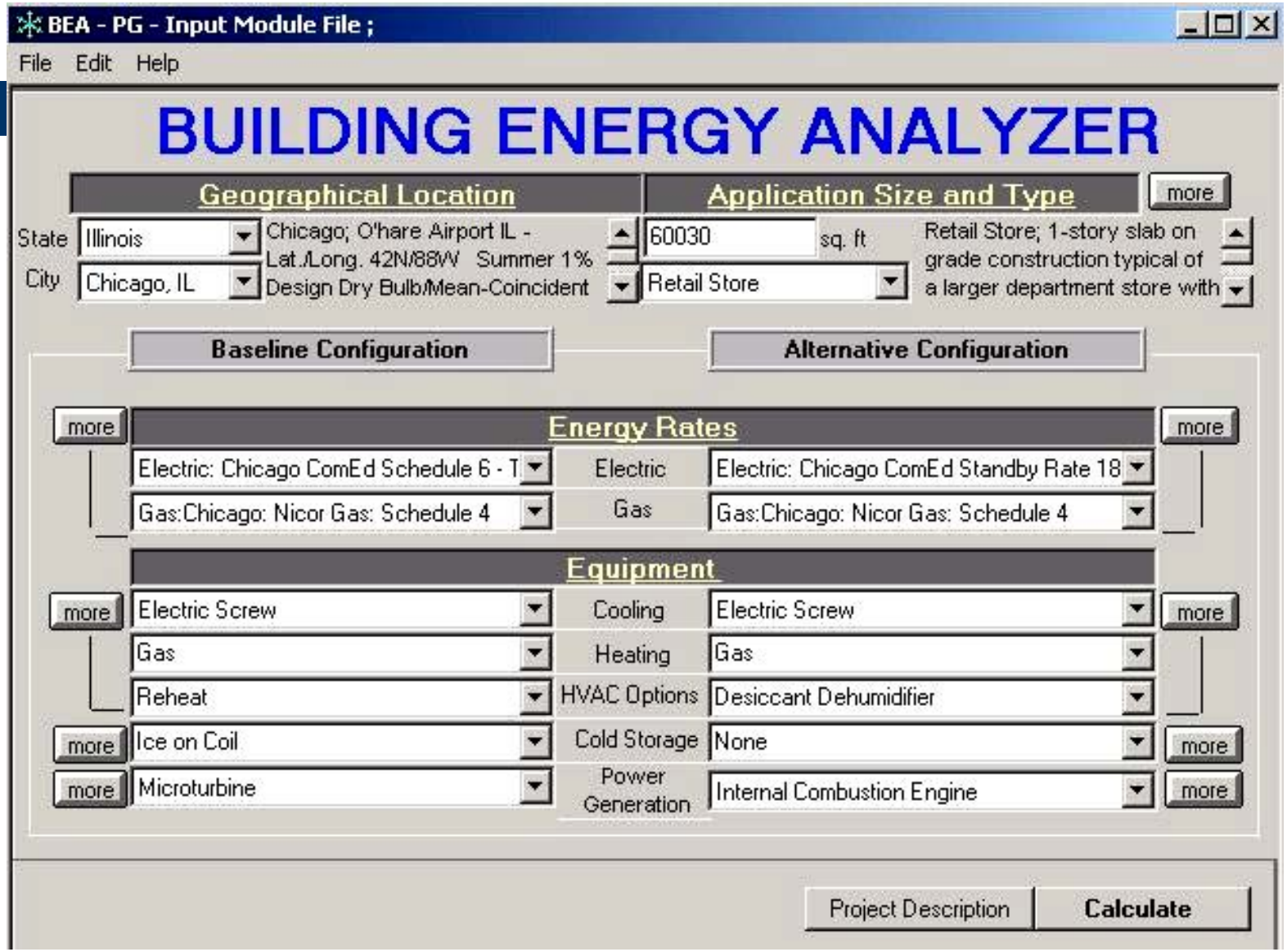
Building Energy Analyzer (BEA)

- 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 Output Is Through On-screen or Printed Tables

3 of 4 | 75% | Total:1 | 100% | 1 of 1

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Input/Output Data Short Report

