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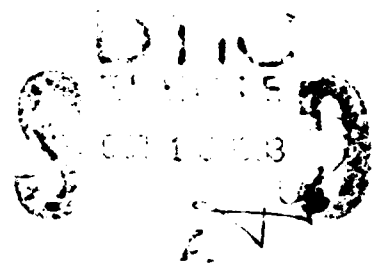
USAF ADVANCED TERRESTRIAL ENERGY STUDY

VOLUME III: PARAMETER SURVEY

Institute of Gas Technology
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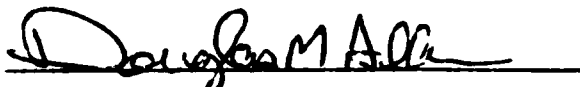
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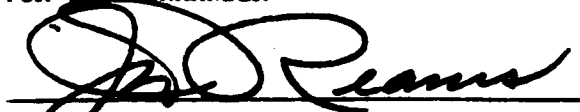


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| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report presents the results of the USAF Advanced Terrestrial Energy Study. The objective of that study was to develop a data base of key parameters of selected energy conversion and energy storage technologies. The data base includes present and expected (through 2000) performance goals of the systems. The data base was established through an extensive literature search, surveys of manufacturers and researchers, and statistical and qualitative analyses of the available input data. The results of the study are reported in four documents. | | |

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INTRODUCTION

This volume of the USAF Advanced Terrestrial Energy Study contains the estimates of specific parameter values for each technology for 1980, 1985, 1990, and 2000 at the following discrete power output levels: 1.5, 5.0, 20.0, 60.0, 100.0, 250.0, 500.0, 750.0, 1000.0, and 5000.0 kW. This parameter survey includes three major sections: one for the energy conversion technologies and two for the energy storage technologies. The output levels for the storage technologies are in terms of energy (kWh) rather than power.

The parameter values listed in this volume were derived from analyses of raw data and therefore represent the expected values of the parameters at those output levels and time periods. The actual value may vary (that is, the performance of a specific design for a specific application). Details on the assumptions made in determining these parameter values are reported in Volume I. The analyses leading to the values listed in this volume are presented in Volume IV along with the expected variance or ranges of parameter values.

The following energy conversion technologies were characterized in this data base:

- Gas Turbines
 - Open cycle, nonrecuperative (nonregenerative)
 - Closed cycle
 - Open cycle, recuperative (regenerative)
- Diesels
 - Turbocompounded
 - Turbocharged
 - Adiabatic
- Stirlings
 - Free piston
 - Kinematic
- Organic Rankine Cycles
- Fuel Cells

- Phosphoric acid
- Solid polymer electrolyte (SPE)
- Molten carbonate
- Photovoltaics
 - Flat plate
 - Actively cooled
 - Photochemical
- Wind Turbines
 - Vertical axis
 - Horizontal axis.

The following energy storage technologies were characterized in this data base:

- Batteries
 - Zn/Cl₂
 - Zn/Br₂
 - Ni/Fe
 - Li-Al/FeS₂
 - Na/S
 - Advanced sealed lead/acids
 - Redox Cr-Fe
- Thermal Energy Storage Devices
 - CaCl₂ · 6H₂O, calcium chloride hexahydrate
 - Na₂SO₄ · 10H₂O, sodium sulfate decahydrate (Glauber's salt)
 - Na₂S₂O₃ · 5H₂O, sodium thiosulfate pentahydrate
 - Olivine ceramic brick
 - Magnesite ceramic brick
 - Form-stable polyethylene.

The complete set of parameters and their definitions follow.

- **Type.** This parameter value is either mobile, transportable, or fixed; it refers to the complete energy system, not just the component technology.

A system is mobile if it 1) is transportable by truck or aircraft and 2) can be assembled or dismantled within 8 hours with no prior site preparation. A system is transportable by truck if the system itself or the largest component of the system can be broken down and does not exceed the dimensions of 10-feet wide by 13-feet high by 60-feet long. For air transportability, the system or largest component of the system cannot exceed 16-feet wide by 9-feet high by 100-feet long, nor can it exceed a weight limit of 350 lb/ft² floor loading.

A system is transportable if it 1) is transportable by truck or aircraft subject to the same limitations as mobile and 2) can be set up or removed within 1 week with only minor site preparation.

A system that is neither mobile nor transportable is fixed.

- **Fuel Capability.** Fuel capability indicates the fuels that can provide the primary energy source for each system. Primary fuels for the purpose of this study include —

- JP-4
- Diesel (DF-1 or DF-2)
- Electricity
- Natural gas
- Solar
- Wind
- Thermal (heat)
- Methanol

Systems that have multifuel capabilities are denoted "multi."

- **System Acquisition Cost.** The estimated total installed cost in 1980 dollars of the energy system excluding land procurement.
- **Acquisition Cost (except BOP).** The estimated off-the-shelf cost of the component technology excluding the balance-of-plant components for the complete system. The cost is in 1980 dollars.
- **Annual Operating and Maintenance Cost.** The estimated annual cost of operating the energy system. The cost is in 1980 dollars and includes all operating and maintenance expenses except for fuel costs.
- **System Efficiency.** A system's efficiency is the primary energy output

divided by the primary fuel energy input. It does not include the energy content of by-product energy recovery unless specifically noted. Efficiency is measured in percent.

- Efficiency (except BOP). This is the efficiency of the component technology and is the direct energy output from the component technology (for example, shaft power for the engine) divided by the energy content of the fuel for the technology. This efficiency is based on the energy balance around the component technology and excludes all balance-of-plant components and by-product energy. Efficiency is measured in percent.
- Lifetime. This is the estimated number of years the energy system is expected to produce its designated output during continuous operation. Continuous operation is as previously defined under "General Requirements."
- Annual Fuel Consumption. This is the calculated annual energy content of designated fuel consumed by the energy system at its designated output during continuous operation. It is measured in Btu's unless otherwise specified.
- Annual Fuel Cost. This is the calculated annual cost of primary fuel. It is the product of the primary fuel price in 1980 dollars times the annual fuel consumption for the energy system. Fuel prices are discussed in the section of this report headed "Fuels and Fuel Prices." Selection of one fuel type for systems with multifuel capability is discussed in the section of this report headed "General Requirements."
- Annual Fuel Cost (5%). This is the calculated annual cost of primary fuel assuming a real price increase of 5% per year. It is measured in 1980 dollars.
- Annual Fuel Cost (10%). This is the calculated annual cost of primary fuel assuming a real price increase of 10% per year. It is measured in 1980 dollars.
- Life-Cycle Cost. Life-cycle cost is the calculated cost of acquiring, operating (including fuel use), and maintaining the energy system at continuous operation at its output level for a period of 20 years. For systems with lifetimes of less than 20 years, the cost of rebuilding or reacquiring a system to extend the life to 20 years is included. The life-cycle cost is measured in 1980 dollars per unit of energy output. The procedure for calculating life-cycle costs is discussed in the section of this report headed "Life-Cycle Costing Analysis."
- Life-Cycle Cost (5%). This is the life-cycle cost of the energy system as previously defined except that fuel costs are assumed to be based on a 5% per year real price increase. It is measured in 1980 dollars per unit of energy output.
- Life-Cycle Cost (10%). This is the life-cycle cost of the energy system as previously defined except that fuel costs are assumed to be based on a 10% per year real price increase. It is measured in 1980 dollars per unit of energy output.

- Start-up Time. The start-up time is the elapsed time in minutes for the system to achieve full output from a "ready to start" or "cold start" condition.
- Shutdown Time. The shutdown time is the elapsed time in minutes to bring a system from a full output condition to an off or standby mode.
- Volume (System). This is the volume in cubic feet of the envelope of the installed energy system.
- Volume (except BOP). This is the volume in cubic feet of the component technology excluding all balance-of-plant components.
- Area (System). This is the land or surface area in square feet required for the installed energy system.
- Area (except BOP). This is the land or surface area in square feet required for the energy technology excluding all balance-of-plant components.
- Weight. This is the total weight of the complete energy system measured in pounds.
- Weight (except BOP). This is the weight in pounds for the energy technology excluding all balance-of-plant components.
- Raw Materials. This is a qualitative parameter to indicate whether each system requires any materials that may not be readily available in sufficient quantity to allow the system to be produced in large quantities. This parameter is measured on an ordinal scale:
 - 1 — definite raw materials limitations
 - 3 — potential raw materials limitations
 - 5 — no apparent raw materials limitation
- Reliability. This is a qualitative parameter that indicates the potential for unanticipated outages of the energy system. Reliability is evaluated in terms of moving parts, operating temperature, modularity (redundancy), stress levels, corrosion, etc. Reliability is measured on ordinal scale:
 - 1 — high potential unreliability
 - 2 — moderate potential unreliability
 - 3 — average
 - 4 — moderate reliability
 - 5 — high reliability
- Environmental constraints. This is a qualitative parameter that indicates the potential for environmental insult from the energy system. This

parameter is evaluated in terms of thermal discharge; air pollution, including CO, NO_x, SO_x, HC, particulates, and others; noise; odor; solid waste; and chemical waste. Environmental constraint is measured on an ordinal scale:

- 1 — extreme potential environmental constraint
- 2 — high potential environmental constraint
- 3 — average potential environmental constraint
- 4 — moderate potential environmental constraint
- 5 — minimum potential environmental constraint

- Locational Constraints. This is a qualitative parameter to indicate the potential for locational constraints that could limit the applicability of the energy systems. This parameter is evaluated in terms of water requirements, personnel requirements, fuel availability, fuel storage, and others (solar, wind). Locational constraints are measured on an ordinal scale:

- 1 — extreme potential locational constraints
- 2 — high potential locational constraints
- 3 — average locational constraints
- 4 — moderate locational constraints
- 5 — minimum locational constraints

- Operational Constraints. This is a qualitative parameter that indicates the turn-down and load-following capabilities of the system relative to operating efficiency. This parameter is evaluated in terms of part-load capability, overload capability, and load-following capability. Operational constraints are measured on an ordinal scale:

- 1 — no turn-down capability
- 2 — turn-down capability with high efficiency penalty
- 3 — average turn-down capability
- 4 — moderate turn-down capability; moderate efficiency penalty
- 5 — excellent turn-down capability; minor efficiency penalty

- Thermal Energy Available. The thermal energy recoverable from any energy system is a function of the quality and quantity of thermal energy produced by the system. It would be beyond the scope of this study to estimate the thermal energy available from each technology at the 11 different output levels. Consequently, this parameter will be qualitative and measured on an ordinal scale:

- 1 — no potential for heat recovery
- 2 — minor potential for heat recovery, extreme use limitation
- 3 — potential for heat recovery, moderate use limitation
- 4 — moderate potential for heat recovery, minor use limitations
- 5 — very high potential for usable heat recovery

CONVERSION DEVICE PARAMETERS

This section presents the parameter values for the gas turbines, diesel engines, Stirling engines, fuel cells, photovoltaics, and wind turbines. All systems were evaluated on the basis of continuous production of utility-quality ac power (operating 90% of each year at the required power output level).

The parameter "lifetime" is not included in the parameter survey for the conversion technologies because all of the systems are evaluated on a 20-year economic life.



PARAMETER: TYPE UNITS: MOBILE/TRANSPORTABLE/FIXED

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | DIESELS | | STIRLING'S | | OMCS | FUEL CELLS | | | PHOTOVOLTAICS | | WIND TURBINES | | | |
|---------------------------|------|----------------------------|-----------------|--------------------------------|----------------------|-------------------|----------|------|----------------|-----------|------|--------------------|---------------------|------------------|---------------|--------------------|--------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO- COMPOUNDED | TURBO- CHARGED | ADIBATIC | | FREE PISTON | KINEMATIC | OMCS | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOVOLTAIC |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | T | F | NCA | F | F |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| 5.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| 20.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| 30.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| 60.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| 100.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| 250.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| 500.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| 750.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| 1000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| 5000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |
| 2000 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | N | NCA | NCA | NCA | NCA | H | F | NCA | F | F |

PARAMETER: FUEL CAPABILITY UNITS: MULTIPLE (M) / DIESEL (D) / SOLAR (S) WIND (W)

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | STIRLINGS | | ORCS | FUEL CELLS | | | PHOTOVOLTAIC | | | WIND TURBINES | |
|------------------------|------|-------------------------|--------------|-----------------------------|----------------|---------------|-----------|-------------|------|------------|-----------------|------------------|---------------|------------|-----------------|---------------|---------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO-COMPOUND | TURBO-CHARGED | ADIABATIC | FREE PISTON | | KINEMATIC | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PROTHERMAL | VERTICAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| 5.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| 20.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
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| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | H | NCA | NCA | S | S | NCA | NCA | NCA | NCA |

PARAMETER: SYSTEM ACQUISITION COST UNITS: 1980 DOLLARS

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | STIRLING'S | | FUEL CELLS | | PHOTOVOLTAICS | | | WIND TURBINES | | | | |
|---------------------------|------|----------------------------|-----------------|--------------------------------|----------------------|-------------------|------------|----------------|------------|---------|--------------------|---------------------|------------------|---------------|--------------------|---------------|------------------|--------------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO- COMPOUNDED | TURBO- CHARGED | ADIBATIC | FREE PISTON | KINEMATIC | URCS | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS | HORIZONTAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.76E03 | NCA | NCA | 2.84E05 | 4.15E05 | NCA | 3.34E04 | NCA | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.76E03 | NCA | NCA | 2.45E05 | 3.57E05 | NCA | 3.36E04 | NCA | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.76E03 | NCA | NCA | 2.07E05 | 3.03E05 | NCA | 3.17E04 | NCA | |
| 5.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.35E03 | NCA | NCA | 2.07E05 | 3.03E05 | NCA | 3.17E04 | NCA | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.40E03 | NCA | NCA | 9.48E05 | 1.38E06 | NCA | 7.41E04 | NCA | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.40E03 | NCA | NCA | 8.15E05 | 1.19E06 | NCA | 7.04E04 | NCA | |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.50E03 | NCA | NCA | 6.92E05 | 1.01E06 | NCA | 6.67E04 | NCA | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.40E03 | NCA | NCA | 3.79E06 | 5.34E06 | NCA | 6.67E04 | NCA | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.27E04 | NCA | NCA | 3.26E06 | 4.76E06 | NCA | 1.90E05 | NCA | |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.27E04 | NCA | NCA | 2.77E06 | 4.04E06 | NCA | 1.80E05 | NCA | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.27E04 | NCA | NCA | 2.77E06 | 4.04E06 | NCA | 1.80E05 | NCA | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.27E04 | NCA | NCA | 2.77E06 | 4.04E06 | NCA | 1.80E05 | NCA | |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.74E04 | NCA | NCA | 5.69E06 | 7.15E06 | NCA | NCA | NCA | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.74E04 | NCA | NCA | 4.89E06 | 7.15E06 | NCA | NCA | NCA | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.74E04 | NCA | NCA | 4.10E06 | 5.98E06 | NCA | NCA | NCA | |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.65E04 | NCA | NCA | 4.10E06 | 5.98E06 | NCA | NCA | NCA | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.65E04 | NCA | NCA | 4.10E06 | 5.98E06 | NCA | NCA | NCA | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.65E04 | NCA | NCA | 4.10E06 | 5.98E06 | NCA | NCA | NCA | |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.03E04 | NCA | NCA | 9.81E06 | 1.43E07 | NCA | NCA | NCA | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.03E04 | NCA | NCA | 8.32E06 | 1.20E07 | NCA | NCA | NCA | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.03E04 | NCA | NCA | 8.32E06 | 1.20E07 | NCA | NCA | NCA | |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.65E04 | NCA | NCA | 1.90E07 | 2.38E07 | NCA | NCA | NCA | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.65E04 | NCA | NCA | 1.63E07 | 2.38E07 | NCA | NCA | NCA | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.65E04 | NCA | NCA | 1.37E07 | 1.99E07 | NCA | NCA | NCA | |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.65E04 | NCA | NCA | 1.37E07 | 1.99E07 | NCA | NCA | NCA | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.07E05 | NCA | NCA | 4.08E07 | 5.95E07 | NCA | NCA | NCA | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.07E05 | NCA | NCA | 3.41E07 | 4.98E07 | NCA | NCA | NCA | |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.13E05 | NCA | NCA | 3.41E07 | 4.98E07 | NCA | NCA | NCA | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.13E05 | NCA | NCA | 3.41E07 | 4.98E07 | NCA | NCA | NCA | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.13E05 | NCA | NCA | 3.41E07 | 4.98E07 | NCA | NCA | NCA | |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.27E05 | NCA | NCA | 1.04E08 | 1.50E08 | NCA | NCA | NCA | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.27E05 | NCA | NCA | 1.04E08 | 1.50E08 | NCA | NCA | NCA | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.27E05 | NCA | NCA | 1.04E08 | 1.50E08 | NCA | NCA | NCA | |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.49E05 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.49E05 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.49E05 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.97E06 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.97E06 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.97E06 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | |
| 2000 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.97E06 | NCA | NCA | 6.83E07 | 1.01E08 | NCA | NCA | NCA | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.97E06 | NCA | NCA | 6.83E07 | 1.01E08 | NCA | NCA | NCA | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.97E06 | NCA | NCA | 6.83E07 | 1.01E08 | NCA | NCA | NCA | |

PARAMETER: ACQUISITION COST (ex. B.O.P.) UNITS: 1980 DOLLARS

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | | STIRLING ENGINES | | | FUEL CELLS | | | PHOTOVOLTAICS | | | WIND TURBINES | |
|------------------------|------|-------------------------|--------------|-----------------------------|------------------|---------------|----------|------------------|-----------|---------|-----------------|-----------|---------------|---------------|-----------------|---------------|---------------|-----------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIBATIC | FREE PISTON | KINEMATIC | UMCS | PHOSPHORIC ACID | MOLYBDATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS | HORIZONTAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.52E05 | NCA | NCA | 1.73E04 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.68E02 | NCA | NCA | NCA | 9.07E04 | 1.09E05 | NCA | 1.64E04 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | 3.75E02 | 3.75E02 | 1.58E03 | 3.75E02 | NCA | NCA | 6.05E04 | 7.25E04 | 7.25E04 | NCA | 1.56E04 | |
| 5.0 | 2000 | NCA | NCA | NCA | NCA | NCA | 3.75E02 | 3.75E02 | 1.58E03 | 2.25E02 | NCA | 6.0E02 | 6.05E04 | 7.25E04 | 6.05E04 | NCA | 1.48E04 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.96E03 | NCA | NCA | NCA | 4.05E05 | 4.82E05 | NCA | NCA | 2.87E04 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.95E03 | 1.88E03 | NCA | NCA | 3.04E05 | 3.62E05 | NCA | NCA | 2.73E04 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | 1.25E03 | 1.25E03 | 3.96E03 | 1.25E03 | NCA | NCA | 2.03E05 | 2.41E05 | NCA | NCA | 2.59E04 | |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | 1.25E03 | 1.25E03 | 3.96E03 | 7.5E02 | NCA | 2.0E03 | 1.62E06 | 1.93E06 | NCA | NCA | 2.46E04 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.14E04 | NCA | NCA | NCA | 1.22E06 | 1.45E06 | NCA | NCA | 5.14E04 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.14E04 | 7.5E03 | NCA | NCA | 1.22E06 | 1.45E06 | NCA | NCA | 4.89E04 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | 5.0E03 | 5.0E03 | 1.14E04 | 5.0E03 | NCA | NCA | 8.12E05 | 9.65E05 | NCA | NCA | 4.64E04 | |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | 5.0E03 | 5.0E03 | 1.14E04 | 3.0E03 | NCA | 8.0E03 | 8.12E05 | 9.65E05 | NCA | NCA | 4.41E04 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.57E04 | NCA | NCA | NCA | 2.43E06 | 2.89E06 | NCA | NCA | 6.10E04 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.57E04 | 1.13E04 | NCA | NCA | 1.83E06 | 2.17E06 | NCA | NCA | 4.61E04 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | 7.50E03 | 7.50E03 | 1.57E04 | 7.5E03 | NCA | NCA | 1.22E06 | 1.45E06 | NCA | NCA | 5.79E04 | |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | 7.50E03 | 7.50E03 | 1.57E04 | 4.5E03 | NCA | 1.2E04 | 1.22E06 | 1.45E06 | NCA | NCA | 5.50E04 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.73E04 | NCA | NCA | NCA | 4.86E06 | NCA | NCA | NCA | 7.16E04 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.73E04 | 2.25E04 | NCA | NCA | 3.65E06 | 4.34E06 | NCA | NCA | 8.61E04 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | 1.50E04 | 1.50E04 | 2.73E04 | 2.50E04 | NCA | NCA | 2.43E06 | 2.89E06 | NCA | NCA | 7.37E04 | |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | 1.50E04 | 1.50E04 | 2.73E04 | 9.0E03 | NCA | NCA | 2.43E06 | 2.89E06 | NCA | NCA | 7.00E04 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.18E04 | NCA | NCA | NCA | 8.10E06 | NCA | NCA | NCA | 1.01E05 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.18E04 | 3.75E04 | NCA | NCA | 6.08E06 | 7.23E06 | NCA | NCA | 9.13E04 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | 2.50E04 | 2.50E04 | 4.18E04 | 2.5E04 | NCA | NCA | 4.05E06 | 4.82E06 | NCA | NCA | 8.68E04 | |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | 2.50E04 | 2.50E04 | 4.18E04 | 1.5E04 | NCA | NCA | 4.05E06 | 4.82E06 | NCA | NCA | 8.68E04 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.10E04 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.49E05 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.10E04 | 5.63E04 | NCA | NCA | 1.52E07 | 1.81E07 | NCA | NCA | 1.41E05 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | 6.25E04 | 6.25E04 | 9.10E04 | 3.13E4 | NCA | NCA | 1.01E07 | 1.21E07 | NCA | NCA | 1.34E05 | |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | 6.25E04 | 6.25E04 | 9.10E04 | 3.13E4 | NCA | NCA | 1.01E07 | 1.21E07 | NCA | NCA | 1.28E05 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.62E05 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | 1.11E05 | 1.11E05 | 1.62E05 | 6.25E04 | NCA | NCA | 3.04E07 | 3.62E07 | NCA | NCA | 2.82E05 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | 1.11E05 | 1.11E05 | 1.62E05 | 5.0E04 | NCA | NCA | 2.03E07 | 2.41E07 | NCA | NCA | 2.56E05 | |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.26E05 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.26E05 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.26E05 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | 1.66E05 | 1.66E05 | 2.26E05 | 7.5E04 | NCA | NCA | 3.04E07 | 3.62E07 | NCA | NCA | 3.84E05 | |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.78E05 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.78E05 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.78E05 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | 2.21E05 | 2.21E05 | 2.78E05 | 1.0E05 | NCA | NCA | 4.05E7 | 4.82E07 | NCA | NCA | 5.36E05 | |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.60E06 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.60E06 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.60E06 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.60E06 | 6.25E05 | NCA | NCA | 2.03E08 | NCA | NCA | NCA | NCA | NCA |