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OUTPUT DATA

BASELINE			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
Cold Storage:	0.00	MMBtu	Cold Storage:	0.00	MMBtu
Power Generation:	0	kW	Power Generation:	101	kW
QUALITY OF HUMIDITY CONTROL - TOTAL ANNUALY DURING OCCUPIED HOURS					
Hours @ RH> 80 %	101		Hours @ RH> 70 %	0	
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
Elec. Gen. Overproduction:	0	%	Elec. Gen. Overproduction:	2	%
Cooling:	$ 122,745		Cooling:	$ 4,545	
Desiccant Dehumidifier:	$ 0		Desiccant Dehumidifier:	$ 0	
Heating/Reheating:	$ 0		Heating/Reheating:	$ 277	
Fans:	$ 5,946		Fans:	$ 1,567	
Refrigeration:	$ 0		Refrigeration:	$ 0	
Other Electric:	$ 32,083		Other Electric:	$ 6,790	
Stand by Charge:	$ 0		Stand by Charge:	$ 3,607	
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
Recoverable Thermal Energy:	0	MMBtu	Recoverable Thermal Energy:	1,563	MMBtu
Recovered Thermal Energy:	0	MMBtu	Recovered Thermal Energy:	28	MMBtu
Cooling:	$ 0		Cooling:	$ 0	
Desiccant Dehumidifier:	$ 0		Desiccant Dehumidifier:	$ 2,936	
Heating/Reheating:	$ 306		Heating/Reheating:	$ 55,872	
Power Generation:	$ 0		Power Generation:	$ 11,518	
Other Gas:	$ 346		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	

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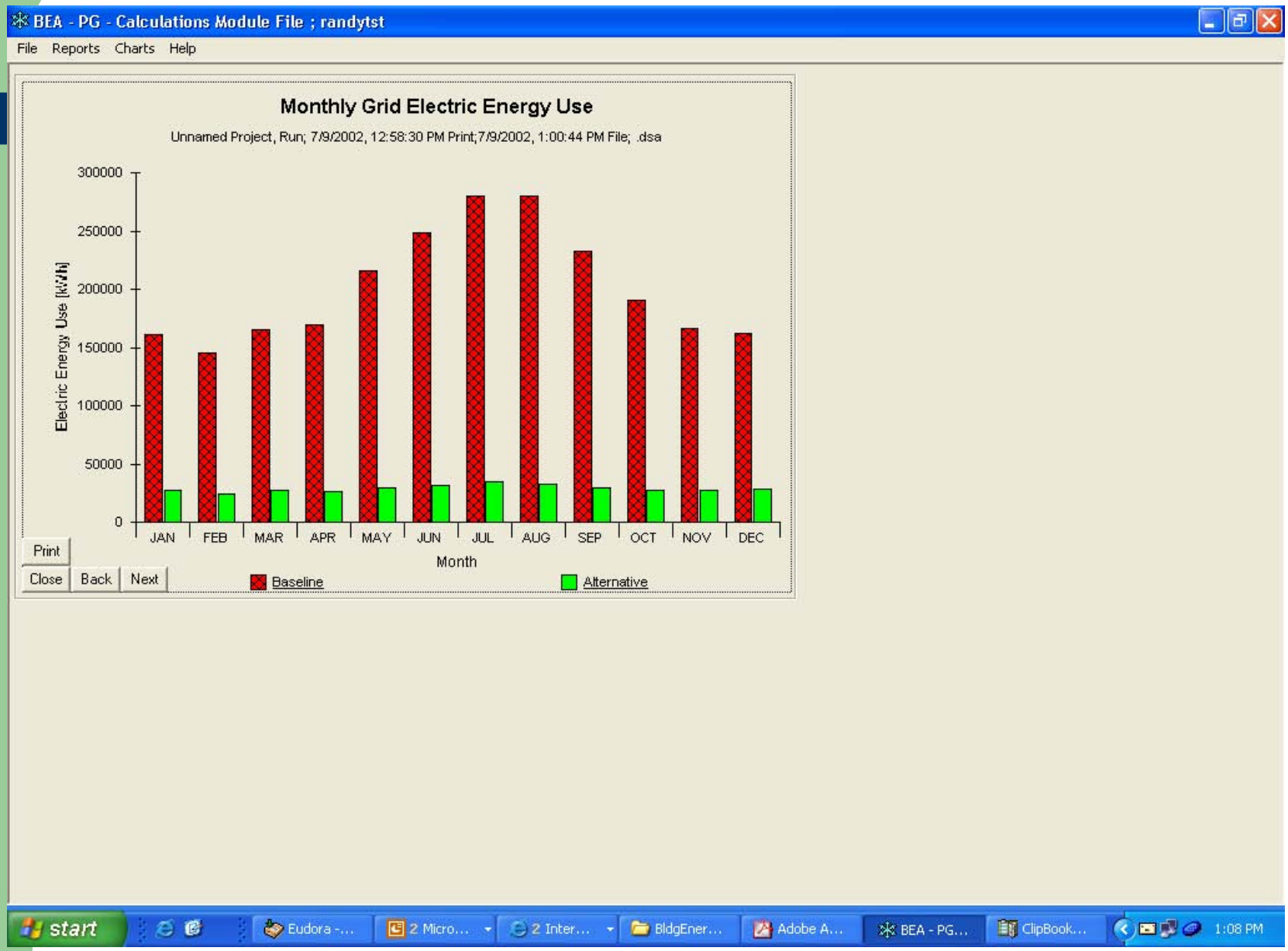
. . . And A Selection of Graphs



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