PARAMETER: ANNUAL O&M COSTS UNITS: 1980 DOLLARS

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | DIESELS | | STURLING'S | | FUEL CELLS | | PHOTOVOLTAICS | | | WIND TURBINES | | | | | |
|---------------------------|------|----------------------------|-----------------|--------------------------------|----------------------|-------------------|-----------|----------------|-----------|---------------|--------------------|---------------------|------------------|---------------|--------------------|---------------|------------------|--------------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO- COMPOUNDED | TURBO- CHARGED | ADIVANTIC | FREE PISTON | KINEMATIC | UMCS | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS | HORIZONTAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.94E02 | NCA | NCA | NCA | 1.81E04 | 2.60E04 | NCA | 1.81E03 | 1.81E03 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.94E02 | NCA | NCA | NCA | 1.54E04 | 2.22E04 | NCA | 1.42E03 | 1.42E03 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.94E02 | NCA | NCA | NCA | 1.32E04 | 1.89E04 | NCA | 1.38E03 | 1.38E03 |
| 5.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.94E02 | NCA | NCA | NCA | 1.32E04 | 1.89E04 | NCA | 1.38E03 | 1.38E03 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.10E03 | NCA | NCA | NCA | 6.05E04 | 8.66E04 | NCA | 5.15E03 | 5.15E03 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.10E03 | NCA | NCA | NCA | 5.14E04 | 7.39E04 | NCA | 3.91E03 | 3.91E03 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.10E03 | NCA | NCA | NCA | 4.40E04 | 6.31E04 | NCA | 3.83E03 | 3.83E03 |
| 20.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.10E03 | NCA | NCA | NCA | 4.40E04 | 6.31E04 | NCA | 3.83E03 | 3.83E03 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.27E03 | NCA | NCA | NCA | 2.42E05 | 3.47E05 | NCA | 1.87E04 | 1.87E04 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.27E03 | NCA | NCA | NCA | 2.06E05 | 2.96E05 | NCA | 1.38E04 | 1.38E04 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.27E03 | NCA | NCA | NCA | 1.76E05 | 2.52E05 | NCA | 1.36E04 | 1.36E04 |
| 30.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.27E03 | NCA | NCA | NCA | 1.76E05 | 2.52E05 | NCA | 1.36E04 | 1.36E04 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.74E03 | NCA | NCA | NCA | 3.63E05 | 5.21E05 | NCA | 2.02E04 | 2.02E04 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.74E03 | NCA | NCA | NCA | 3.08E05 | 4.44E05 | NCA | 1.99E04 | 1.99E04 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.74E03 | NCA | NCA | NCA | 2.61E05 | 3.74E05 | NCA | 1.99E04 | 1.99E04 |
| 60.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.74E03 | NCA | NCA | NCA | 2.61E05 | 3.74E05 | NCA | 1.99E04 | 1.99E04 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.03E03 | NCA | NCA | NCA | 7.28E05 | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.03E03 | NCA | NCA | NCA | 6.19E05 | 8.88E05 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.03E03 | NCA | NCA | NCA | 5.29E05 | 7.50E05 | NCA | NCA | NCA |
| 100.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.03E03 | NCA | NCA | NCA | 5.29E05 | 7.50E05 | NCA | NCA | NCA |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.65E03 | NCA | NCA | NCA | 1.03E06 | 1.48E06 | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.65E03 | NCA | NCA | NCA | 8.72E05 | 1.24E06 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.65E03 | NCA | NCA | NCA | 8.72E05 | 1.24E06 | NCA | NCA | NCA |
| 250.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.65E03 | NCA | NCA | NCA | 8.72E05 | 1.24E06 | NCA | NCA | NCA |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.07E04 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.07E04 | NCA | NCA | NCA | 2.57E06 | 3.70E06 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.07E04 | NCA | NCA | NCA | 2.17E06 | 3.11E06 | NCA | NCA | NCA |
| 500.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.07E04 | NCA | NCA | NCA | 2.17E06 | 3.11E06 | NCA | NCA | NCA |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.13E04 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.13E04 | NCA | NCA | NCA | 5.14E06 | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.13E04 | NCA | NCA | NCA | 4.35E06 | 6.31E06 | NCA | NCA | NCA |
| 750.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.13E04 | NCA | NCA | NCA | 4.35E06 | 6.31E06 | NCA | NCA | NCA |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.27E04 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.27E04 | NCA | NCA | NCA | 6.62E06 | 9.38E06 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.27E04 | NCA | NCA | NCA | 6.62E06 | 9.38E06 | NCA | NCA | NCA |
| 1000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.27E04 | NCA | NCA | NCA | 6.62E06 | 9.38E06 | NCA | NCA | NCA |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.49E04 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.49E04 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.49E04 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| 5000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.49E04 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.97E05 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.97E05 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.97E05 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| 2000 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.97E05 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |

PARAMETER: SYSTEM EFFICIENCY UNITS: PERCENT

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | DIESELS | | STIRLING'S | | FUEL CELLS | | | PHOTOVOLTAICS | | | WIND TURBINES | | | |
|---------------------------|------|----------------------------|-----------------|--------------------------------|----------------------|-------------------|-----------|----------------|-----------|-------|--------------------|---------------------|------------------|---------------|--------------------|---------------|------------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO- COMPOUNDED | TURBO- CHARGED | ADIABATIC | FREE PISTON | KINEMATIC | ORGES | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.46 | NCA | NCA | NCA | 8.7 | 6.9 | NCA | 26.5 | 26.9 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.58 | 35 | NCA | NCA | 9.5 | 7.5 | NCA | 26.5 | 26.9 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.69 | 38 | NCA | NCA | 11.4 | 9.0 | NCA | 26.5 | 26.9 |
| 5.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.69 | 40 | NCA | NCA | 13.3 | 10.5 | NCA | 28.5 | 26.9 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.79 | NCA | NCA | NCA | 8.7 | 8.9 | NCA | 29.9 | 31.1 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.25 | 35 | NCA | NCA | 9.5 | 7.5 | NCA | 29.9 | 31.1 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.69 | 38 | NCA | NCA | 11.4 | 10.0 | NCA | 29.9 | 31.1 |
| 20.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.69 | 40 | NCA | NCA | 13.3 | 10.5 | NCA | 29.9 | 31.1 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 10.78 | NCA | NCA | NCA | 8.7 | 6.9 | NCA | NCA | 36.7 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 11.75 | 35 | NCA | NCA | 9.5 | 7.5 | NCA | 36.4 | 35.7 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 12.58 | 38 | NCA | NCA | 11.4 | 9.0 | NCA | 36.4 | 36.7 |
| 30.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 12.58 | 40 | NCA | NCA | 13.3 | 10.5 | NCA | 36.4 | 36.7 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 12.24 | NCA | NCA | NCA | 8.7 | 6.9 | NCA | NCA | 38.5 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 13.34 | 35 | NCA | NCA | 9.5 | 7.5 | NCA | 38.1 | 38.5 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 14.27 | 40 | NCA | NCA | 11.4 | 9.0 | NCA | 38.1 | 38.5 |
| 60.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 14.27 | 42 | NCA | NCA | 13.3 | 10.5 | NCA | 38.1 | 38.5 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 14.73 | NCA | NCA | NCA | 8.7 | 7.5 | NCA | 38.1 | 38.5 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 16.20 | 35 | NCA | NCA | 9.5 | 7.5 | NCA | 38.1 | 38.5 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 17.17 | 40 | NCA | NCA | 11.4 | 9.0 | NCA | 41.8 | 41.8 |
| 100.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 17.17 | 42 | NCA | NCA | 13.3 | 10.5 | NCA | 41.3 | 41.8 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.66E01 | NCA | NCA | NCA | 8.7 | 7.5 | NCA | 41.3 | 41.8 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.83E01 | 38 | NCA | NCA | 9.5 | 7.5 | NCA | 44.4 | 44.4 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.94E01 | 40 | NCA | NCA | 11.4 | 9.0 | NCA | 44.4 | 44.4 |
| 250.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.94E01 | 45 | NCA | NCA | 13.3 | 10.5 | NCA | 43.9 | 44.4 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.99E01 | NCA | NCA | NCA | 9.5 | 7.5 | NCA | 49.6 | 49.6 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.18E01 | NCA | NCA | NCA | 11.4 | 9.0 | NCA | 49.6 | 49.6 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.31E01 | 40 | NCA | NCA | 13.3 | 10.5 | NCA | 49.6 | 49.6 |
| 500.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.31E01 | 45 | NCA | NCA | NCA | NCA | NCA | 49.6 | 49.6 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.49E01 | NCA | NCA | NCA | 9.5 | 7.5 | NCA | 49.6 | 49.6 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.49E01 | NCA | NCA | NCA | 11.4 | 9.0 | NCA | 49.6 | 49.6 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.64E01 | 40 | NCA | NCA | 13.3 | 10.5 | NCA | 49.6 | 49.6 |
| 750.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.64E01 | 45 | NCA | NCA | NCA | NCA | NCA | 49.6 | 49.6 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.79E01 | NCA | NCA | NCA | 9.5 | 7.5 | NCA | 49.6 | 49.6 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.87E01 | NCA | NCA | NCA | 11.4 | 9.0 | NCA | 49.6 | 49.6 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.87E01 | 40 | NCA | NCA | 13.3 | 10.5 | NCA | 49.6 | 49.6 |
| 1000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.87E01 | 45 | NCA | NCA | NCA | NCA | NCA | 49.6 | 49.6 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.99E01 | NCA | NCA | NCA | 9.5 | 7.5 | NCA | 49.6 | 49.6 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.99E01 | NCA | NCA | NCA | 11.4 | 9.0 | NCA | 49.6 | 49.6 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.06E01 | 40 | NCA | NCA | 13.3 | 10.5 | NCA | 49.6 | 49.6 |
| 5000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.06E01 | 45 | NCA | NCA | NCA | NCA | NCA | 49.6 | 49.6 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.46E01 | NCA | NCA | NCA | 9.5 | 7.5 | NCA | 49.6 | 49.6 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.46E01 | NCA | NCA | NCA | 11.4 | 9.0 | NCA | 49.6 | 49.6 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.63E01 | 40 | NCA | NCA | 13.3 | 10.5 | NCA | 49.6 | 49.6 |
| 2000 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.63E01 | 45 | NCA | NCA | NCA | NCA | NCA | 49.6 | 49.6 |

PARAMETER: EFFICIENCY (OR, B.O.P.) UNITS: PERCENT

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | DIESELS | | STIRLING'S | | FUEL CELLS | | PHOTOVOLTAICS | | | WIND TURBINES | | | | | |
|------------------------|------|-------------------------|--------------|-----------------------------|------------------|---------------|-----------|-------------|-----------|---------------|-----------------|------------------|---------------|------------|-----------------|---------------|---------------|-----------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIABATIC | FREE PISTON | KINEMATIC | OHMS | PHOSPHONIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS | HORIZONTAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.31 | NCA | NCA | NCA | 10.6 | 9.8 | NCA | 31.0 | 31.4 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.42 | 46 | NCA | NCA | 11.6 | 10.7 | NCA | 31.0 | 31.4 |
| 5.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 1.52 | 50 | NCA | NCA | 13.9 | 11.2 | NCA | 31.0 | 31.4 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 1.52 | 52 | NCA | NCA | 16.2 | 14.9 | NCA | 31.0 | 31.4 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.21 | NCA | NCA | 66 | 10.6 | 9.8 | NCA | 35.0 | 36.4 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.63 | 46 | NCA | NCA | 11.6 | 10.7 | NCA | 35.0 | 36.4 |
| 20.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 6.02 | 50 | NCA | NCA | 13.9 | 11.2 | NCA | 35.0 | 36.4 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 6.02 | 52 | NCA | NCA | 16.2 | 14.9 | NCA | 35.0 | 36.4 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.70 | NCA | NCA | 66 | 10.6 | 9.8 | NCA | NCA | 42.9 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 10.58 | 46 | NCA | NCA | 11.6 | 10.7 | NCA | 42.5 | 42.9 |
| 30.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 11.33 | 50 | NCA | NCA | 13.9 | 11.2 | NCA | 42.5 | 42.9 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 11.33 | 52 | NCA | NCA | 16.2 | 14.9 | NCA | 42.5 | 42.9 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 11.02 | NCA | NCA | 66 | 10.6 | 9.8 | NCA | NCA | 44.5 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 12.01 | 46 | NCA | NCA | 11.6 | 10.7 | NCA | 44.5 | 45.0 |
| 60.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 12.84 | 52 | NCA | NCA | 13.9 | 11.2 | NCA | 44.5 | 45.0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 12.84 | 55 | NCA | NCA | 16.2 | 14.9 | NCA | 44.5 | 45.0 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 13.26 | NCA | NCA | 66 | 10.6 | NCA | NCA | 48.3 | 48.9 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 14.58 | 46 | NCA | NCA | 11.6 | 10.7 | NCA | 48.3 | 48.9 |
| 100.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 15.45 | 52 | NCA | NCA | 13.9 | 11.2 | NCA | 48.3 | 48.9 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 15.45 | 55 | NCA | NCA | 16.2 | 14.9 | NCA | 48.3 | 48.9 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.49E01 | NCA | NCA | NCA | 10.6 | NCA | NCA | 51.3 | 51.9 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.65E01 | 50 | NCA | NCA | 11.6 | 10.7 | NCA | 51.3 | 51.9 |
| 250.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 1.75E01 | 52 | NCA | NCA | 13.9 | 11.2 | NCA | 51.3 | 51.9 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 1.75E01 | 59 | NCA | NCA | 16.2 | 14.9 | NCA | 51.3 | 51.9 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.78E01 | NCA | NCA | NCA | NCA | NCA | NCA | 58.0 | 58.0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.96E01 | NCA | NCA | NCA | 11.6 | 10.7 | NCA | 58.0 | 58.0 |
| 500.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 2.08E01 | 52 | 55 | NCA | 13.9 | 11.2 | NCA | 58.0 | 58.0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 2.08E01 | 59 | 61 | NCA | 16.2 | 14.9 | NCA | 58.0 | 58.0 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.02E01 | NCA | NCA | NCA | NCA | NCA | NCA | 58.0 | 58.0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.24E01 | NCA | NCA | NCA | 11.6 | 11.2 | NCA | 58.0 | 58.0 |
| 750.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 2.38E01 | 52 | 59 | NCA | 13.9 | 11.2 | NCA | 58.0 | 58.0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 2.38E01 | 59 | 64 | NCA | 16.2 | 14.9 | NCA | 58.0 | 58.0 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.14E01 | NCA | NCA | NCA | NCA | NCA | NCA | 58.0 | 58.0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.40E01 | NCA | NCA | NCA | 13.9 | 11.2 | NCA | 58.0 | 58.0 |
| 1000.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 2.55E01 | 52 | 64 | NCA | 16.2 | 14.9 | NCA | 58.0 | 58.0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 2.55E01 | 59 | 64 | NCA | 16.2 | 14.9 | NCA | 58.0 | 58.0 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.24E01 | NCA | NCA | NCA | NCA | NCA | NCA | 58.0 | 58.0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.51E01 | NCA | NCA | NCA | NCA | NCA | NCA | 58.0 | 58.0 |
| 5000.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 2.64E01 | 52 | 64 | NCA | 13.9 | 11.2 | NCA | 58.0 | 58.0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 2.64E01 | 59 | 64 | NCA | 16.2 | 14.9 | NCA | 58.0 | 58.0 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.75E01 | NCA | NCA | NCA | NCA | NCA | NCA | 58.0 | 58.0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.11E01 | NCA | NCA | NCA | NCA | NCA | NCA | 58.0 | 58.0 |
| 2000 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 3.27E01 | 52 | 64 | NCA | NCA | NCA | NCA | 58.0 | 58.0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 43.8 | 43.8 | 3.27E01 | 59 | 64 | NCA | 16.2 | NCA | NCA | 58.0 | 58.0 |

PARAMETER: ANNUAL FUEL CONSUMPTION UNITS: Btu

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | DIESELS | | STIRLINGS | | UNCS | | PHOSPHORIC ACID | | MOLTEN CARBONATE | | SOLID POLYMER | | PHOTOVOLTAICS | | | WIND TURBINES | |
|------------------------|------|--------------|--------------|------------------|------------------|---------------|------------|-------------|-----------|-----------------|-----------------|------------------|---------------|---------------|-----------------|---------------|---------------|-----------------|---------------|---|
| | | REGENERATIVE | CLOSED CYCLE | NON-REGENERATIVE | TURBO-COMPOUNDED | TURBO-CHARGED | ADJUVANTIC | FREE PISTON | KINEMATIC | UMCS | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS | HORIZONTAL AXIS | | |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.76E09 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 1.5 | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.55E09 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 1.5 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.39E09 | 1.15E08 | 1.15E08 | 1.15E08 | 1.15E08 | 1.15E08 | 8.07E07 | 0 | 0 | 0 | 0 | 0 |
| 5.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.32E09 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 5.0 | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.15E09 | 3.84E08 | 3.84E08 | 3.84E08 | 3.84E08 | 3.84E08 | NCA | 0 | 0 | 0 | 0 | 0 |
| 5.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.01E09 | 3.67E08 | 3.67E08 | 3.67E08 | 3.67E08 | 3.67E08 | NCA | 0 | 0 | 0 | 0 | 0 |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.99E09 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 20.0 | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.58E09 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 20.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.28E09 | 1.54E09 | 1.54E09 | 1.54E09 | 1.54E09 | 1.54E09 | NCA | 0 | 0 | 0 | 0 | 0 |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.60E09 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 30.0 | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.05E09 | 2.31E09 | 2.31E09 | 2.31E09 | 2.31E09 | 2.31E09 | NCA | 0 | 0 | 0 | 0 | 0 |
| 30.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.66E09 | 2.31E09 | 2.31E09 | 2.31E09 | 2.31E09 | 2.31E09 | NCA | 0 | 0 | 0 | 0 | 0 |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.10E10 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 60.0 | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.97E09 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 60.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.40E09 | 4.61E09 | 4.61E09 | 4.61E09 | 4.61E09 | 4.61E09 | NCA | 0 | 0 | 0 | 0 | 0 |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.62E10 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 100.0 | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.47E10 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 100.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.39E10 | 7.69E09 | 7.69E09 | 7.69E09 | 7.69E09 | 7.69E09 | NCA | 0 | 0 | 0 | 0 | 0 |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.38E10 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 250.0 | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.09E10 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 250.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.91E10 | 1.92E10 | 1.92E10 | 1.92E10 | 1.92E10 | 1.92E10 | NCA | 0 | 0 | 0 | 0 | 0 |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.01E10 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 500.0 | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.40E10 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 500.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.10E10 | 3.84E10 | 3.84E10 | 3.84E10 | 3.84E10 | 3.84E10 | NCA | 0 | 0 | 0 | 0 | 0 |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 8.48E10 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 750.0 | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.56E10 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 750.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.13E10 | 5.77E10 | 5.77E10 | 5.77E10 | 5.77E10 | 5.77E10 | NCA | 0 | 0 | 0 | 0 | 0 |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.08E11 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 1000.0 | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.64E10 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 1000.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.18E10 | 7.69E10 | 7.69E10 | 7.69E10 | 7.69E10 | 7.69E10 | NCA | 0 | 0 | 0 | 0 | 0 |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.40E11 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 5000.0 | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.89E11 | NCA | NCA | NCA | NCA | NCA | NCA | 0 | 0 | 0 | 0 | 0 |
| 5000.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.71E11 | 3.36E11 | 3.36E11 | 3.36E11 | 3.36E11 | 3.36E11 | NCA | 0 | 0 | 0 | 0 | 0 |
| 5000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.71E11 | 2.98E11 | 2.98E11 | 2.98E11 | 2.98E11 | 2.98E11 | NCA | 0 | 0 | 0 | 0 | 0 |

PP-FACILITY: ANNUAL FUEL COST UNITS: 1980 DOLLARS

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | DIESELS | | STIRLINGS | | FUEL CELLS | | PHOTOVOLTAICS | | | WIND TURBINES | | | | | |
|---------------------------|------|----------------------------|-----------------|--------------------------------|----------------------|-------------------|----------|----------------|-----------|---------------|--------------------|----------------------|------------------|---------------|--------------------|---------------|------------------|--------------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO- COMPOUNDED | TURBO- CHARGED | ADABATIC | FREE PISTON | KINEMATIC | OMICS | PHOSPHORIC ACID | MOLYB- DENUMERATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS | HORIZONTAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.32E04 | NCA | NCA | 0 | 0 | NCA | 0 | 0 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.20E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.06E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.06E04 | NCA | NCA | 0 | 0 | 7.12E02 | NCA | 0 | 0 |
| 5.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.95E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.85E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.73E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.73E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.49E04 | NCA | NCA | 0 | 0 | NCA | NCA | NCA | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.35E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.24E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.19E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.19E04 | NCA | NCA | 0 | 0 | 9.53E03 | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.03E04 | NCA | NCA | 0 | 0 | NCA | NCA | NCA | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.03E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.03E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.87E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.79E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.79E04 | NCA | NCA | 0 | 0 | 1.43E04 | NCA | NCA | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.79E04 | NCA | NCA | 0 | 0 | NCA | NCA | NCA | 0 |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.06E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.74E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.58E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.58E04 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.36E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.27E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.27E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.27E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.84E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.84E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.84E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.84E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.66E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.66E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.66E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.66E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.66E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.66E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.66E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.66E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.42E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.42E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.42E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.42E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| 9000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.37E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.37E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.37E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.37E05 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| 9000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.55E06 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.55E06 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.55E06 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.55E06 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| 9000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.17E06 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.17E06 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.17E06 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.17E06 | NCA | NCA | 0 | 0 | NCA | NCA | 0 | 0 |

PARAMETER: ANNUAL FUEL COST, \$/ UNIT: 1980 DOLLARS

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | STIRLING'S | | ORCS | | FUEL CELLS | | | PHOTOVOLTAICS | | | WIND TURBINES | | |
|------------------------|------|-------------------------|------------|--------------|-----------------------------|------------------|---------------|-----------|-------------|-----------|------------|-----------------|------------------|---------------|------------|-----------------|---------------|---------------|-----------------|
| | | REGENERATIVE OPEN-CYCLE | OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIABATIC | FREE PISTON | KINEMATIC | ORCS | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS | HORIZONTAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.38E04 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.81E04 | 1.29E03 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.36E04 | 1.52E03 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.46E04 | 2.36E03 | NCA | 1.89E03 | NCA | 0 | 0 | NCA | 0 | 0 |
| 5.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.90E04 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.36E04 | 4.32E03 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.82E04 | 5.07E03 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.59E04 | 7.88E03 | NCA | 6.29E03 | NCA | 0 | 0 | NCA | 0 | 0 |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.30E04 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.04E04 | 1.72E04 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.01E04 | 2.02E04 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.78E04 | 3.16E04 | NCA | 2.53E04 | NCA | 0 | 0 | NCA | NCA | 0 |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.69E04 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.66E04 | 2.25E04 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.94E04 | 3.04E04 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.29E05 | 4.75E05 | NCA | 3.79E04 | NCA | 0 | 0 | NCA | NCA | 0 |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.48E04 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.06E05 | 5.18E04 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.32E05 | 6.09E04 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.15E05 | 9.50E04 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.39E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.62E05 | 7.96E04 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.95E05 | 9.66E04 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.18E05 | 1.40E05 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.91E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.40E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.08E05 | 2.41E05 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.65E05 | 3.49E05 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.18E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.94E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.16E05 | 5.17E05 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.16E06 | 6.97E05 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.96E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.65E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.79E05 | 7.24E05 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.11E06 | 1.05E06 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.32E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.20E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 8.75E05 | 9.72E05 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.42E06 | 1.39E06 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.34E06 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.90E06 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.53E06 | 4.82E06 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.76E06 | 6.97E06 | NCA | NCA | NCA | 0 | 0 | NCA | NCA | 0 |

PARAMETER: ANNUAL FUEL COST, 102 UNITS: 1980 DOLLARS

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | STIRLING'S | | ORCS | | FUEL CELLS | | | PHOTOVOLTAICS | | WIND TURBINES | | |
|------------------------|------|-------------------------|--------------|-----------------------------|------------------|---------------|------------|-------------|-----------|---------|-----------------|------------------|---------------|---------------|-----------------|---------------|---------------|-----------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIABATIC | FREE PISTON | KINEMATIC | ORCS | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS | HORIZONTAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.47E04 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.54E04 | 1.62E03 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.72E04 | 2.41E03 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.38E05 | 5.97E03 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| 5.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.94E04 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.97E04 | 5.43E03 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.48E04 | 8.06E03 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.16E05 | 1.99E04 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.39E04 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.35E04 | 2.17E04 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.55E04 | 3.21E04 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.47E05 | 7.99E04 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.80E04 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 8.31E04 | 2.83E04 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.26E05 | 4.83E04 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.26E05 | 1.20E06 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.66E04 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.33E05 | 6.53E04 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.10E05 | 9.68E04 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.43E05 | 2.40E05 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.41E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.04E05 | 1.00E05 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.10E05 | 1.53E05 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 8.04E05 | 3.59E05 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.97E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.28E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.49E05 | 3.83E05 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.68E06 | 8.83E05 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.28E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.48E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.14E06 | 8.22E05 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.93E06 | 1.76E06 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.99E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.12E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.08E06 | 1.13E06 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.80E06 | 2.66E06 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.36E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.07E05 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.39E06 | 1.55E06 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.59E06 | 5.57E06 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.36E06 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.65E06 | NCA | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.61E06 | 7.66E06 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.47E07 | 1.76E07 | NCA | NCA | NCA | 0 | 0 | NCA | 0 | 0 |

PARAMETER: LIFE-CYCLE COST UNITS: 1980 CENTS/KWH

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | STIRLINGS | | ORUS | FUEL CELLS | | PHOTOVOLTAICS | | | WIND TURBINES | |
|------------------------|------|-------------------------|--------------|-----------------------------|------------------|---------------|-----------|-------------|------|------------|-----------------|------------------|---------------|------------|-----------------|---------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIABATIC | FREE PISTON | | KINEMATIC | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 85.3 | NCA | NCA | 185.2 | 269.0 | NCA | 21.5 | 21.5 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 81.0 | NCA | NCA | 159.0 | 230.9 | NCA | 19.3 | 19.3 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 75.9 | NCA | NCA | 135.0 | 196.1 | NCA | 18.4 | 18.4 |
| 5.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 75.9 | NCA | 3.56 | 135.0 | 196.1 | 135.0 | 18.4 | 18.4 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 22.8 | NCA | NCA | 185.6 | 268.5 | NCA | 15.0 | 15.0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 21.7 | NCA | NCA | 158.9 | 230.7 | NCA | 13.2 | 13.2 |
| 20.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 20.4 | NCA | NCA | 135.3 | 196.2 | NCA | 12.6 | 12.6 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 20.4 | NCA | 3.56 | 135.3 | 196.2 | NCA | 12.6 | 12.6 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 12.1 | NCA | NCA | 185.7 | 269.3 | NCA | 11.4 | 11.4 |
| 30.0 | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 11.4 | NCA | NCA | 159.0 | 230.8 | NCA | 9.75 | 9.75 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 10.7 | NCA | NCA | 135.3 | 196.1 | NCA | 9.38 | 9.38 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 10.7 | NCA | 3.57 | 135.3 | 196.1 | NCA | 9.38 | 9.38 |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 10.7 | NCA | NCA | 185.6 | 269.4 | NCA | 8.82 | 8.82 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 10.1 | NCA | NCA | 158.6 | 231.1 | NCA | 9.15 | 9.15 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.46 | NCA | NCA | 133.6 | 193.7 | NCA | 8.82 | 8.82 |
| 100.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.46 | NCA | 3.57 | 133.6 | 193.7 | NCA | 8.82 | 8.82 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 8.91 | NCA | NCA | 185.8 | 231.1 | NCA | 8.43 | 8.43 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 8.32 | NCA | NCA | 158.9 | 231.1 | NCA | 8.11 | 8.11 |
| 200.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.88 | NCA | NCA | 133.8 | 194.3 | NCA | 8.11 | 8.11 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.88 | NCA | NCA | 133.8 | 194.3 | NCA | 8.11 | 8.11 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.89 | NCA | NCA | 185.8 | 230.8 | NCA | 9.57 | 9.57 |
| 500.0 | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.40 | NCA | NCA | 159.0 | 230.8 | NCA | 8.05 | 8.05 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.02 | NCA | NCA | 134.0 | 193.2 | NCA | 7.51 | 7.51 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.02 | NCA | NCA | 134.0 | 193.2 | NCA | 7.52 | 7.52 |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.64 | NCA | NCA | 158.9 | 230.8 | NCA | 9.07 | 9.07 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.25 | NCA | NCA | 133.8 | 193.5 | NCA | 8.59 | 8.59 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.92 | NCA | NCA | 133.8 | 193.5 | NCA | 8.11 | 8.11 |
| 1000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.92 | NCA | 3.16 | 133.8 | 193.5 | NCA | 7.30 | 7.30 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.95 | NCA | NCA | 158.9 | 230.8 | NCA | 7.30 | 7.30 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.52 | NCA | NCA | 133.6 | 196.2 | NCA | 7.58 | 7.58 |
| 5000.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.25 | NCA | NCA | 133.6 | 196.2 | NCA | 7.29 | 7.29 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.25 | NCA | NCA | 133.6 | 196.2 | NCA | 7.29 | 7.29 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.05 | NCA | NCA | 158.9 | 230.8 | NCA | 7.58 | 7.58 |
| 5000.0 | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.51 | NCA | NCA | 134.0 | 194.4 | NCA | 7.29 | 7.29 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.51 | NCA | NCA | 134.0 | 194.4 | NCA | 7.29 | 7.29 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.91 | NCA | NCA | 134.0 | 194.4 | NCA | 7.29 | 7.29 |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.43 | NCA | NCA | 134.0 | 193.2 | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.43 | NCA | NCA | 134.0 | 193.2 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.43 | NCA | NCA | 134.0 | 193.2 | NCA | NCA | NCA |
| 5000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.45 | NCA | NCA | 134.0 | 193.2 | NCA | NCA | NCA |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.16 | NCA | NCA | 133.6 | 193.7 | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.43 | NCA | NCA | 133.6 | 193.7 | NCA | NCA | NCA |
| 5000.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.04 | NCA | NCA | 133.6 | 193.7 | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.04 | NCA | NCA | 133.6 | 193.7 | NCA | NCA | NCA |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.31 | NCA | NCA | 133.6 | 193.7 | NCA | NCA | NCA |

PARAMETER: LIFE-CYCLE COST, \$/KW UNITS: 1980 CENTS/KWH

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | STIRLING ENGINES | | ORCS | | FUEL CELLS | | PHOTOVOLTAICS | | | WIND TURBINES | | |
|------------------------|------|-------------------------|--------------|-----------------------------|------------------|---------------|------------------|-------------|-----------|------|-----------------|------------------|---------------|------------|-----------------|---------------|---------------|-----------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIABATIC | FREE PISTON | KINEMATIC | ORCS | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS | HORIZONTAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 127 | NCA | NCA | NCA | 185.2 | 269.0 | NCA | NCA | 21.5 | 21.5 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 120 | 7.19 | NCA | NCA | 159.0 | 230.8 | NCA | NCA | 19.3 | 19.3 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 113 | 6.20 | 6.14 | NCA | 135.0 | 196.1 | NCA | NCA | 18.4 | 18.4 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 113 | 5.50 | 6.14 | 4.83 | 135.0 | 196.1 | 135.0 | NCA | 18.4 | 18.4 |
| 5.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 33.2 | NCA | NCA | NCA | 185.6 | 268.5 | NCA | NCA | 15.0 | 15.0 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 31.6 | 7.21 | NCA | NCA | 158.9 | 230.7 | NCA | NCA | 13.2 | 13.2 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 29.7 | 6.19 | 6.15 | NCA | 135.3 | 196.2 | NCA | NCA | 12.6 | 12.6 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 29.7 | 5.50 | 6.15 | 4.82 | 135.3 | 196.2 | 135.3 | NCA | 12.6 | 12.6 |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 17.4 | NCA | NCA | NCA | 185.7 | 269.3 | NCA | NCA | 11.4 | 11.4 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 16.4 | 7.21 | NCA | NCA | 159.0 | 230.8 | NCA | NCA | 9.75 | 9.75 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 15.4 | 6.17 | 5.91 | NCA | 135.3 | 196.1 | NCA | NCA | 9.38 | 9.38 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 15.4 | 5.50 | 5.91 | 4.83 | 135.3 | 196.1 | 135.3 | NCA | 9.38 | 9.38 |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 15.6 | NCA | NCA | NCA | 185.6 | 269.4 | NCA | NCA | 10.8 | 10.8 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 14.7 | 7.22 | NCA | NCA | 158.9 | 231.1 | NCA | NCA | 9.15 | 9.15 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 13.8 | 6.19 | 5.85 | NCA | 133.6 | 193.7 | NCA | NCA | 8.82 | 8.82 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 13.8 | 5.51 | 5.85 | 4.84 | 133.6 | 193.7 | 133.6 | NCA | 8.82 | 8.82 |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 13.0 | NCA | NCA | NCA | 185.8 | NCA | NCA | NCA | 8.43 | 8.43 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 12.1 | 7.22 | NCA | NCA | 158.9 | 231.1 | NCA | NCA | 8.11 | 8.11 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 11.5 | 6.20 | 5.79 | NCA | 133.8 | 194.3 | NCA | NCA | 8.11 | 8.11 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 11.5 | 5.52 | 5.79 | NCA | 133.8 | 194.3 | NCA | NCA | 8.11 | 8.11 |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 11.5 | NCA | NCA | NCA | 185.8 | NCA | NCA | NCA | 9.57 | 9.57 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 10.8 | 6.79 | NCA | NCA | 159.0 | 230.8 | NCA | NCA | 8.05 | 8.05 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 10.2 | 5.96 | 5.80 | NCA | 134.0 | 193.2 | NCA | NCA | 7.51 | 7.51 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 10.2 | 4.95 | 5.80 | NCA | 134.0 | 193.2 | NCA | NCA | 7.51 | 7.51 |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.66 | NCA | NCA | NCA | 158.9 | 230.8 | NCA | NCA | 9.07 | 9.07 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 9.08 | NCA | NCA | NCA | 133.8 | 193.5 | NCA | NCA | 7.59 | 7.59 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 8.60 | 5.83 | 5.81 | NCA | 133.8 | 193.5 | NCA | NCA | 7.30 | 7.30 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 8.60 | 4.81 | 5.81 | 4.43 | 133.8 | 193.5 | NCA | NCA | 7.30 | 7.30 |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 8.65 | NCA | NCA | NCA | 158.9 | 230.8 | NCA | NCA | 9.57 | 9.57 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 8.00 | 5.36 | NCA | NCA | 133.6 | 196.2 | NCA | NCA | 8.05 | 8.05 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.60 | 4.71 | 5.74 | NCA | 133.6 | 196.2 | NCA | NCA | 7.29 | 7.29 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.60 | 4.71 | 5.74 | 4.15 | 133.6 | 196.2 | NCA | NCA | 7.29 | 7.29 |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.80 | NCA | NCA | NCA | 158.9 | 230.8 | NCA | NCA | 9.57 | 9.57 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.26 | 5.37 | NCA | NCA | 134.0 | 194.4 | NCA | NCA | 7.58 | 7.58 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.00 | 4.71 | 4.02 | NCA | 134.0 | 194.4 | NCA | NCA | 7.29 | 7.29 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.00 | 4.71 | 4.02 | 4.15 | 134.0 | 194.4 | NCA | NCA | 7.29 | 7.29 |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.58 | NCA | NCA | NCA | 158.9 | 230.8 | NCA | NCA | 9.57 | 9.57 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.08 | 5.40 | NCA | NCA | 134.0 | 194.4 | NCA | NCA | 7.58 | 7.58 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.86 | 4.71 | 4.03 | NCA | 134.0 | 194.4 | NCA | NCA | 7.29 | 7.29 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.86 | 4.71 | 4.03 | 4.16 | 134.0 | 194.4 | NCA | NCA | 7.29 | 7.29 |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.81 | NCA | NCA | NCA | 158.9 | 230.8 | NCA | NCA | 9.57 | 9.57 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.38 | 5.36 | NCA | NCA | 134.0 | 194.4 | NCA | NCA | 7.58 | 7.58 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.20 | 4.87 | NCA | NCA | 134.0 | 194.4 | NCA | NCA | 7.29 | 7.29 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.20 | 4.87 | NCA | NCA | 133.6 | 193.6 | NCA | NCA | 7.29 | 7.29 |

PARAMETER: LIFE-CYCLE COSTS, 10Z

UNITS: 1980 CENTS/KWH

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | STIRLINGS | | ORCS | FUEL CELLS | | PHOTOVOLTAICS | | | WIND TURBINES | |
|---------------------------|------|----------------------------|-----------------|--------------------------------|----------------------|-------------------|-----------|----------------|------|------------|---------------------|------------------|---------------|--------------------|---------------|------------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO- COMPOUNDED | TURBO- CHARGED | ADIABATIC | FREE PISTON | | KINEMATIC | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 198 | NCA | NCA | 185.2 | 269.0 | NCA | 21.5 | 21.5 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 188 | NCA | NCA | 159.0 | 230.9 | NCA | 19.3 | 19.3 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 176 | 8.91 | NCA | 135.0 | 196.1 | NCA | 18.4 | 18.4 |
| 5.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 176 | 8.91 | NCA | 135.0 | 196.1 | NCA | 18.4 | 18.4 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 51.2 | NCA | NCA | 185.6 | 268.5 | NCA | 15.0 | 15.0 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 48.7 | NCA | NCA | 158.9 | 230.7 | NCA | 13.2 | 13.2 |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 45.6 | 8.83 | NCA | 135.3 | 196.2 | NCA | 12.6 | 12.6 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 45.6 | 8.83 | NCA | 135.3 | 196.2 | NCA | 12.6 | 12.6 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 27.3 | NCA | NCA | 185.7 | 269.3 | NCA | 11.4 | 11.4 |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 25.8 | NCA | NCA | 159.0 | 230.8 | NCA | 9.75 | 9.75 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 24.1 | NCA | NCA | 135.3 | 196.1 | NCA | 9.38 | 9.38 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 24.1 | NCA | NCA | 135.3 | 196.1 | NCA | 9.38 | 9.38 |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 22.8 | NCA | NCA | 158.9 | 231.1 | NCA | 10.8 | 10.8 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 21.3 | NCA | NCA | 133.6 | 193.7 | NCA | 8.82 | 8.82 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 21.3 | NCA | NCA | 133.6 | 193.7 | NCA | 8.82 | 8.82 |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 20.1 | NCA | NCA | 158.9 | 231.1 | NCA | 10.8 | 10.8 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 18.8 | NCA | NCA | 133.8 | 194.3 | NCA | 8.11 | 8.11 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 17.7 | NCA | NCA | 133.8 | 194.3 | NCA | 8.11 | 8.11 |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 17.8 | NCA | NCA | 159.0 | 230.8 | NCA | 10.8 | 10.8 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 16.7 | NCA | NCA | 134.0 | 193.2 | NCA | 8.05 | 8.05 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 15.8 | NCA | NCA | 134.0 | 193.2 | NCA | 7.51 | 7.51 |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 14.9 | NCA | NCA | 158.9 | 230.8 | NCA | 10.8 | 10.8 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 14.0 | NCA | NCA | 133.8 | 193.5 | NCA | 8.43 | 8.43 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 13.2 | NCA | NCA | 133.8 | 193.5 | NCA | 8.11 | 8.11 |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 13.3 | NCA | NCA | 158.9 | 230.8 | NCA | 10.8 | 10.8 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 12.3 | NCA | NCA | 133.6 | 196.2 | NCA | 8.11 | 8.11 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 11.7 | NCA | NCA | 133.6 | 196.2 | NCA | 7.29 | 7.29 |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 11.7 | NCA | NCA | 158.9 | 230.8 | NCA | 10.8 | 10.8 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 8.83 | NCA | NCA | 134.0 | 194.4 | NCA | 8.11 | 8.11 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.99 | NCA | NCA | 134.0 | 194.4 | NCA | 7.29 | 7.29 |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.56 | NCA | NCA | 134.0 | 194.4 | NCA | 10.8 | 10.8 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.47 | NCA | NCA | 134.0 | 194.4 | NCA | 8.11 | 8.11 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.27 | NCA | NCA | 134.0 | 194.4 | NCA | 7.29 | 7.29 |
| 2000 | 2.22 | 4.88 | 3.08 | 7.11 | 7.78 | 6.94 | NCA | 6.20 | 7.14 | 6.25 | 133.6 | NCA | NCA | NCA | NCA | |

PARAMETER: START-UP TIME UNITS: MINUTES

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | DIESEL | | STIRLINGS | | FUEL CELLS | | PHOTOVOLTAICS | | | WIND TURBINES | | | | |
|------------------------|------|-------------------------|--------------|-----------------------------|------------------|---------------|-----------|-------------|-----------|---------------|-----------------|------------------|---------------|------------|-----------------|---------------|---------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIABATIC | FREE PISTON | KINEMATIC | ORCS | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| 5.0 | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 40 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 40 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | 40 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 40 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 40 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | 45 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 45 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 45 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | 60 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 60 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 60 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | 60 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 60 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 60 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | 60 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 60 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 60 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | 120 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 120 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 120 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | 120 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 120 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 120 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | 180 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 180 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 180 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | 150 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 150 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 150 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | 180 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 180 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 180 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | 180 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 180 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 0.25 | 30 | 180 | NCA | NCA | 5 | 5 | NCA | 1.67E-01 | 1.67E-01 |

PARAMETER: SHUT-DOWN TIME UNITS: MINUTES

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | DIESELS | | STIRLINGS | | FUEL CELLS | | | PHOTOVOLTAICS | | | WIND TURBINES | | | |
|------------------------|------|-------------------------|--------------|-----------------------------|------------------|---------------|-----------|-------------|-----------|------|-----------------|------------------|---------------|---------------|-----------------|---------------|---------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIABATIC | FREE PISTON | KINEMATIC | ORCS | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.67E-01 | 1.67E-01 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.67E-01 | 1.67E-01 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.67E-01 | 1.67E-01 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.67E-01 | 1.67E-01 |
| 5.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.67E-01 | 1.67E-01 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.67E-01 | 1.67E-01 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.67E-01 | 1.67E-01 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.67E-01 | 1.67E-01 |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.00 | 1.00 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.00 | 1.00 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.00 | 1.00 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.00 | 1.00 |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.00 | 1.00 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.00 | 1.00 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.00 | 1.00 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 1.00 | 1.00 |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 2.00 | 2.00 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 2.00 | 2.00 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 2.00 | 2.00 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 2.00 | 2.00 |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 2.00 | 2.00 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 2.00 | 2.00 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 2.00 | 2.00 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30 | NCA | NCA | NCA | 1 | 1 | NCA | 2.00 | 2.00 |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 30.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 60.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 60.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 60.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 60.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 60.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 60.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 60.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 60.0 | NCA | NCA | NCA | 1 | 1 | NCA | 5.00 | 5.00 |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 120 | NCA | NCA | NCA | 1 | 1 | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 120 | NCA | NCA | NCA | 1 | 1 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 120 | NCA | NCA | NCA | 1 | 1 | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 120 | NCA | NCA | NCA | 1 | 1 | NCA | NCA | NCA |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 150 | NCA | NCA | NCA | 1 | 1 | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 150 | NCA | NCA | NCA | 1 | 1 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 150 | NCA | NCA | NCA | 1 | 1 | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 150 | NCA | NCA | NCA | 1 | 1 | NCA | NCA | NCA |

PARAMETER: SYSTEM VOLUME UNITS: CUBIC FEET

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | STIRLING'S | | ORCS | FUEL CELLS | | PHOTOVOLTAICS | | | WIND TURBINES | | |
|------------------------|------|-------------------------|--------------|-----------------------------|------------------|---------------|------------|-------------|---------|------------|-----------------|------------------|---------------|------------|-----------------|---------------|---------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIABATIC | FREE PISTON | | KINEMATIC | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 144 | NCA | NCA | NCA | 1.96E05 | 2.94E05 | NCA | 1.98E02 | 3.96E02 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 144 | NCA | NCA | NCA | 1.96E05 | 2.94E05 | NCA | 1.98E02 | 3.96E02 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 3.0 | NCA | NCA | 1.96E05 | 2.94E05 | NCA | 1.98E02 | 3.96E02 | |
| 5.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 3.0 | NCA | NCA | 1.96E05 | 2.94E05 | NCA | 1.98E02 | 3.96E02 | |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 12.0 | NCA | NCA | 6.53E05 | 9.80E05 | NCA | 7.00E02 | 1.40E03 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 10.0 | NCA | NCA | 6.53E05 | 9.80E05 | NCA | 7.00E02 | 1.40E03 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 10.0 | NCA | NCA | 6.53E05 | 9.80E05 | NCA | 7.00E02 | 1.40E03 | |
| 20.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 10.0 | NCA | NCA | 6.53E05 | 9.80E05 | NCA | 7.00E02 | 1.40E03 | |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 45 | NCA | NCA | 2.61E06 | 3.92E05 | NCA | NCA | 1.03E04 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 40 | NCA | NCA | 2.61E06 | 3.92E05 | NCA | NCA | 1.03E04 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 40 | NCA | NCA | 2.61E06 | 3.92E05 | NCA | NCA | 1.03E04 | |
| 30.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 210 | NCA | NCA | 3.92E06 | 5.88E06 | NCA | NCA | 1.85E04 | |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 192 | 180 | NCA | NCA | 3.92E06 | 5.88E06 | NCA | NCA | 1.85E04 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 192 | 180 | NCA | NCA | 3.92E06 | 5.88E06 | NCA | NCA | 1.85E04 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 192 | 180 | NCA | NCA | 3.92E06 | 5.88E06 | NCA | NCA | 1.85E04 | |
| 60.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 400 | 400 | NCA | NCA | 7.84E06 | 1.18E07 | NCA | NCA | 5.02E04 | |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 400 | 340 | NCA | NCA | 7.84E06 | 1.18E07 | NCA | NCA | 5.02E04 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 400 | 340 | NCA | NCA | 7.84E06 | 1.18E07 | NCA | NCA | 5.02E04 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 400 | 340 | NCA | NCA | 7.84E06 | 1.18E07 | NCA | NCA | 5.02E04 | |
| 100.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 720 | 700 | NCA | NCA | 1.31E07 | 1.96E07 | NCA | NCA | 1.04E05 | |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 720 | 650 | NCA | NCA | 1.31E07 | 1.96E07 | NCA | NCA | 1.04E05 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 720 | 650 | NCA | NCA | 1.31E07 | 1.96E07 | NCA | NCA | 1.04E05 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 720 | 650 | NCA | NCA | 1.31E07 | 1.96E07 | NCA | NCA | 1.04E05 | |
| 250.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 1408 | 2000 | NCA | NCA | 3.26E07 | 4.96E07 | NCA | NCA | 3.88E05 | |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 1408 | 2000 | NCA | NCA | 3.26E07 | 4.96E07 | NCA | NCA | 3.88E05 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 1408 | 2000 | NCA | NCA | 3.26E07 | 4.96E07 | NCA | NCA | 3.88E05 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 1408 | 2000 | NCA | NCA | 3.26E07 | 4.96E07 | NCA | NCA | 3.88E05 | |
| 500.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 2880 | NCA | NCA | 6.53E07 | 9.80E07 | NCA | NCA | 7.76E05 | |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 2880 | NCA | NCA | 6.53E07 | 9.80E07 | NCA | NCA | 7.76E05 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 2880 | NCA | NCA | 6.53E07 | 9.80E07 | NCA | NCA | 7.76E05 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 2880 | NCA | NCA | 6.53E07 | 9.80E07 | NCA | NCA | 7.76E05 | |
| 750.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 4.0E03 | NCA | NCA | 9.79E07 | 1.47E08 | NCA | NCA | 1.16E06 | |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 4.0E03 | NCA | NCA | 9.79E07 | 1.47E08 | NCA | NCA | 1.16E06 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 4.0E03 | NCA | NCA | 9.79E07 | 1.47E08 | NCA | NCA | 1.16E06 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 4.0E03 | NCA | NCA | 9.79E07 | 1.47E08 | NCA | NCA | 1.16E06 | |
| 1000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 6.0E03 | NCA | NCA | 1.31E08 | 1.96E08 | NCA | NCA | 1.04E06 | |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 6.0E03 | NCA | NCA | 1.31E08 | 1.96E08 | NCA | NCA | 1.04E06 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 6.0E03 | NCA | NCA | 1.31E08 | 1.96E08 | NCA | NCA | 1.04E06 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 6.0E03 | NCA | NCA | 1.31E08 | 1.96E08 | NCA | NCA | 1.04E06 | |
| 5000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5760 | 1.0E04 | NCA | NCA | 1.31E08 | 1.96E08 | NCA | NCA | 1.04E06 | |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5760 | 1.0E04 | NCA | NCA | 1.31E08 | 1.96E08 | NCA | NCA | 1.04E06 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5760 | 1.0E04 | NCA | NCA | 1.31E08 | 1.96E08 | NCA | NCA | 1.04E06 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5760 | 1.0E04 | NCA | NCA | 1.31E08 | 1.96E08 | NCA | NCA | 1.04E06 | |
| 2000 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5760 | 1.25E05 | NCA | NCA | 6.53E08 | NCA | NCA | NCA | NCA | NCA |

PARAMETER: VOLUME (est. B.O.P.) UNITS: CUBIC FEET

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | DIESELS | | STIRLINGS | | ONCS | | FUEL CELLS | | | PHOTOVOLTAICS | | | WIND TURBINES | | |
|------------------------|------|--------------|------------|------------------|------------------|---------------|-----------|-------------|-----------|------------|-----------------|------------------|---------------|------------|-----------------|---------------|---------------|-----------------|
| | | REGENERATIVE | OPEN-CYCLE | NON-REGENERATIVE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIABATIC | FREE PISTON | KINEMATIC | ONCS | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS | HORIZONTAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 144 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.98E02 | 3.96E02 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 144 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.98E02 | 3.96E02 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 1.44 | NCA | NCA | NCA | NCA | NCA | NCA | 1.98E02 | 3.96E02 |
| 5.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 1.44 | NCA | NCA | NCA | NCA | NCA | NCA | 1.98E02 | 3.96E02 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 144 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.66E02 | 9.31E02 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 144 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.66E02 | 9.31E02 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 4.80 | NCA | NCA | NCA | NCA | NCA | NCA | 4.66E02 | 9.31E02 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 4.80 | NCA | NCA | NCA | NCA | NCA | NCA | 4.66E02 | 9.31E02 |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 144 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.12E03 | 2.24E03 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 144 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.12E03 | 2.24E03 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 6.20 | NCA | NCA | NCA | NCA | NCA | NCA | 1.12E03 | 2.24E03 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 144 | 6.20 | NCA | NCA | NCA | NCA | NCA | NCA | 1.12E03 | 2.24E03 |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 192 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.10E03 | 4.20E03 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 192 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.10E03 | 4.20E03 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 192 | 9.30 | NCA | NCA | NCA | NCA | NCA | NCA | 2.10E03 | 4.20E03 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 192 | 9.30 | NCA | NCA | NCA | NCA | NCA | NCA | 2.10E03 | 4.20E03 |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 400 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.14E04 | 2.27E04 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 400 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.14E04 | 2.27E04 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 400 | 1.86E01 | NCA | NCA | NCA | NCA | NCA | NCA | 1.14E04 | 2.27E04 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 400 | 1.86E01 | NCA | NCA | NCA | NCA | NCA | NCA | 1.14E04 | 2.27E04 |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 720 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.70E03 | 1.14E04 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 720 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5.70E03 | 1.14E04 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 720 | 3.10E01 | NCA | NCA | NCA | NCA | NCA | NCA | 5.70E03 | 1.14E04 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 720 | 3.10E01 | NCA | NCA | NCA | NCA | NCA | NCA | 5.70E03 | 1.14E04 |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1408 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.14E04 | 2.27E04 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1408 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.14E04 | 2.27E04 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1408 | 7.75E01 | NCA | NCA | NCA | NCA | NCA | NCA | 1.14E04 | 2.27E04 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1408 | 7.75E01 | NCA | NCA | NCA | NCA | NCA | NCA | 1.14E04 | 2.27E04 |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 8.48E04 | 1.69E05 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 8.48E04 | 1.69E05 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 1.55E02 | NCA | NCA | NCA | NCA | NCA | NCA | 8.48E04 | 1.69E05 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 1.55E02 | NCA | NCA | NCA | NCA | NCA | NCA | 8.48E04 | 1.69E05 |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.47E07 | 2.94E08 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.47E07 | 2.94E08 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 2.33 | NCA | NCA | NCA | NCA | NCA | NCA | 1.47E07 | 2.94E08 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2880 | 2.33 | NCA | NCA | NCA | NCA | NCA | NCA | 1.47E07 | 2.94E08 |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5760 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.96E07 | 3.92E08 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5760 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.96E07 | 3.92E08 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5760 | 3.10E02 | NCA | NCA | NCA | NCA | NCA | NCA | 1.96E07 | 3.92E08 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5760 | 3.10E02 | NCA | NCA | NCA | NCA | NCA | NCA | 1.96E07 | 3.92E08 |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1530 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.53E06 | 1.31E07 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1530 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.53E06 | 1.31E07 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1530 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.53E06 | 1.31E07 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1530 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.53E06 | 1.31E07 |

PARAMETER: AREA UNITS: SQUARE FEET

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | DIESELS | | STIRLING'S | | ORCS | | FUEL CELLS | | PHOTOVOLTAIC | | PHOTOCHEMICAL | | WIND TURBINES | |
|---------------------------|------|----------------------------|-----------------|--------------------------------|----------------------|-------------------|-----------|----------------|-----------|--------------------|---------------------|------------------|---------------|--------------------|---------------|------------------|--------------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO- COMPOUNDED | TURBO- CHARGED | ADIABATIC | FREE PISTON | KINEMATIC | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS | HORIZONTAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| 5.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 36 | NCA | NCA | NCA | 1.97E03 | 2.96E03 | NCA | 3.6E01 | 3.6E01 | |

PARAMETER: AREA (ex. B.O.P.) UNITS: SQUARE FEET

| YEAR | GAS TURBINES | | | DIESELS | | STIRLINGES | | URCS | FUEL CELLS | | PHOTOVOLTAICS | | | WIND TURBINES | | |
|------|--------------|------------|--------------|------------------|---------------|------------|-------------|------|------------|-----------------|------------------|---------------|---------|-----------------|---------------|---------------|
| | REGENERATIVE | OPEN-CYCLE | CLOSED CYCLE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIABATIC | FREE PISTON | | KINEMATIC | PHOSPHONIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.96E03 | 2.94E03 | NCA | 3.6E01 | 3.6E01 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 4.8E-01 | NCA | 1.4 | NCA | NCA | 1.96E03 | 2.94E03 | NCA | 3.6E01 | 3.6E01 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 4.8E-01 | NCA | 1.1 | NCA | NCA | 1.96E03 | 2.94E03 | NCA | 3.6E01 | 3.6E01 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 4.8E-01 | NCA | 1.1 | NCA | NCA | 1.96E03 | 2.94E03 | NCA | 3.6E01 | 3.6E01 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.53E03 | 9.80E03 | NCA | 4.9E01 | 4.9E01 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.4 | NCA | NCA | 6.53E03 | 9.80E03 | NCA | 4.9E01 | 4.9E01 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.1 | NCA | NCA | 6.53E03 | 9.80E03 | NCA | 4.9E01 | 4.9E01 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.1 | NCA | NCA | 6.53E03 | 9.80E03 | NCA | 4.9E01 | 4.9E01 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.61E04 | 3.92E04 | NCA | 6.4E01 | 6.4E01 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.2 | NCA | NCA | 2.61E04 | 3.92E04 | NCA | 6.4E01 | 6.4E01 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.6 | NCA | NCA | 2.61E04 | 3.92E04 | NCA | 6.4E01 | 6.4E01 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.6 | NCA | NCA | 2.61E04 | 3.92E04 | NCA | 6.4E01 | 6.4E01 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.92E04 | 5.88E04 | NCA | 1.00E02 | 1.00E02 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.2 | NCA | NCA | 3.92E04 | 5.88E04 | NCA | 1.00E02 | 1.00E02 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.2 | NCA | NCA | 3.92E04 | 5.88E04 | NCA | 1.00E02 | 1.00E02 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.6 | NCA | NCA | 3.92E04 | 5.88E04 | NCA | 1.00E02 | 1.00E02 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 7.84E04 | 1.18E05 | NCA | 2.00E02 | 2.00E02 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2.2 | NCA | NCA | 7.84E04 | 1.18E05 | NCA | 2.00E02 | 2.00E02 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.6 | NCA | NCA | 7.84E04 | 1.18E05 | NCA | 2.00E02 | 2.00E02 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.6 | NCA | NCA | 7.84E04 | 1.18E05 | NCA | 2.00E02 | 2.00E02 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 1.31E05 | 1.96E05 | NCA | NCA | NCA |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4.4 | NCA | NCA | 1.31E05 | 1.96E05 | NCA | NCA | NCA |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.2 | NCA | NCA | 1.31E05 | 1.96E05 | NCA | NCA | NCA |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.2 | NCA | NCA | 1.31E05 | 1.96E05 | NCA | NCA | NCA |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3.26E05 | 4.90E05 | NCA | NCA | NCA |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.4 | NCA | NCA | 3.26E05 | 4.90E05 | NCA | NCA | NCA |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.4 | NCA | NCA | 3.26E05 | 4.90E05 | NCA | NCA | NCA |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 12.8 | NCA | NCA | 6.53E05 | 9.80E05 | NCA | NCA | NCA |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 12.8 | NCA | NCA | 6.53E05 | 9.80E05 | NCA | NCA | NCA |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 19.2 | NCA | NCA | 9.79E05 | 1.47E06 | NCA | NCA | NCA |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 19.2 | NCA | NCA | 9.79E05 | 1.47E06 | NCA | NCA | NCA |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 18.0 | NCA | NCA | 9.79E05 | 1.47E06 | NCA | NCA | NCA |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 25.6 | NCA | NCA | 1.31E06 | 1.96E06 | NCA | NCA | NCA |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 25.6 | NCA | NCA | 1.31E06 | 1.96E06 | NCA | NCA | NCA |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 31.0 | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 90.0 | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.53E06 | NCA | NCA | NCA | NCA |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 108.0 | NCA | NCA | 6.53E06 | NCA | NCA | NCA | NCA |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.53E06 | NCA | NCA | NCA | NCA |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 6.53E06 | NCA | NCA | NCA | NCA |

PARAMETER: WEIGHT UNITS: POUNDS

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | DIESELS | | STURMINGS | | ORCS | | FUEL CELLS | | PHOTOVOLTAICS | | | WIND TURBINES | |
|------------------------|------|-------------------------|--------------|------------------|---------------|-----------|-------------|-----------|---------|-----------------|------------------|---------------|------------|-----------------|---------------|---------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIBATIC | FREE PISTON | KINEMATIC | ORCS | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 3300 | NCA | NCA | NCA | 8.46E03 | 2.45E04 | NCA | 9.53E03 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 3300 | NCA | NCA | NCA | 7.88E03 | 2.38E04 | NCA | 8.79E03 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 3300 | 1.08E02 | 2.15E02 | NCA | 7.66E03 | 2.36E04 | NCA | 8.50E03 | |
| 5.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 3300 | 1.08E02 | 2.15E02 | NCA | 7.58E03 | 2.35E04 | NCA | 8.40E03 | |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5720 | NCA | NCA | NCA | 2.82E04 | 8.16E04 | NCA | 2.95E04 | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5720 | NCA | NCA | NCA | 2.63E04 | 7.93E04 | NCA | 2.72E04 | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5720 | 2.96E02 | 5.92E02 | NCA | 2.55E04 | 7.87E04 | NCA | 2.63E04 | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5720 | 2.96E02 | 5.92E02 | NCA | 2.53E04 | 7.83E04 | NCA | 2.60E04 | |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 4200 | NCA | NCA | NCA | 1.13E05 | 3.26E05 | NCA | NCA | 9.88E04 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 4200 | NCA | NCA | NCA | 1.05E05 | 3.17E05 | NCA | NCA | 9.11E04 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 4200 | NCA | NCA | NCA | 1.02E05 | 3.15E05 | NCA | NCA | 8.81E04 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 4200 | 2.8E03 | 2.8E03 | NCA | 1.01E05 | 3.13E05 | NCA | NCA | 8.71E04 |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5400 | NCA | NCA | NCA | 1.68E05 | 4.89E05 | NCA | NCA | 1.42E05 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5400 | NCA | NCA | NCA | 1.57E05 | 4.76E05 | NCA | NCA | 1.31E05 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5400 | 4.2E03 | 4.2E03 | NCA | 1.53E05 | 4.73E05 | NCA | NCA | 1.27E05 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5400 | 4.2E03 | 4.2E03 | NCA | 1.52E05 | 4.70E05 | NCA | NCA | 1.26E05 |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 12E03 | NCA | NCA | NCA | 3.37E05 | NCA | NCA | NCA | 2.68E05 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 12E03 | NCA | NCA | NCA | 3.14E05 | 9.52E05 | NCA | NCA | 2.47E05 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 12E03 | 8.0E03 | 8.0E03 | NCA | 3.06E05 | 9.46E05 | NCA | NCA | 2.39E05 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 12E03 | 8.0E03 | 8.0E03 | NCA | 3.04E05 | 9.40E05 | NCA | NCA | 2.36E05 |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 44E03 | NCA | NCA | NCA | 5.61E05 | NCA | NCA | NCA | 4.29E05 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 44E03 | NCA | NCA | NCA | 5.25E05 | 1.59E06 | NCA | NCA | 3.95E05 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 44E03 | 1.36E04 | 1.36E04 | NCA | 5.10E05 | 1.58E06 | NCA | NCA | 3.82E05 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 44E03 | 1.36E04 | 1.36E04 | NCA | 5.05E05 | 1.57E06 | NCA | NCA | 3.78E05 |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 44E03 | NCA | NCA | NCA | 1.31E06 | 3.98E06 | NCA | NCA | 1.01E06 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 44E03 | NCA | NCA | NCA | 1.28E06 | 3.95E06 | NCA | NCA | 9.31E05 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 44E03 | 3.4E04 | 3.4E04 | NCA | 1.26E06 | 3.93E06 | NCA | NCA | 9.00E05 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 44E03 | 3.4E04 | 3.4E04 | NCA | 1.26E06 | 3.93E06 | NCA | NCA | 8.90E05 |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 60.5E03 | NCA | NCA | NCA | 2.62E06 | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 60.5E03 | NCA | NCA | NCA | 2.54E06 | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 60.5E03 | 7.2E04 | 7.2E04 | NCA | 2.52E05 | 7.90E06 | NCA | NCA | 1.86E06 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 60.5E03 | 7.2E04 | 7.2E04 | NCA | 2.52E05 | 7.86E06 | NCA | NCA | 1.80E06 |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 77E03 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 77E03 | NCA | NCA | NCA | 3.84E06 | 1.18E07 | NCA | NCA | 2.79E06 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 77E03 | 1.2E05 | 1.2E05 | NCA | 3.78E06 | 1.18E07 | NCA | NCA | 2.70E06 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 77E03 | 1.2E05 | 1.2E05 | NCA | 3.78E06 | 1.18E07 | NCA | NCA | 2.67E06 |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 132E03 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 132E03 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 132E03 | 1.6E05 | 1.6E05 | NCA | 5.10E06 | NCA | NCA | NCA | 3.82E06 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 132E03 | 1.6E05 | 1.6E05 | NCA | 5.05E06 | NCA | NCA | NCA | 3.78E06 |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 500E03 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 500E03 | 8.0E05 | 8.0E05 | NCA | NCA | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 500E03 | 8.0E05 | 8.0E05 | NCA | NCA | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 500E03 | 8.0E05 | 8.0E05 | NCA | 2.52E07 | NCA | NCA | NCA | NCA |

PARAMETER: WEIGHT (GR. B.O.P.) UNITS: POUNDS

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | | STIRLINGS | | FUEL CELLS | | | PHOTOVOLTAICS | | | WIND TURBINES | | |
|---------------------------|------|----------------------------|-----------------|--------------------------------|----------------------|-------------------|-----------|----------------|-----------|------------|--------------------|---------------------|------------------|---------------|--------------------|---------------|------------------|--------------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO- COMPOUNDED | TURBO- CHARGED | ADIABATIC | FREE PISTON | KINEMATIC | ONCS | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS | HORIZONTAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3300 | NCA | NCA | NCA | 6.02E03 | 2.20E04 | NCA | 8.07E03 | 8.07E03 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3300 | NCA | NCA | NCA | 6.02E03 | 2.20E04 | NCA | 8.07E03 | 8.07E03 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3300 | 5.79E01 | 5.79E01 | NCA | 6.02E03 | 2.20E04 | NCA | 8.07E03 | 8.07E03 |
| 5.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 3300 | 5.79E01 | 5.79E01 | NCA | 6.02E03 | 2.20E04 | NCA | 8.07E03 | 8.07E03 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5720 | NCA | NCA | NCA | 2.01E04 | 7.35E04 | NCA | 1.97E04 | 1.97E04 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5720 | 1.93E02 | 1.93E02 | NCA | 2.01E04 | 7.35E04 | NCA | 1.97E04 | 1.97E04 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5720 | 1.93E02 | 1.93E02 | NCA | 2.01E04 | 7.35E04 | NCA | 1.97E04 | 1.97E04 |
| 20.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5720 | 1.93E02 | 1.93E02 | NCA | 2.01E04 | 7.35E04 | NCA | 1.97E04 | 1.97E04 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4200 | NCA | NCA | NCA | 8.03E04 | 2.94E05 | NCA | 5.98E04 | 5.98E04 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4200 | 3.67E02 | 3.67E02 | NCA | 8.03E04 | 2.94E05 | NCA | 5.98E04 | 5.98E04 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4200 | 3.67E02 | 3.67E02 | NCA | 8.03E04 | 2.94E05 | NCA | 5.98E04 | 5.98E04 |
| 30.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4200 | 3.67E02 | 3.67E02 | NCA | 8.03E04 | 2.94E05 | NCA | 5.98E04 | 5.98E04 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4700 | 3.67E02 | 3.67E02 | NCA | 8.03E04 | 2.94E05 | NCA | 5.98E04 | 5.98E04 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4700 | 3.67E02 | 3.67E02 | NCA | 8.03E04 | 2.94E05 | NCA | 5.98E04 | 5.98E04 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4700 | 3.67E02 | 3.67E02 | NCA | 8.03E04 | 2.94E05 | NCA | 5.98E04 | 5.98E04 |
| 60.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 4700 | 3.67E02 | 3.67E02 | NCA | 8.03E04 | 2.94E05 | NCA | 5.98E04 | 5.98E04 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5400 | NCA | NCA | NCA | 1.20E05 | 4.41E05 | NCA | 8.38E04 | 8.38E04 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5400 | 1.04E03 | 1.04E03 | NCA | 1.20E05 | 4.41E05 | NCA | 8.38E04 | 8.38E04 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5400 | 1.04E03 | 1.04E03 | NCA | 1.20E05 | 4.41E05 | NCA | 8.38E04 | 8.38E04 |
| 100.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5400 | 1.04E03 | 1.04E03 | NCA | 1.20E05 | 4.41E05 | NCA | 8.38E04 | 8.38E04 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 12000 | NCA | NCA | NCA | 2.41E05 | 8.82E05 | NCA | 1.51E05 | 1.51E05 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 12000 | 2.0E03 | 2.0E03 | NCA | 2.41E05 | 8.82E05 | NCA | 1.51E05 | 1.51E05 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 12000 | 2.0E03 | 2.0E03 | NCA | 2.41E05 | 8.82E05 | NCA | 1.51E05 | 1.51E05 |
| 250.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 12000 | 2.0E03 | 2.0E03 | NCA | 2.41E05 | 8.82E05 | NCA | 1.51E05 | 1.51E05 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 44000 | NCA | NCA | NCA | 4.01E05 | 1.47E06 | NCA | 2.34E05 | 2.34E05 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 44000 | 3.4E03 | 3.4E03 | NCA | 4.01E05 | 1.47E06 | NCA | 2.34E05 | 2.34E05 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 44000 | 3.4E03 | 3.4E03 | NCA | 4.01E05 | 1.47E06 | NCA | 2.34E05 | 2.34E05 |
| 500.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 44000 | 3.4E03 | 3.4E03 | NCA | 4.01E05 | 1.47E06 | NCA | 2.34E05 | 2.34E05 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 44000 | NCA | NCA | NCA | 1.00E06 | 3.67E06 | NCA | 5.19E05 | 5.19E05 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 44000 | 6.8E03 | 6.8E03 | NCA | 1.00E06 | 3.67E06 | NCA | 5.19E05 | 5.19E05 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 44000 | 6.8E03 | 6.8E03 | NCA | 1.00E06 | 3.67E06 | NCA | 5.19E05 | 5.19E05 |
| 750.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 44000 | 6.8E03 | 6.8E03 | NCA | 1.00E06 | 3.67E06 | NCA | 5.19E05 | 5.19E05 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 60500 | NCA | NCA | NCA | 2.01E06 | 7.35E06 | NCA | 1.04E06 | 1.04E06 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 60500 | 1.44E04 | 1.44E04 | NCA | 2.01E06 | 7.35E06 | NCA | 1.04E06 | 1.04E06 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 60500 | 1.44E04 | 1.44E04 | NCA | 2.01E06 | 7.35E06 | NCA | 1.04E06 | 1.04E06 |
| 1000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 60500 | 1.44E04 | 1.44E04 | NCA | 2.01E06 | 7.35E06 | NCA | 1.04E06 | 1.04E06 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 77000 | NCA | NCA | NCA | 3.01E06 | 1.10E07 | NCA | 1.50E06 | 1.50E06 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 77000 | 2.4E04 | 2.4E04 | NCA | 3.01E06 | 1.10E07 | NCA | 1.50E06 | 1.50E06 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 77000 | 2.4E04 | 2.4E04 | NCA | 3.01E06 | 1.10E07 | NCA | 1.50E06 | 1.50E06 |
| 5000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 77000 | 2.4E04 | 2.4E04 | NCA | 3.01E06 | 1.10E07 | NCA | 1.50E06 | 1.50E06 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 132000 | NCA | NCA | NCA | 4.01E06 | 1.47E07 | NCA | 2.08E06 | 2.08E06 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 132000 | 3.2E04 | 3.2E04 | NCA | 4.01E06 | 1.47E07 | NCA | 2.08E06 | 2.08E06 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 132000 | 3.2E04 | 3.2E04 | NCA | 4.01E06 | 1.47E07 | NCA | 2.08E06 | 2.08E06 |
| 50000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 500000 | NCA | NCA | NCA | 6.01E06 | 2.17E08 | NCA | 2.08E06 | 2.08E06 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 500000 | 1.6E05 | 1.6E05 | NCA | 6.01E06 | 2.17E08 | NCA | 2.08E06 | 2.08E06 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 500000 | 1.6E05 | 1.6E05 | NCA | 6.01E06 | 2.17E08 | NCA | 2.08E06 | 2.08E06 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 500000 | 1.6E05 | 1.6E05 | NCA | 6.01E06 | 2.17E08 | NCA | 2.08E06 | 2.08E06 |
| 500000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5000000 | 1.6E05 | 1.6E05 | NCA | 6.01E06 | 2.17E08 | NCA | 2.08E06 | 2.08E06 |

PARAMETER: RAW MATERIALS

UNITS: ORDINAL, 1-5

| YEAR | GAS TURBINES | | DIESELS | | STIRLINGS | | ORCS | FUEL CELLS | | | PHOTOVOLTAICS | | WIND TURBINES | | |
|------|----------------------------|-----------------|----------------------|-------------------|-----------|----------------|------|------------|--------------------|---------------------|------------------|---------------|--------------------|---------------|------------------|
| | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | TURBO- COMPOUNDED | TURBO- CHARGED | ADABATIC | FREE PISTON | | KINEMATIC | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | 5 | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | 5 | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | 5 | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1980 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 |
| 1985 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |
| 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 5 | NCA | NCA | 5 | 5 | NCA | 5 | 5 |

PARAMETER: RELIABILITY UNITS: ORDINAL 1-5

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | STIRLING | | ORCS | FUEL CELLS | | | PHOTOVOLTAICS | | | WIND TURBINES | |
|------------------------|------|-------------------------|--------------|-----------------------------|------------------|---------------|-----------|-------------|------|------------|------|------------------|---------------|------------|-----------------|---------------|---------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIABATIC | FREE PISTON | | KINEMATIC | ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | 2 | 2 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | 2 | 2 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | 2 | 2 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | 2 | 2 |
| 5.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | 2 | 2 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | 2 | 2 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | 2 | 2 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | 2 | 2 |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 3 | 3 | NCA | NCA | NCA |

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | STIRLINGS | | ORCS | FUEL CELLS | | | PHOTOVOLTAICS | | | WIND TURBINES | |
|---------------------------|------|----------------------------|-----------------|--------------------------------|----------------------|-------------------|-----------|----------------|------|------------|--------------------|---------------------|------------------|---------------|--------------------|---------------|------------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO- COMPOUNDED | TURBO- CHARGED | ADIABATIC | FREE PISTON | | KINEMATIC | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | 5 | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | 5 | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | 5 | NCA | NCA | 5 | NCA | 5 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | 5 | NCA | NCA | 5 | NCA | 5 |
| 5.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | 5 | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | 5 | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | 5 | NCA | NCA | 5 | NCA | 5 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | 5 | NCA | NCA | 5 | NCA | 5 |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 5 | NCA | NCA | NCA | NCA |

PARAMETER: LOCATION CONSTRAINTS UNITS: ORDINAL, 1-5

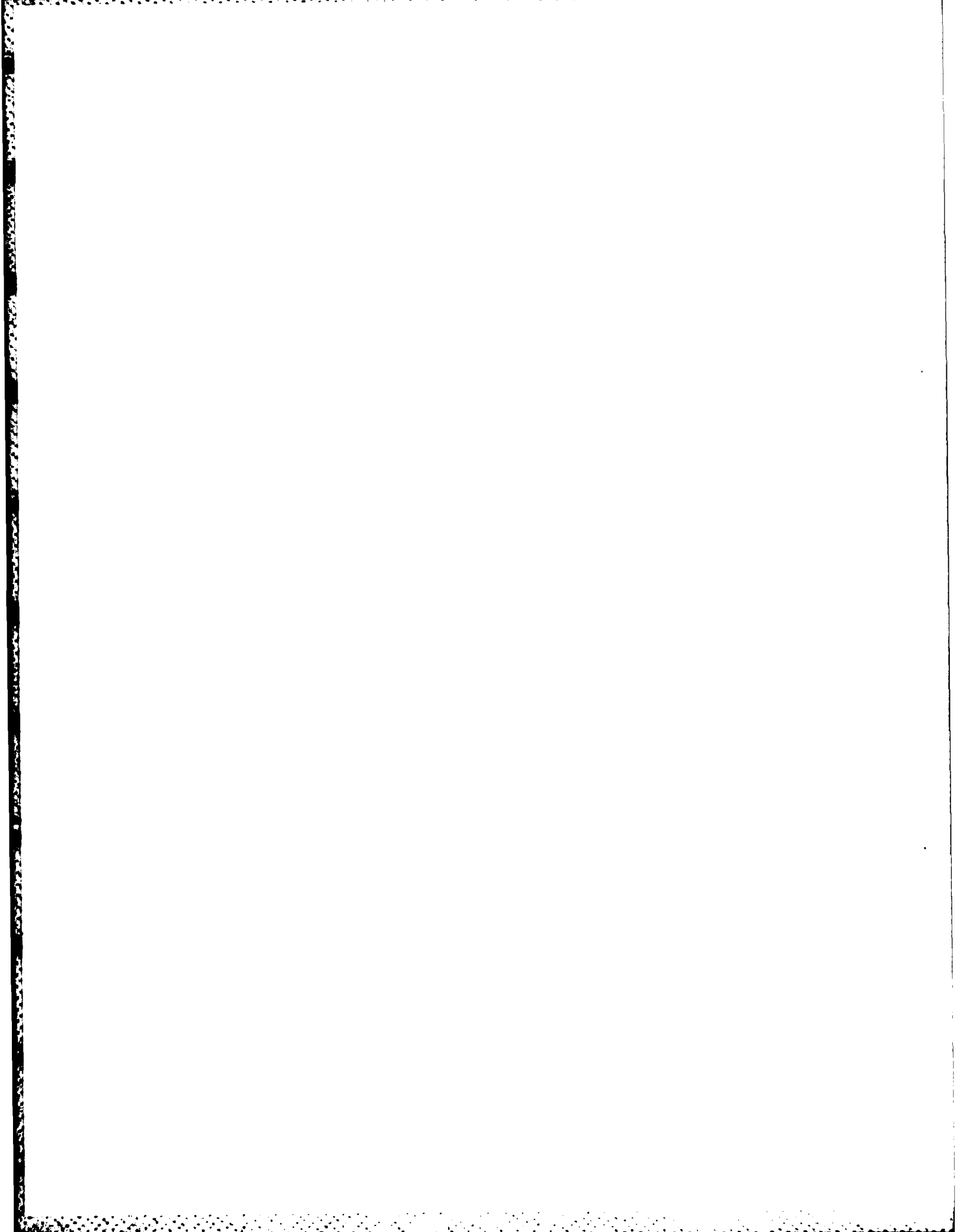
| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | STIRLINGS | | ORCS | FUEL CELLS | | | PHOTOVOLTAICS | | | WIND TURBINES | |
|------------------------|------|-------------------------|--------------|-----------------------------|------------------|---------------|-----------|-------------|------|------------|-----------------|------------------|---------------|------------|-----------------|---------------|---------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIABATIC | FREE PISTON | | KINEMATIC | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| 5.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| 20.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| 30.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| 60.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| 100.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| 250.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| 500.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| 750.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| 1000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| 5000.0 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |
| 2000 | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 5 | NCA | NCA | NCA | 3 | 3 | NCA | 3 | 3 |

PARAMETER: OPERATIONAL CONSTRAINTS UNITS: ORDINAL: 1-5

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | STIRLINGS | | ORCS | | FUEL CELLS | | | PHOTOVOLTAICS | | | WIND TURBINES | |
|------------------------|------|-------------------------|--------------|-----------------------------|------------------|---------------|-----------|-------------|-----------|-----|-----------------|------------------|---------------|---------------|-----------------|-------------|---------------|-----------------|
| | | REGENERATIVE OPEN-CYCLE | CLOSED CYCLE | NON-REGENERATIVE OPEN-CYCLE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIABATIC | FREE PISTON | KINEMATIC | | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOHERMAL | VERTICAL AXIS | HORIZONTAL AXIS |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| 5.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | 5 | 2 | 3 | NCA | NCA | 2 | 2 | NCA | NCA | 2 | 2 |

PARAMETER: THERMAL ENERGY AVAILABLE UNITS: ORDINAL, 1-5

| POWER OUTPUT LEVEL, KW | YEAR | GAS TURBINES | | | DIESELS | | | STIRLING'S | | | OMCS | | | FUEL CELLS | | | PHOTOVOLTAICS | | | WIND TURBINES | |
|------------------------|------|--------------|--------------|------------------|------------------|---------------|-----------|-------------|-----------|------|-----------------|------------------|---------------|------------|-----------------|---------------|---------------|-----------------|--|---------------|--|
| | | REGENERATIVE | CLOSED CYCLE | NON-REGENERATIVE | TURBO-COMPOUNDED | TURBO-CHARGED | ADIABATIC | FREE PISTON | KINEMATIC | OMCS | PHOSPHORIC ACID | MOLTEN CARBONATE | SOLID POLYMER | FLAT PLATE | ACTIVELY COOLED | PHOTOCHEMICAL | VERTICAL AXIS | HORIZONTAL AXIS | | | |
| 1.5 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | 1 | 1 | | | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | 1 | 1 | | | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | 1 | 1 | | | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | 1 | 1 | | | |
| 5.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | 1 | 1 | | | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | 1 | 1 | | | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | 1 | 1 | | | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | 1 | 1 | | | |
| 20.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| 30.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| 60.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| 100.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| 250.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| 500.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| 750.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| 1000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| 5000.0 | 1980 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1985 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 1990 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |
| | 2000 | NCA | NCA | NCA | NCA | NCA | NCA | NCA | 2 | NCA | NCA | NCA | NCA | NCA | 3 | NCA | NCA | 1 | | | |



BATTERY PARAMETERS

Because the batteries are modular, the parameter values are presented on a per kilowatt-hour basis where appropriate. The batteries supply dc power as output. A complete charge/discharge cycle is assumed to occur twice per day with a total discharge time of 16 hours. The batteries operate 365 days per year.

Certain parameters for the energy conversion technologies are not directly applicable to the battery technologies:

- Annual fuel consumption becomes electricity required for charging.
- Annual fuel cost becomes annual cost of electricity for charging.

The following parameters were excluded from the battery parameter survey because their values were the same for all of the batteries and therefore do no affect the decision as to the best technology for any given application.

- Charge time
- Discharge time
- Fuel capability
- Operational constraints.

PARAMETER: System Acquisition Cost

UNITS: 1980 Dollars/ kWhr capacity

BATTERIES

| Year of Value | Zn/Cl ₂ | Zn/Ni ₂ | Ni/Fe | Li-Al/FeS ₂ | Mo/S | Lead Acide | Nioid Cr-Fe |
|---------------|--------------------|--------------------|---------|------------------------|---------|------------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 1.83E02 | NCA |
| 1985 | NCA | NCA | 1.35E02 | 9.76E01 | NCA | 1.24E02 | NCA |
| 1990 | 9.60E01 | 6.56E01 | 1.35E02 | 9.76E01 | 8.66E01 | 1.18E02 | 7.58E01 |
| 2000 | 8.66E01 | 6.24E01 | 1.29E02 | 9.26E01 | 8.26E01 | 1.18E02 | 7.20E01 |

PARAMETER: Acquisition Cost (ex. B.O.P.)

UNITS: 1980 Dollars/kWhr capacity

BATTERIES

| Year of Value | Zn/Cl ₂ | Zn/Br ₂ | Ni/Fe | Li-Al/FeS ₂ | Hg/S | Lead Acids | Redox Cr-Fe |
|---------------|--------------------|--------------------|---------|------------------------|---------|------------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 1.23E02 | NCA |
| 1985 | NCA | NCA | 9.0E01 | 6.48E01 | NCA | 8.26E01 | NCA |
| 1990 | 6.42E01 | 4.38E01 | 9.00E01 | 6.48E01 | 5.80E01 | 7.84E01 | 5.06E01 |
| 2000 | 5.76E01 | 4.16E01 | 8.58E01 | 6.16E01 | 5.50E01 | 7.84E01 | 4.80E01 |

PARAMETER: Annual Operations and Maintenance Cost

UNITS: 1980 Dollars/Year per kWhr capacity

BATTERIES

| Year of Value | Zn/Cl ₂ | Zn/Br ₂ | Hg/Fe | Li-Al/Pb ₂ | Hg/S | Lead Acids | Sedex Cr-Fe |
|---------------|--------------------|--------------------|-------|-----------------------|------|------------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 3.66 | NCA |
| 1985 | NCA | NCA | 2.70 | 1.95 | NCA | 2.48 | NCA |
| 1990 | 1.92 | 1.31 | 2.70 | 1.95 | 1.73 | 2.36 | 1.52 |
| 2000 | 1.73 | 1.25 | 2.58 | 1.85 | 1.65 | 2.36 | 1.44 |

PARAMETER: EFFICIENCY UNITS: PER CENT

| YEAR | Zn/Cl ₂ | Zn/Br ₂ | Ni/Fe | Li-Al/Fe ₂ | Na/S | Lead Acid | Redox Cr-Fe |
|------|--------------------|--------------------|-------|-----------------------|------|-----------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 79.0 | NCA |
| 1985 | NCA | NCA | 65.0 | 75.0 | NCA | 82.0 | NCA |
| 1990 | 79.4 | 71.8 | 65.0 | 75.0 | 82.5 | 82.0 | 75.0 |
| 2000 | 83.4 | 75.4 | 68.3 | 82.0 | 84.0 | 83.0 | 78.8 |

PARAMETER: LIFETIME UNITS: YEARS

| YEAR | Zn/Cl ₂ | Zn/Br ₂ | Ni/Fe | Li-Al/Fe ₂ | Na/S | Lead Acid | Redox Cr-Fe |
|------|--------------------|--------------------|-------|-----------------------|------|-----------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 6.85E-01 | NCA |
| 1985 | NCA | NCA | 2.40 | 1.37 | NCA | 1.23 | NCA |
| 1990 | 3.08 | 3.00 | 2.74 | 2.74 | 2.30 | 1.29 | 20.0 |
| 2000 | 3.08 | 3.00 | 2.80 | 4.11 | 3.59 | 1.36 | 20.0 |

PARAMETER: Annual Electricity Required for Charging

UNITS: kWhr

| Year of Value | BATTERIES | | | | | | |
|---------------|--------------------|--------------------|---------|------------------------|---------|------------|-------------|
| | Zn/C1 ₂ | Zn/Br ₂ | Ni/Fe | Li-al/FeS ₂ | Na/S | Lead Acide | Redox Cr-Fe |
| 1980 | NCA | NCA | NCA | NCA | NCA | 1.03E03 | NCA |
| 1985 | NCA | NCA | 1.25E03 | 1.08E03 | NCA | 9.89E02 | NCA |
| 1990 | 1.02E+03 | 1.13E03 | 1.25E03 | 1.08E03 | 9.83E02 | 9.89E02 | 1.08E03 |
| 2000 | 9.73E+02 | 1.08E03 | 1.19E03 | 9.89E02 | 9.66E02 | 9.77E02 | 1.03E03 |

PARAMETER: Annual Cost of Electricity Required for Charging (Constant)

UNITS: 1980 Dollars

BATTERIES

| Year of Value | Zn/Cl ₂ | Zn/hr ₂ | Ni/Fe | Li-al/FeS ₂ | Mn/S | Lead Acids | Redox Cr-Fe |
|---------------|--------------------|--------------------|---------|------------------------|---------|------------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 1.62E01 | NCA |
| 1985 | NCA | NCA | 3.48E01 | 3.02E01 | NCA | 2.76E01 | NCA |
| 1990 | 2.85E01 | 3.15E01 | 3.48E01 | 3.02E01 | 2.74E01 | 2.76E01 | 3.02E01 |
| 2000 | 2.71E01 | 3.00E01 | 3.31E01 | 2.76E01 | 2.69E01 | 2.73E01 | 2.87E+01 |

PARAMETER: Annual Cost of Electricity Required for Charging (5%)

UNITS: 1980 Dollars

B A T T E R I E S

| Year of Value | Zn/Cl ₂ | Zn/Br ₂ | Ni/Fe | Li-Al/PbS ₂ | Na/S | Lead Acids | Redox Cr-Fe |
|---------------|--------------------|--------------------|---------|------------------------|---------|------------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 2.86E01 | NCA |
| 1985 | NCA | NCA | 4.44E01 | 3.85E01 | NCA | 3.52E01 | NCA |
| 1990 | 4.65E01 | 5.14E01 | 5.68E01 | 4.92E01 | 4.47E01 | 4.50E01 | 4.92E01 |
| 2000 | 7.21E01 | 7.97E01 | 8.80E01 | 7.33E01 | 7.16E01 | 7.24E01 | 7.63E01 |

PARAMETER: Annual Cost of Electricity Required for Charging (10%)

UNITS: 1980 Dollars

| Year of Value | BATTERIES | | | | | | |
|---------------|--------------------|--------------------|--------------------|------------------------|---------|------------|-------------|
| | Zn/Cl ₂ | Zn/Br ₂ | H ₂ /Fe | Li-Al/PbS ₂ | Ni/S | Lead Acide | Redox Cr-Fe |
| 1980 | NCA | NCA | NCA | NCA | NCA | 3.42E01 | NCA |
| 1985 | NCA | NCA | 5.60E01 | 4.86E01 | NCA | 4.44E01 | NCA |
| 1990 | 7.40E01 | 8.18E01 | 9.03E01 | 7.83E01 | 7.12E01 | 7.16E01 | 7.83E01 |
| 2000 | 1.83E02 | 2.20E02 | 2.23E02 | 1.86E02 | 1.82E02 | 1.84E02 | 1.94E02 |

PARAMETER: Life-Cycle Cost

UNITS: 1980 \$ per kWhr

BATTERIES

| Year of Value | Zn/Cl ₂ | Zn/Br ₂ | Bi/Fe | Li-Al/FeS ₂ | Mn/S | Lead Acids | Redox Cr-Fe |
|---------------|--------------------|--------------------|----------|------------------------|----------|------------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 1.80E-01 | NCA |
| 1985 | NCA | NCA | 6.39E-02 | 6.70E-02 | NCA | 8.48E-02 | NCA |
| 1990 | 4.25E-02 | 3.64E-02 | 5.98E-02 | 4.62E-02 | 4.49E-02 | 7.89E-02 | 2.59E-02 |
| 2000 | 3.92E-02 | 3.46E-02 | 5.65E-02 | 3.66E-02 | 3.57E-02 | 7.59E-02 | 2.46E-02 |

PARAMETER: Life-Cycle Cost (5%)

UNITS: 1980 Dollars per kWhr

BATTERIES

| Year of Value | Zn/Cl ₂ | Zn/Br ₂ | Mn/Fe | Li-Al/FeS ₂ | Mn/S | Lead Acids | Redox Cr-Fe |
|---------------|--------------------|--------------------|----------|------------------------|----------|------------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 1.95E-01 | NCA |
| 1985 | NCA | NCA | 8.23E-02 | 8.29E-02 | NCA | 9.94E-02 | NCA |
| 1990 | 6.64E-02 | 6.28E-02 | 8.90E-02 | 7.15E-02 | 6.79E-02 | 1.02E-01 | 5.11E-02 |
| 2000 | 8.61E-02 | 8.66E-02 | 1.14E-01 | 8.44E-02 | 8.24E-02 | 1.23E-01 | 7.43E-02 |

PARAMETER: Life-Cycle Cost (10%)

UNITS: 1980 Dollars per kWhr

BATTERIES

| Year of Value | Zn/Cl ₂ | Zn/Br ₂ | Ni/Fe | Li-Al/PoS ₂ | Na/S | Lead Acids | Redox Cr-Fe |
|---------------|--------------------|--------------------|----------|------------------------|----------|------------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 2.17E-01 | NCA |
| 1985 | NCA | NCA | 1.20E-01 | 1.16E-01 | NCA | 1.30E-01 | NCA |
| 1990 | 1.27E-01 | 1.30E-01 | 1.63E-01 | 1.36E-01 | 1.26E-01 | 1.61E-01 | 1.16E-01 |
| 2000 | 2.74E-01 | 2.94E-01 | 3.43E-01 | 2.75E-01 | 2.69E-01 | 3.12E-01 | 2.73E-01 |

PARAMETER: Volume

UNITS: Cubic feet/kWhr capacity

BATTERIES

| Year of Value | Zn/Cl ₂ | Zn/Br ₂ | Si/Fe | Li-Al/Fe ₂ | Na/S | Lead Acids | Batter Cr-Fe |
|---------------|--------------------|--------------------|-------|-----------------------|------|------------|--------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 9.10 | NCA |
| 1985 | NCA | NCA | 4.88 | 2.13 | NCA | 9.10 | NCA |
| 1990 | 4.55 | 2.44 | 4.88 | 2.13 | 5.26 | 9.10 | 6.67 |
| 2000 | 4.55 | 2.44 | 4.88 | 2.13 | 5.26 | 9.10 | 6.67 |

PARAMETER: Volume (ex. B.O.P.)

UNITS: Cubic feet/kWhr capacity

| Year of Value | BATTERIES | | | | | | |
|---------------|--------------------|--------------------|----------|------------------------|----------|------------|-------------|
| | Zn/Cl ₂ | Zn/Br ₂ | Ni/Pb | Li-Al/VeS ₂ | Na/S | Lead Acids | Radex Cr-Fe |
| 1980 | NCA | NCA | NCA | NCA | NCA | 7.14E-01 | NCA |
| 1985 | NCA | NCA | 3.83E-01 | 1.79E-01 | NCA | 7.14E-01 | NCA |
| 1990 | 1.30 | 1.19 | 3.83E-01 | 1.79E-01 | 1.44E-01 | 7.14E-01 | 2.00E-02 |
| 2000 | 1.30 | 1.19 | 3.83E-01 | 1.79E-01 | 1.44E-01 | 7.14E-01 | 2.00E-02 |

PARAMETER: Area

UNITS: Square feet/kWhr capacity

BATTERIES

| Year of Value | Zn/Cl ₂ | Zn/Hr ₂ | Ni/Fe | Li-al/FeS ₂ | Mo/S | Lead Acids | Redox Cr-Fe |
|---------------|--------------------|--------------------|----------|------------------------|----------|------------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 7.0E-01 | NCA |
| 1985 | NCA | NCA | 8.14E-01 | 3.79E-01 | NCA | 7.0E-01 | NCA |
| 1990 | 3.50E-01 | 2.50E-01 | 8.14E-01 | 3.79E-01 | 5.21E-01 | 7.0E-01 | 5.06E-01 |
| 2000 | 3.50E-01 | 2.50E-01 | 8.14E-01 | 3.79E-01 | 5.21E-01 | 7.0E-01 | 5.06E-01 |

PARAMETER: Area (ex. B.O.P.)

UNITS: Square feet/kWhr capacity

| Year of Value | BATTERIES | | | | | | |
|---------------|--------------------|--------------------|----------|------------------------|----------|------------|-------------|
| | Zn/Cl ₂ | Zn/Br ₂ | Ni/Fe | Li-Al/FeS ₂ | Hg/S | Lead Acide | Redox Cr-Fe |
| 1980 | NCA | NCA | NCA | NCA | NCA | 2.46E-01 | NCA |
| 1985 | NCA | NCA | 4.01E-01 | 1.92E-01 | NCA | 2.46E-01 | NCA |
| 1990 | 1.33E-01 | 1.33E-01 | 4.01E-01 | 1.92E-01 | 1.10E-01 | 2.46E-01 | 7.37E-02 |
| 2000 | 1.33E-01 | 1.33E-01 | 4.01E-01 | 1.92E-01 | 1.10E-01 | 2.46E-01 | 7.37E-02 |

PARAMETER: Weight

UNITS: Pounds/kWhr capacity

BATTERIES

| Year or Value | Zn/Cl ₂ | Zn/Hr ₂ | Wt/Fe | Li-Al/FeS ₂ | Na/S | Lead Acide | Redox Cr-Fe |
|---------------|--------------------|--------------------|---------|------------------------|---------|------------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 9.80E01 | NCA |
| 1985 | NCA | NCA | 5.62E01 | 2.60E01 | NCA | 7.36E01 | NCA |
| 1990 | 2.61E01 | 4.05E01 | 5.32E01 | 2.54E01 | 3.44E01 | 6.76E01 | 3.60E01 |
| 2000 | 2.44E01 | 4.05E01 | 4.89E01 | 2.36E01 | 2.83E01 | 6.28E01 | 3.60E01 |

PARAMETER: Weight (ex. B.O.P.)

UNITS: Pounds/kWhr capacity

| Year of Value | BATTERIES | | | | | | |
|---------------|--------------------|--------------------|---------|------------------------|---------|------------|-------------|
| | Zn/Cl ₂ | Zn/Br ₂ | Hg/Fe | Li-Al/FeS ₂ | Mn/S | Lead Acids | Redox Cr-Fe |
| 1980 | NCA | NCA | NCA | NCA | NCA | 8.16E01 | NCA |
| 1985 | NCA | NCA | 4.68E01 | 2.18E01 | NCA | 6.12E01 | NCA |
| 1990 | 2.18E01 | 3.38E01 | 4.44E01 | 2.12E01 | 2.86E01 | 5.64E01 | 3.00E01 |
| 2000 | 2.04E01 | 3.38E01 | 4.08E01 | 1.97E01 | 2.36E01 | 5.24E01 | 3.00E01 |

PARAMETER: RAW MATERIALS

UNITS: Ordinal; 1-5

| YEAR | Zn/Cl ₂ | Zn/Br ₂ | Ni/Fe | Li-Al/Fe ₂ | Na/S | Lead Acid | Redox Cr-Fe |
|------|--------------------|--------------------|-------|-----------------------|------|-----------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 5 | NCA |
| 1985 | NCA | NCA | 4 | 4 | NCA | 5 | NCA |
| 1990 | 3 | 3 | 4 | 4 | 4 | 5 | 2 |
| 2000 | 3 | 3 | 4 | 4 | 4 | 5 | 2 |

PARAMETER: Reliability

UNITS: Ordinal; 1-5

BATTERIES

| Year of Value | Zn/Cl ₂ | Zn/Br ₂ | Ni/Fe | Li-Al/FeS ₂ | Ni/S | Lead Acids | Redox Cr-Fe |
|---------------|--------------------|--------------------|-------|------------------------|------|------------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 4 | NCA |
| 1985 | NCA | NCA | 4 | 3 | NCA | 4 | NCA |
| 1990 | 4 | 4 | 4 | 3 | 3 | 4 | 4 |
| 2000 | 4 | 4 | 4 | 3 | 3 | 4 | 4 |

PARAMETER: ENVIRONMENTAL CONSTRAINTS UNITS: Ordinal; 1-5

| YEAR | Zn/Cl ₂ | Zn/Bi ₂ | Ni/Fe | Li-Al/Fe ₂ | Na/S | Lead Acid | Cr-Fe Redox |
|------|--------------------|--------------------|-------|-----------------------|------|-----------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 5 | NCA |
| 1985 | NCA | NCA | 5 | 5 | NCA | 5 | NCA |
| 1990 | 4 | 4 | 5 | 5 | 5 | 5 | 5 |
| 2000 | 4 | 4 | 5 | 5 | 5 | 5 | 5 |

PARAMETER: THERMAL ENERGY AVAILABLE UNITS: Ordinal; 1-5

| YEAR | Zn/Cl ₂ | Zn/Br ₂ | Ni/Fe | Li-Al/FeS ₂ | Na/S | Lead Acid | Redox Cr-Fe |
|------|--------------------|--------------------|-------|------------------------|------|-----------|-------------|
| 1980 | NCA | NCA | NCA | NCA | NCA | 1 | NCA |
| 1985 | NCA | NCA | 1 | 3 | NCA | 1 | NCA |
| 1990 | 1 | 1 | 1 | 3 | 3 | 1 | 1 |
| 2000 | 1 | 1 | 1 | 3 | 3 | 1 | 1 |

THERMAL ENERGY STORAGE PARAMETERS

This section presents the parameter values for thermal energy storage (TES) technologies. TES devices were assumed to be applicable for space-heating with a continuous diurnal cycle with 365 days per year operation.

The TES parameters are for the total system. Therefore this section does not include any of the "ex. BOP" parameters that were included for the batteries and the energy conversion technologies. Certain parameters for the energy conversion technologies are not directly applicable to the TES technologies:

- Annual fuel consumption becomes annual energy required for charging.
- Annual fuel cost becomes annual cost of energy required for charging.
- Start-up time becomes charge time.
- Shutdown time becomes discharge time.
- Fuel capability becomes charging energy requirements.

The following parameters were excluded from the TES parameter survey because their values were the same for all of the TES technologies and therefore do not affect the decision as to the best technology for any given application:

- Locational constraints
- Environmental constraints
- Thermal energy available
- Lifetime.

PARAMETER: TYPE

UNITS: Mobile ^(M) / Transportable ^(T) / Fixed ^(F)

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ ·6 H ₂ O | Na ₂ SO ₄ ·10 H ₂ O | Na ₂ O ₃ ·5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|---------------------------------------|--|--|-----------------|-------------------|--------------------------|
| 50 | 1980 | M | M | NCA | M | M | NCA |
| | 1985 | M | M | M | M | M | NCA |
| | 1990 | M | M | M | M | M | M |
| | 2000 | M | M | M | M | M | M |
| 100 | 1980 | M | M | NCA | M | M | NCA |
| | 1985 | M | M | M | M | M | NCA |
| | 1990 | M | M | M | M | M | M |
| | 2000 | M | M | M | M | M | M |
| 250 | 1980 | M | M | NCA | M | M | NCA |
| | 1985 | M | M | M | M | M | NCA |
| | 1990 | M | M | M | M | M | M |
| | 2000 | M | M | M | M | M | M |
| 500 | 1980 | M | M | NCA | F | F | NCA |
| | 1985 | M | M | M | F | F | NCA |
| | 1990 | M | M | M | F | F | M |
| | 2000 | M | M | M | F | F | M |
| 1000 | 1980 | M | M | NCA | F | F | NCA |
| | 1985 | M | M | M | F | F | NCA |
| | 1990 | M | M | M | F | F | M |
| | 2000 | M | M | M | F | F | M |
| 5000 | 1980 | M | M | NCA | F | F | NCA |
| | 1985 | M | M | M | F | F | NCA |
| | 1990 | M | M | M | F | F | M |
| | 2000 | M | M | M | F | F | M |
| 12500 | 1980 | M | M | NCA | F | F | NCA |
| | 1985 | M | M | M | F | F | NCA |
| | 1990 | M | M | M | F | F | M |
| | 2000 | M | M | M | F | F | M |
| 25,000 | 1980 | M | M | NCA | F | F | NCA |
| | 1985 | M | M | M | F | F | NCA |
| | 1990 | M | M | M | F | F | M |
| | 2000 | M | M | M | F | F | M |
| 37,500 | 1980 | F | M | NCA | F | F | NCA |
| | 1985 | F | M | M | F | F | NCA |
| | 1990 | F | M | M | F | F | M |
| | 2000 | F | M | M | F | F | M |
| 50,000 | 1980 | F | M | NCA | F | F | NCA |
| | 1985 | F | M | M | F | F | NCA |
| | 1990 | F | M | M | F | F | F |
| | 2000 | F | M | M | F | F | F |
| 250,000 | 1980 | F | F | NCA | F | F | NCA |
| | 1985 | F | F | F | F | F | NCA |
| | 1990 | F | F | F | F | F | F |
| | 2000 | F | F | F | F | F | F |

PARAMETER: CHARGING ENERGY CAPABILITY UNITS: Thermal (T)/Electric (E)

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ ·6 H ₂ O | Na ₂ SO ₄ ·10 H ₂ O | Na ₂ O ₃ ·5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|---------------------------------------|--|--|-----------------|-------------------|--------------------------|
| 50 | 1980 | T | T | NCA | E | E | NCA |
| | 1985 | T | T | T | E | E | NCA |
| | 1990 | T | T | T | E | E | T |
| | 2000 | T | T | T | E | E | T |
| 100 | 1980 | T | T | NCA | E | E | NCA |
| | 1985 | T | T | T | E | E | NCA |
| | 1990 | T | T | T | E | E | T |
| | 2000 | T | T | T | E | E | T |
| 250 | 1980 | T | T | NCA | E | E | NCA |
| | 1985 | T | T | T | E | E | NCA |
| | 1990 | T | T | T | E | E | T |
| | 2000 | T | T | T | E | E | T |
| 500 | 1980 | T | T | NCA | E | E | NCA |
| | 1985 | T | T | T | E | E | NCA |
| | 1990 | T | T | T | E | E | T |
| | 2000 | T | T | T | E | E | T |
| 1000 | 1980 | T | T | NCA | E | E | NCA |
| | 1985 | T | T | T | E | E | NCA |
| | 1990 | T | T | T | E | E | T |
| | 2000 | T | T | T | E | E | T |
| 5000 | 1980 | T | T | NCA | E | E | NCA |
| | 1985 | T | T | T | E | E | NCA |
| | 1990 | T | T | T | E | E | T |
| | 2000 | T | T | T | E | E | T |
| 12500 | 1980 | T | T | NCA | E | E | NCA |
| | 1985 | T | T | T | E | E | NCA |
| | 1990 | T | T | T | E | E | T |
| | 2000 | T | T | T | E | E | T |
| 25,000 | 1980 | T | T | NCA | E | E | NCA |
| | 1985 | T | T | T | E | E | NCA |
| | 1990 | T | T | T | E | E | T |
| | 2000 | T | T | T | E | E | T |
| 37,500 | 1980 | T | T | NCA | E | E | NCA |
| | 1985 | T | T | T | E | E | NCA |
| | 1990 | T | T | T | E | E | T |
| | 2000 | T | T | T | E | E | T |
| 50,000 | 1980 | T | T | NCA | E | E | NCA |
| | 1985 | T | T | T | E | E | NCA |
| | 1990 | T | T | T | E | E | T |
| | 2000 | T | T | T | E | E | T |
| 250,000 | 1980 | T | T | NCA | E | E | NCA |
| | 1985 | T | T | T | E | E | NCA |
| | 1990 | T | T | T | E | E | T |
| | 2000 | T | T | T | E | E | T |

PARAMETER: SYSTEM ACQUISITION COST UNITS: 1980 Dollars

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl·6 H ₂ O | Na ₂ SO ₄ ·10 H ₂ O | Na ₂ O ₃ ·5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|-------------------------|--|--|-----------------|-------------------|--------------------------|
| 50 | 1980 | 503 | 776 | NCA | 255 | 502 | NCA |
| | 1985 | 453 | 698 | 491 | 255 | 313 | NCA |
| | 1990 | 453 | 698 | 491 | 255 | 313 | 812 |
| | 2000 | 453 | 698 | 491 | 255 | 313 | 812 |
| 100 | 1980 | 867 | 1360 | NCA | 485 | 892 | NCA |
| | 1985 | 780 | 1220 | 842 | 485 | 558 | NCA |
| | 1990 | 780 | 1220 | 842 | 485 | 558 | 1400 |
| | 2000 | 780 | 1220 | 842 | 485 | 558 | 1400 |
| 250 | 1980 | 1740 | 2790 | NCA | 1130 | 1880 | NCA |
| | 1985 | 1570 | 2510 | 1680 | 1130 | 1180 | NCA |
| | 1990 | 1570 | 2510 | 1680 | 1130 | 1180 | 2780 |
| | 2000 | 1570 | 2510 | 1680 | 1130 | 1180 | 2780 |
| 500 | 1980 | 2870 | 4730 | NCA | 2140 | 3270 | NCA |
| | 1985 | 2580 | 4260 | 2750 | 2140 | 2040 | NCA |
| | 1990 | 2580 | 4260 | 2750 | 2140 | 2040 | 4460 |
| | 2000 | 2580 | 4260 | 2750 | 2140 | 2040 | 4460 |
| 1000 | 1980 | 4590 | 7830 | NCA | 4040 | 5600 | NCA |
| | 1985 | 4130 | 7050 | 4330 | 4040 | 3500 | NCA |
| | 1990 | 4130 | 7050 | 4330 | 4040 | 3500 | 6710 |
| | 2000 | 4130 | 7050 | 4330 | 4040 | 3500 | 6710 |
| 5000 | 1980 | 10600 | 21900 | NCA | 17400 | 18000 | NCA |
| | 1985 | 9540 | 19700 | 9300 | 17400 | 11300 | NCA |
| | 1990 | 9540 | 19700 | 9300 | 17400 | 11300 | 7950 |
| | 2000 | 9540 | 19700 | 9300 | 17400 | 11300 | 7950 |
| 12500 | 1980 | 26500 | 32000 | NCA | 43500 | 45000 | NCA |
| | 1985 | 23900 | 28800 | 23300 | 43500 | 28100 | NCA |
| | 1990 | 23900 | 28800 | 23300 | 43500 | 28100 | 19900 |
| | 2000 | 23900 | 28800 | 23300 | 43500 | 28100 | 19900 |
| 25,000 | 1980 | 53000 | 64000 | NCA | 87000 | 90000 | NCA |
| | 1985 | 47700 | 57600 | 46500 | 87000 | 56300 | NCA |
| | 1990 | 47700 | 57600 | 46500 | 87000 | 56300 | 39800 |
| | 2000 | 47700 | 57600 | 46500 | 87000 | 56300 | 39800 |
| 37,500 | 1980 | 79500 | 96000 | NCA | 131000 | 135000 | NCA |
| | 1985 | 71600 | 86400 | 69800 | 131000 | 84400 | NCA |
| | 1990 | 71600 | 86400 | 69800 | 131000 | 84400 | 59600 |
| | 2000 | 71600 | 86400 | 69800 | 131000 | 84400 | 59600 |
| 50,000 | 1980 | 106000 | 128000 | NCA | 174000 | 180000 | NCA |
| | 1985 | 95400 | 115000 | 93000 | 174000 | 113000 | NCA |
| | 1990 | 95400 | 115000 | 93000 | 174000 | 113000 | 79500 |
| | 2000 | 95400 | 115000 | 93000 | 174000 | 113000 | 79500 |
| 250,000 | 1980 | 530000 | 640000 | NCA | 870000 | 900000 | NCA |
| | 1985 | 477000 | 576000 | 465000 | 870000 | 563000 | NCA |
| | 1990 | 477000 | 576000 | 465000 | 870000 | 563000 | 398000 |
| | 2000 | 477000 | 576000 | 465000 | 870000 | 563000 | 398000 |

PARAMETER: ANNUAL O & M COSTS

UNITS: 1980 Dollars

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ ·6 H ₂ O | Na ₂ SO ₄ · 10 H ₂ O | Na ₂ O ₃ · 5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|---------------------------------------|---|---|-----------------|-------------------|--------------------------|
| 50 | 1980 | 2.63 | 41.10 | NCA | 7.88 | 15.50 | NCA |
| | 1985 | 2.37 | 37.00 | 63.80 | 7.88 | 9.69 | NCA |
| | 1990 | 2.37 | 37.00 | 63.80 | 7.88 | 9.69 | 24.40 |
| | 2000 | 2.37 | 37.00 | 63.80 | 7.88 | 9.69 | 24.40 |
| 100 | 1980 | 4.98 | 72.10 | NCA | 13.10 | 24.20 | NCA |
| | 1985 | 4.48 | 64.90 | 109.00 | 13.10 | 15.10 | NCA |
| | 1990 | 4.48 | 64.90 | 109.00 | 13.10 | 15.10 | 42.00 |
| | 2000 | 4.48 | 64.90 | 109.00 | 13.10 | 15.15 | 42.00 |
| 250 | 1980 | 11.60 | 148.00 | NCA | 24.90 | 41.40 | NCA |
| | 1985 | 10.40 | 133.00 | 218.00 | 24.90 | 25.90 | NCA |
| | 1990 | 10.40 | 133.00 | 218.00 | 24.90 | 25.90 | 83.40 |
| | 2000 | 10.40 | 133.00 | 218.00 | 24.90 | 25.90 | 83.40 |
| 500 | 1980 | 21.70 | 251.00 | NCA | 38.90 | 59.50 | NCA |
| | 1985 | 19.50 | 226.00 | 358.00 | 38.90 | 37.20 | NCA |
| | 1990 | 19.50 | 226.00 | 358.00 | 38.90 | 37.20 | 134.00 |
| | 2000 | 19.50 | 226.00 | 358.00 | 38.90 | 37.20 | 134.00 |
| 1000 | 1980 | 40.60 | 415.00 | NCA | 58.20 | 80.60 | NCA |
| | 1985 | 36.50 | 374.00 | 563.00 | 58.20 | 50.40 | NCA |
| | 1990 | 36.50 | 374.00 | 563.00 | 58.20 | 50.40 | 201.00 |
| | 2000 | 36.50 | 374.00 | 563.00 | 58.20 | 50.40 | 201.00 |
| 5000 | 1980 | 171.00 | 1160.00 | NCA | 97.40 | 101.00 | NCA |
| | 1985 | 154.00 | 1040.00 | 1210.00 | 97.40 | 63.10 | NCA |
| | 1990 | 154.00 | 1040.00 | 1210.00 | 97.40 | 63.10 | 239.00 |
| | 2000 | 154.00 | 1040.00 | 1210.00 | 97.40 | 63.10 | 239.00 |
| 12500 | 1980 | 380.00 | 1700.00 | NCA | 244.00 | 252.00 | NCA |
| | 1985 | 342.00 | 1530.00 | 3030.00 | 244.00 | 158.00 | NCA |
| | 1990 | 342.00 | 1530.00 | 3030.00 | 244.00 | 158.00 | 597.00 |
| | 2000 | 342.00 | 1530.00 | 3030.00 | 244.00 | 158.00 | 597.00 |
| 25,000 | 1980 | 691 | 3390 | NCA | 487 | 504 | NCA |
| | 1985 | 622 | 3050 | 6050 | 487 | 315 | NCA |
| | 1990 | 622 | 3050 | 6050 | 487 | 315 | 1190 |
| | 2000 | 622 | 3050 | 6050 | 487 | 315 | 1190 |
| 37,500 | 1980 | 976 | 5090 | NCA | 734 | 756 | NCA |
| | 1985 | 878 | 4580 | 9070 | 734 | 473 | NCA |
| | 1990 | 878 | 4580 | 9070 | 734 | 473 | 1790 |
| | 2000 | 878 | 4580 | 9070 | 734 | 473 | 1790 |
| 50,000 | 1980 | 1240 | 6780 | NCA | 974 | 1010 | NCA |
| | 1985 | 1120 | 6100 | 12100 | 974 | 631 | NCA |
| | 1990 | 1120 | 6100 | 12100 | 974 | 631 | 2390 |
| | 2000 | 1120 | 6100 | 12100 | 974 | 631 | 2390 |
| 250,000 | 1980 | 4610 | 33900 | NCA | 4870 | 5040 | NCA |
| | 1985 | 4150 | 30500 | 60500 | 4870 | 3150 | NCA |
| | 1990 | 4150 | 30500 | 60500 | 4870 | 3150 | 11900 |
| | 2000 | 4150 | 30500 | 60500 | 4870 | 3150 | 11900 |

PARAMETER: SYSTEM EFFICIENCY

UNITS: Percent

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ ·6 H ₂ O | Na ₂ SO ₄ ·10 H ₂ O | Na ₂ O ₃ ·5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|---------------------------------------|--|--|-----------------|-------------------|--------------------------|
| 50 | 1980 | 95 | 95 | NCA | 95 | 95 | NCA |
| | 1985 | 95 | 95 | 95 | 95 | 95 | NCA |
| | 1990 | 95 | 95 | 95 | 95 | 95 | 95 |
| | 2000 | 95 | 95 | 95 | 95 | 95 | 95 |
| 100 | 1980 | 95 | 95 | NCA | 95 | 95 | NCA |
| | 1985 | 95 | 95 | 95 | 95 | 95 | NCA |
| | 1990 | 95 | 95 | 95 | 95 | 95 | 95 |
| | 2000 | 95 | 95 | 95 | 95 | 95 | 95 |
| 250 | 1980 | 95 | 95 | NCA | 95 | 95 | NCA |
| | 1985 | 95 | 95 | 95 | 95 | 95 | NCA |
| | 1990 | 95 | 95 | 95 | 95 | 95 | 95 |
| | 2000 | 95 | 95 | 95 | 95 | 95 | 95 |
| 500 | 1980 | 95 | 95 | NCA | 95 | 95 | NCA |
| | 1985 | 95 | 95 | 95 | 95 | 95 | NCA |
| | 1990 | 95 | 95 | 95 | 95 | 95 | 95 |
| | 2000 | 95 | 95 | 95 | 95 | 95 | 95 |
| 1000 | 1980 | 95 | 95 | NCA | 95 | 95 | NCA |
| | 1985 | 95 | 95 | 95 | 95 | 95 | NCA |
| | 1990 | 95 | 95 | 95 | 95 | 95 | 95 |
| | 2000 | 95 | 95 | 95 | 95 | 95 | 95 |
| 5000 | 1980 | 95 | 95 | NCA | 95 | 95 | NCA |
| | 1985 | 95 | 95 | 95 | 95 | 95 | NCA |
| | 1990 | 95 | 95 | 95 | 95 | 95 | 95 |
| | 2000 | 95 | 95 | 95 | 95 | 95 | 95 |
| 12500 | 1980 | 95 | 95 | NCA | 95 | 95 | NCA |
| | 1985 | 95 | 95 | 95 | 95 | 95 | NCA |
| | 1990 | 95 | 95 | 95 | 95 | 95 | 95 |
| | 2000 | 95 | 95 | 95 | 95 | 95 | 95 |
| 25,000 | 1980 | 95 | 95 | NCA | 95 | 95 | NCA |
| | 1985 | 95 | 95 | 95 | 95 | 95 | NCA |
| | 1990 | 95 | 95 | 95 | 95 | 95 | 95 |
| | 2000 | 95 | 95 | 95 | 95 | 95 | 95 |
| 37,500 | 1980 | 95 | 95 | NCA | 95 | 95 | NCA |
| | 1985 | 95 | 95 | 95 | 95 | 95 | NCA |
| | 1990 | 95 | 95 | 95 | 95 | 95 | 95 |
| | 2000 | 95 | 95 | 95 | 95 | 95 | 95 |
| 50,000 | 1980 | 95 | 95 | NCA | 95 | 95 | NCA |
| | 1985 | 95 | 95 | 95 | 95 | 95 | NCA |
| | 1990 | 95 | 95 | 95 | 95 | 95 | 95 |
| | 2000 | 95 | 95 | 95 | 95 | 95 | 95 |
| 250,000 | 1980 | 95 | 95 | NCA | 95 | 95 | NCA |
| | 1985 | 95 | 95 | 95 | 95 | 95 | NCA |
| | 1990 | 95 | 95 | 95 | 95 | 95 | 95 |
| | 2000 | 95 | 95 | 95 | 95 | 95 | 95 |

**ANNUAL ENERGY REQUIRED
FOR CHARGING**

PARAMETER:

UNITS: Btu

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ · 6 H ₂ O | Na ₂ SO ₄ · 10 H ₂ O | Na ₂ O ₃ · 5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|--|---|---|-----------------|-------------------|--------------------------|
| 50 | 1980 | 1.92E07 | 1.92E07 | NCA | 1.92E07 | 1.92E07 | NCA |
| | 1985 | 1.92E07 | 1.92E07 | 1.92E07 | 1.92E07 | 1.92E07 | NCA |
| | 1990 | 1.92E07 | 1.92E07 | 1.92E07 | 1.92E07 | 1.92E07 | 1.92E07 |
| | 2000 | 1.92E07 | 1.92E07 | 1.92E07 | 1.92E07 | 1.92E07 | 1.92E07 |
| 100 | 1980 | 3.84E07 | 3.84E07 | NCA | 3.84E07 | 3.84E07 | NCA |
| | 1985 | 3.84E07 | 3.84E07 | 3.84E07 | 3.84E07 | 3.84E07 | NCA |
| | 1990 | 3.84E07 | 3.84E07 | 3.84E07 | 3.84E07 | 3.84E07 | 3.84E07 |
| | 2000 | 3.84E07 | 3.84E07 | 3.84E07 | 3.84E07 | 3.84E07 | 3.84E07 |
| 250 | 1980 | 9.61E07 | 9.61E07 | NCA | 9.61E07 | 9.61E07 | NCA |
| | 1985 | 9.61E07 | 9.61E07 | 9.61E07 | 9.61E07 | 9.61E07 | NCA |
| | 1990 | 9.61E07 | 9.61E07 | 9.61E07 | 9.61E07 | 9.61E07 | 9.61E07 |
| | 2000 | 9.61E07 | 9.61E07 | 9.61E07 | 9.61E07 | 9.61E07 | 9.61E07 |
| 500 | 1980 | 1.92E08 | 1.92E08 | NCA | 1.92E08 | 1.92E08 | NCA |
| | 1985 | 1.92E08 | 1.92E08 | 1.92E08 | 1.92E08 | 1.92E08 | NCA |
| | 1990 | 1.92E08 | 1.92E08 | 1.92E08 | 1.92E08 | 1.92E08 | 1.92E08 |
| | 2000 | 1.92E08 | 1.92E08 | 1.92E08 | 1.92E08 | 1.92E08 | 1.92E08 |
| 1000 | 1980 | 3.84E08 | 3.84E08 | NCA | 3.84E08 | 3.84E08 | NCA |
| | 1985 | 3.84E08 | 3.84E08 | 3.84E08 | 3.84E08 | 3.84E08 | NCA |
| | 1990 | 3.84E08 | 3.84E08 | 3.84E08 | 3.84E08 | 3.84E08 | 3.84E08 |
| | 2000 | 3.84E08 | 3.84E08 | 3.84E08 | 3.84E08 | 3.84E08 | 3.84E08 |
| 5000 | 1980 | 1.92E09 | 1.92E09 | NCA | 1.92E09 | 1.92E09 | NCA |
| | 1985 | 1.92E09 | 1.92E09 | 1.92E09 | 1.92E09 | 1.92E09 | NCA |
| | 1990 | 1.92E09 | 1.92E09 | 1.92E09 | 1.92E09 | 1.92E09 | 1.92E09 |
| | 2000 | 1.92E08 | 1.92E09 | 1.92E09 | 1.92E09 | 1.92E09 | 1.92E09 |
| 12500 | 1980 | 4.80E09 | 4.80E09 | NCA | 4.80E09 | 4.80E09 | NCA |
| | 1985 | 4.80E09 | 4.80E09 | 4.80E09 | 4.80E09 | 4.80E09 | NCA |
| | 1990 | 4.80E09 | 4.80E09 | 4.80E09 | 4.80E09 | 4.80E09 | 4.80E09 |
| | 2000 | 4.80E09 | 4.80E09 | 4.80E09 | 4.80E09 | 4.80E09 | 4.80E09 |
| 25,000 | 1980 | 9.61E09 | 9.61E09 | NCA | 9.61E09 | 9.61E09 | NCA |
| | 1985 | 9.61E09 | 9.61E09 | 9.61E09 | 9.61E09 | 9.61E09 | NCA |
| | 1990 | 9.61E09 | 9.61E09 | 9.61E09 | 9.61E09 | 9.61E09 | 9.61E09 |
| | 2000 | 9.61E09 | 9.61E09 | 9.61E09 | 9.61E09 | 9.61E09 | 9.61E09 |
| 37,500 | 1980 | 1.44E10 | 1.44E10 | NCA | 1.44E10 | 1.44E10 | NCA |
| | 1985 | 1.44E10 | 1.44E10 | 1.44E10 | 1.44E10 | 1.44E10 | NCA |
| | 1990 | 1.44E10 | 1.44E10 | 1.44E10 | 1.44E10 | 1.44E10 | 1.44E10 |
| | 2000 | 1.44E10 | 1.44E10 | 1.44E10 | 1.44E10 | 1.44E10 | 1.44E10 |
| 50,000 | 1980 | 1.92E10 | 1.92E10 | NCA | 1.92E10 | 1.92E10 | NCA |
| | 1985 | 1.92E10 | 1.92E10 | 1.92E10 | 1.92E10 | 1.92E10 | NCA |
| | 1990 | 1.92E10 | 1.92E10 | 1.92E10 | 1.92E10 | 1.92E10 | 1.92E10 |
| | 2000 | 1.92E10 | 1.92E10 | 1.92E10 | 1.92E10 | 1.92E10 | 1.92E10 |
| 250,000 | 1980 | 9.61E10 | 9.61E10 | NCA | 9.61E10 | 9.61E10 | NCA |
| | 1985 | 9.61E10 | 9.61E10 | 9.61E10 | 9.61E10 | 9.61E10 | NCA |
| | 1990 | 9.61E10 | 9.61E10 | 9.61E10 | 9.61E10 | 9.61E10 | 9.61E10 |
| | 2000 | 9.61E10 | 9.61E10 | 9.61E10 | 9.61E10 | 9.61E10 | 9.61E10 |

ANNUAL COST OF ENERGY
REQUIRED FOR CHARGING

PARAMETER:

UNITS: 1980 Dollars

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ · 6 H ₂ O | Na ₂ SO ₄ · 10 H ₂ O | Na ₂ O ₃ · 5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|--|---|---|-----------------|-------------------|--------------------------|
| 50 | 1980 | 0 | 0 | NCA | 89 | 89 | NCA |
| | 1985 | 0 | 0 | 0 | 157 | 157 | NCA |
| | 1990 | 0 | 0 | 0 | 157 | 157 | 0 |
| | 2000 | 0 | 0 | 0 | 157 | 157 | 0 |
| 100 | 1980 | 0 | 0 | NCA | 178 | 178 | NCA |
| | 1985 | 0 | 0 | 0 | 314 | 314 | NCA |
| | 1990 | 0 | 0 | 0 | 314 | 314 | 0 |
| | 2000 | 0 | 0 | 0 | 314 | 314 | 0 |
| 250 | 1980 | 0 | 0 | NCA | 446 | 446 | NCA |
| | 1985 | 0 | 0 | 0 | 786 | 786 | NCA |
| | 1990 | 0 | 0 | 0 | 786 | 786 | 0 |
| | 2000 | 0 | 0 | 0 | 786 | 786 | 0 |
| 500 | 1980 | 0 | 0 | NCA | 891 | 891 | NCA |
| | 1985 | 0 | 0 | 0 | 1570 | 1570 | NCA |
| | 1990 | 0 | 0 | 0 | 1570 | 1570 | 0 |
| | 2000 | 0 | 0 | 0 | 1570 | 1570 | 0 |
| 1000 | 1980 | 0 | 0 | NCA | 1780 | 1780 | NCA |
| | 1985 | 0 | 0 | 0 | 3140 | 3140 | NCA |
| | 1990 | 0 | 0 | 0 | 3140 | 3140 | 0 |
| | 2000 | 0 | 0 | 0 | 3140 | 3140 | 0 |
| 5000 | 1980 | 0 | 0 | NCA | 8910 | 8910 | NCA |
| | 1985 | 0 | 0 | 0 | 15700 | 15700 | NCA |
| | 1990 | 0 | 0 | 0 | 15700 | 15700 | 0 |
| | 2000 | 0 | 0 | 0 | 15700 | 15700 | 0 |
| 12500 | 1980 | 0 | 0 | NCA | 22300 | 22300 | NCA |
| | 1985 | 0 | 0 | 0 | 39300 | 39300 | NCA |
| | 1990 | 0 | 0 | 0 | 39300 | 39300 | 0 |
| | 2000 | 0 | 0 | 0 | 39300 | 39300 | 0 |
| 25,000 | 1980 | 0 | 0 | NCA | 44600 | 44600 | NCA |
| | 1985 | 0 | 0 | 0 | 78600 | 78600 | NCA |
| | 1990 | 0 | 0 | 0 | 78600 | 78600 | 0 |
| | 2000 | 0 | 0 | 0 | 78600 | 78600 | 0 |
| 37,500 | 1980 | 0 | 0 | NCA | 66800 | 66800 | NCA |
| | 1985 | 0 | 0 | 0 | 118000 | 118000 | NCA |
| | 1990 | 0 | 0 | 0 | 118000 | 118000 | 0 |
| | 2000 | 0 | 0 | 0 | 118000 | 118000 | 0 |
| 50,000 | 1980 | 0 | 0 | NCA | 89100 | 89100 | NCA |
| | 1985 | 0 | 0 | 0 | 157000 | 157000 | NCA |
| | 1990 | 0 | 0 | 0 | 157000 | 157000 | 0 |
| | 2000 | 0 | 0 | 0 | 157000 | 157000 | 0 |
| 250,000 | 1980 | 0 | 0 | NCA | 446000 | 446000 | NCA |
| | 1985 | 0 | 0 | 0 | 786000 | 786000 | NCA |
| | 1990 | 0 | 0 | 0 | 786000 | 786000 | 0 |
| | 2000 | 0 | 0 | 0 | 786000 | 786000 | 0 |

ANNUAL COST OF ENERGY
REQUIRED FOR CHARGING
(5%)

PARAMETER:

UNITS: 1980 Dollars

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ · 6 H ₂ O | Na ₂ SO ₄ · 10 H ₂ O | Na ₂ O ₃ · 5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|--|---|---|-----------------|-------------------|--------------------------|
| 50 | 1980 | 57 | 57 | NCA | 157 | 157 | NCA |
| | 1985 | 73 | 73 | 73 | 200 | 200 | NCA |
| | 1990 | 93 | 93 | 93 | 256 | 256 | 93 |
| | 2000 | 153 | 153 | 153 | 416 | 416 | 153 |
| 100 | 1980 | 115 | 115 | NCA | 314 | 314 | NCA |
| | 1985 | 147 | 147 | 147 | 401 | 401 | NCA |
| | 1990 | 188 | 188 | 188 | 512 | 512 | 188 |
| | 2000 | 306 | 306 | 306 | 833 | 833 | 306 |
| 250 | 1980 | 288 | 288 | NCA | 786 | 786 | NCA |
| | 1985 | 368 | 368 | 368 | 1000 | 1000 | NCA |
| | 1990 | 470 | 470 | 470 | 1280 | 1280 | 470 |
| | 2000 | 766 | 766 | 766 | 2090 | 2090 | 766 |
| 500 | 1980 | 576 | 576 | NCA | 1570 | 1570 | NCA |
| | 1985 | 735 | 735 | 735 | 2000 | 2000 | NCA |
| | 1990 | 939 | 939 | 939 | 2560 | 2560 | 939 |
| | 2000 | 1530 | 1530 | 1530 | 4160 | 4160 | 1530 |
| 1000 | 1980 | 1150 | 1150 | NCA | 3140 | 3140 | NCA |
| | 1985 | 1470 | 1470 | 1470 | 4010 | 4010 | NCA |
| | 1990 | 1880 | 1880 | 1880 | 5110 | 5110 | 1880 |
| | 2000 | 3060 | 3060 | 3060 | 8330 | 8330 | 3060 |
| 5000 | 1980 | 5760 | 5760 | NCA | 15700 | 15700 | NCA |
| | 1985 | 7350 | 7350 | 7350 | 20000 | 20000 | NCA |
| | 1990 | 9390 | 9390 | 9390 | 25600 | 25600 | 9390 |
| | 2000 | 15300 | 15300 | 15300 | 41600 | 41600 | 15300 |
| 12500 | 1980 | 14400 | 14400 | NCA | 39300 | 39300 | NCA |
| | 1985 | 18400 | 18400 | 18400 | 50200 | 50200 | NCA |
| | 1990 | 23500 | 23500 | 23500 | 64000 | 64000 | 23500 |
| | 2000 | 38300 | 38300 | 38300 | 104000 | 104000 | 38300 |
| 25,000 | 1980 | 28800 | 28800 | NCA | 78600 | 78600 | NCA |
| | 1985 | 36800 | 36800 | 36800 | 100000 | 100000 | NCA |
| | 1990 | 47000 | 47000 | 47000 | 128000 | 128000 | 47000 |
| | 2000 | 76600 | 76600 | 76600 | 209000 | 209000 | 76600 |
| 37,500 | 1980 | 43200 | 43200 | NCA | 118000 | 118000 | NCA |
| | 1985 | 55200 | 55200 | 55200 | 151000 | 151000 | NCA |
| | 1990 | 70400 | 70400 | 70400 | 192000 | 192000 | 70400 |
| | 2000 | 115000 | 115000 | 115000 | 313000 | 313000 | 115000 |
| 50,000 | 1980 | 57600 | 57600 | NCA | 157000 | 157000 | NCA |
| | 1985 | 73500 | 73500 | 73500 | 200000 | 200000 | NCA |
| | 1990 | 93900 | 93900 | 93900 | 256000 | 256000 | 93900 |
| | 2000 | 153000 | 153000 | 153000 | 416000 | 416000 | 153000 |
| 250,000 | 1980 | 288000 | 288000 | NCA | 786000 | 786000 | NCA |
| | 1985 | 368000 | 368000 | 368000 | 1000000 | 1000000 | NCA |
| | 1990 | 470000 | 470000 | 470000 | 1280000 | 1280000 | 470000 |
| | 2000 | 766000 | 766000 | 766000 | 2090000 | 2090000 | 766000 |

ANNUAL COST OF ENERGY
REQUIRED FOR CHARGING

PARAMETER: (10%)

UNITS: 1980 Dollars

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ ·6 H ₂ O | Na ₂ SO ₄ · 10 H ₂ O | Na ₂ O ₃ ·5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|---------------------------------------|---|--|-----------------|-------------------|--------------------------|
| 50 | 1980 | 115 | 115 | NCA | 187 | 187 | NCA |
| | 1985 | 92 | 92 | 92 | 253 | 253 | NCA |
| | 1990 | 149 | 149 | 149 | 407 | 407 | 149 |
| | 2000 | 387 | 387 | 387 | 1060 | 1060 | 387 |
| 100 | 1980 | 230 | 230 | NCA | 374 | 374 | NCA |
| | 1985 | 185 | 185 | 185 | 505 | 505 | NCA |
| | 1990 | 298 | 298 | 298 | 814 | 814 | 298 |
| | 2000 | 774 | 774 | 774 | 2110 | 2110 | 774 |
| 250 | 1980 | 576 | 576 | NCA | 937 | 937 | NCA |
| | 1985 | 464 | 464 | 464 | 1270 | 1270 | NCA |
| | 1990 | 747 | 747 | 747 | 2040 | 2040 | 747 |
| | 2000 | 1940 | 1940 | 1940 | 5290 | 5290 | 1940 |
| 500 | 1980 | 1150 | 1150 | NCA | 1870 | 1870 | NCA |
| | 1985 | 926 | 926 | 926 | 2530 | 2530 | NCA |
| | 1990 | 1490 | 1490 | 1490 | 4070 | 4070 | 1490 |
| | 2000 | 3870 | 3870 | 3870 | 10600 | 10600 | 3870 |
| 1000 | 1980 | 2300 | 2300 | NCA | 3740 | 3740 | NCA |
| | 1985 | 1850 | 1850 | 1850 | 5050 | 5050 | NCA |
| | 1990 | 2980 | 2980 | 2980 | 8140 | 8140 | 2980 |
| | 2000 | 7740 | 7740 | 7740 | 21100 | 21100 | 7740 |
| 5000 | 1980 | 11500 | 11500 | NCA | 18700 | 18700 | NCA |
| | 1985 | 9260 | 9260 | 9260 | 25300 | 25300 | NCA |
| | 1990 | 14900 | 14900 | 14900 | 40700 | 40700 | 14900 |
| | 2000 | 38700 | 38700 | 38700 | 106000 | 106000 | 38700 |
| 12500 | 1980 | 28800 | 28800 | NCA | 46800 | 46800 | NCA |
| | 1985 | 23200 | 23200 | 23200 | 63200 | 63200 | NCA |
| | 1990 | 37300 | 37300 | 37300 | 102000 | 102000 | 37300 |
| | 2000 | 96900 | 96900 | 96900 | 264000 | 264000 | 96900 |
| 25,000 | 1980 | 57600 | 57600 | NCA | 93700 | 93700 | NCA |
| | 1985 | 46400 | 46400 | 46400 | 127000 | 127000 | NCA |
| | 1990 | 74700 | 74700 | 74700 | 204000 | 204000 | 74700 |
| | 2000 | 194000 | 194000 | 194000 | 529000 | 529000 | 194000 |
| 37,500 | 1980 | 86400 | 86400 | NCA | 141000 | 141000 | NCA |
| | 1985 | 69600 | 69600 | 69600 | 190000 | 190000 | NCA |
| | 1990 | 112000 | 112000 | 112000 | 307000 | 307000 | 112000 |
| | 2000 | 291000 | 291000 | 291000 | 796000 | 796000 | 291000 |
| 50,000 | 1980 | 115000 | 115000 | NCA | 187000 | 187000 | NCA |
| | 1985 | 92600 | 92600 | 92600 | 253000 | 253000 | NCA |
| | 1990 | 149000 | 149000 | 149000 | 407000 | 407000 | 149000 |
| | 2000 | 387000 | 387000 | 387000 | 1060000 | 1060000 | 387000 |
| 250,000 | 1980 | 576000 | 576000 | NCA | 937000 | 937000 | NCA |
| | 1985 | 464000 | 464000 | 464000 | 1270000 | 1270000 | NCA |
| | 1990 | 747000 | 747000 | 747000 | 2040000 | 2040000 | 747000 |
| | 2000 | 1940000 | 1940000 | 1940000 | 5290000 | 5290000 | 1940000 |

PARAMETER: LIFE-CYCLE COST

UNITS: 1990 Dollars/10⁶ Btu

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ · 6 H ₂ O | Na ₂ SO ₄ · 10 H ₂ O | Na ₂ O ₃ · 5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|--|---|---|-----------------|-------------------|--------------------------|
| 50 | 1980 | 1.37 | 2.93 | NCA | 2.81 | 3.63 | NCA |
| | 1985 | 1.23 | 2.63 | 2.69 | 4.32 | 4.51 | NCA |
| | 1990 | 1.23 | 2.63 | 2.69 | 4.32 | 4.51 | 2.66 |
| | 2000 | 1.23 | 2.63 | 2.69 | 4.32 | 4.51 | 2.66 |
| 100 | 1980 | 1.18 | 2.57 | NCA | 2.75 | 3.40 | NCA |
| | 1985 | 1.07 | 2.31 | 2.30 | 4.25 | 4.37 | NCA |
| | 1990 | 1.07 | 2.31 | 2.30 | 4.25 | 4.37 | 2.29 |
| | 2000 | 1.07 | 2.31 | 2.30 | 4.25 | 4.37 | 2.29 |
| 250 | 1980 | 0.96 | 2.11 | NCA | 2.67 | 3.14 | NCA |
| | 1985 | 0.86 | 1.90 | 1.84 | 4.18 | 4.21 | NCA |
| | 1990 | 0.86 | 1.90 | 1.84 | 4.18 | 4.21 | 1.82 |
| | 2000 | 0.86 | 1.90 | 1.84 | 4.18 | 4.21 | 1.82 |
| 500 | 1980 | 0.80 | 1.79 | NCA | 2.62 | 2.96 | NCA |
| | 1985 | 0.72 | 1.61 | 1.51 | 4.12 | 4.09 | NCA |
| | 1990 | 0.72 | 1.61 | 1.51 | 4.12 | 4.09 | 1.46 |
| | 2000 | 0.72 | 1.61 | 1.51 | 4.12 | 4.09 | 1.46 |
| 1000 | 1980 | 0.64 | 1.48 | NCA | 2.56 | 2.79 | NCA |
| | 1985 | 0.58 | 1.33 | 1.19 | 4.07 | 3.99 | NCA |
| | 1990 | 0.58 | 1.33 | 1.19 | 4.07 | 3.99 | 1.10 |
| | 2000 | 0.58 | 1.33 | 1.19 | 4.07 | 3.99 | 1.10 |
| 5000 | 1980 | 0.31 | 0.83 | NCA | 2.45 | 2.47 | NCA |
| | 1985 | 0.28 | 0.74 | 0.51 | 3.96 | 3.79 | NCA |
| | 1990 | 0.28 | 0.74 | 0.51 | 3.96 | 3.79 | 0.26 |
| | 2000 | 0.28 | 0.74 | 0.51 | 3.96 | 3.79 | 0.26 |
| 12500 | 1980 | 0.31 | 0.48 | NCA | 2.45 | 2.47 | NCA |
| | 1985 | 0.28 | 0.44 | 0.51 | 3.96 | 3.79 | NCA |
| | 1990 | 0.28 | 0.44 | 0.51 | 3.96 | 3.79 | 0.26 |
| | 2000 | 0.28 | 0.44 | 0.51 | 3.96 | 3.79 | 0.26 |
| 25,000 | 1980 | 0.31 | 0.48 | NCA | 2.45 | 2.47 | NCA |
| | 1985 | 0.28 | 0.43 | 0.51 | 3.96 | 3.79 | NCA |
| | 1990 | 0.28 | 0.43 | 0.51 | 3.96 | 3.79 | 0.26 |
| | 2000 | 0.28 | 0.43 | 0.51 | 3.96 | 3.79 | 0.26 |
| 37,500 | 1980 | 0.30 | 0.48 | NCA | 2.45 | 2.47 | NCA |
| | 1985 | 0.27 | 0.43 | 0.51 | 3.96 | 3.79 | NCA |
| | 1990 | 0.27 | 0.43 | 0.51 | 3.96 | 3.79 | 0.26 |
| | 2000 | 0.27 | 0.43 | 0.51 | 3.96 | 3.79 | 0.26 |
| 50,000 | 1980 | 0.30 | 0.48 | NCA | 2.45 | 2.47 | NCA |
| | 1985 | 0.27 | 0.43 | 0.51 | 3.96 | 3.79 | NCA |
| | 1990 | 0.27 | 0.43 | 0.51 | 3.96 | 3.79 | 0.26 |
| | 2000 | 0.27 | 0.43 | 0.51 | 3.96 | 3.79 | 0.26 |
| 250,000 | 1980 | 0.30 | 0.48 | NCA | 2.45 | 2.47 | NCA |
| | 1985 | 0.27 | 0.43 | 0.51 | 3.96 | 3.79 | NCA |
| | 1990 | 0.27 | 0.43 | 0.51 | 3.96 | 3.79 | 0.26 |
| | 2000 | 0.27 | 0.43 | 0.51 | 3.96 | 3.79 | 0.26 |

PARAMETER: LIFE-CYCLE COST (5%)

UNITS: 1980 Dollars/10⁶ Btu

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ ·6 H ₂ O | Na ₂ SO ₄ · 10 H ₂ O | Na ₂ O ₃ ·5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|---------------------------------------|---|--|-----------------|-------------------|--------------------------|
| 50 | 1980 | 3.28 | 4.84 | NCA | 6.04 | 6.85 | NCA |
| | 1985 | 3.67 | 5.07 | 5.13 | 7.46 | 7.65 | NCA |
| | 1990 | 4.34 | 5.75 | 5.80 | 9.32 | 9.51 | 5.77 |
| | 2000 | 6.30 | 7.70 | 7.76 | 14.62 | 14.81 | 7.72 |
| 100 | 1980 | 3.09 | 4.47 | NCA | 5.98 | 6.63 | NCA |
| | 1985 | 3.50 | 4.74 | 4.74 | 7.42 | 7.53 | NCA |
| | 1990 | 4.18 | 5.42 | 5.42 | 9.25 | 9.37 | 5.40 |
| | 2000 | 6.13 | 7.37 | 7.37 | 14.57 | 14.69 | 7.36 |
| 250 | 1980 | 2.86 | 4.01 | NCA | 5.90 | 6.36 | NCA |
| | 1985 | 3.30 | 4.33 | 4.27 | 7.31 | 7.35 | NCA |
| | 1990 | 3.97 | 5.00 | 4.95 | 9.17 | 9.20 | 4.93 |
| | 2000 | 5.93 | 6.96 | 6.91 | 14.53 | 14.56 | 6.88 |
| 500 | 1980 | 2.70 | 3.70 | NCA | 5.84 | 6.18 | NCA |
| | 1985 | 3.15 | 4.04 | 3.94 | 7.27 | 7.24 | NCA |
| | 1990 | 3.82 | 4.82 | 4.62 | 9.12 | 9.09 | 4.57 |
| | 2000 | 5.78 | 6.24 | 6.58 | 14.42 | 14.39 | 6.53 |
| 1000 | 1980 | 2.55 | 3.38 | NCA | 5.79 | 6.02 | NCA |
| | 1985 | 3.01 | 3.77 | 3.62 | 7.23 | 7.15 | NCA |
| | 1990 | 3.69 | 4.46 | 4.30 | 9.05 | 8.97 | 4.21 |
| | 2000 | 5.65 | 6.40 | 6.25 | 14.38 | 14.30 | 6.16 |
| 5000 | 1980 | 2.22 | 2.74 | NCA | 5.67 | 5.69 | NCA |
| | 1985 | 2.72 | 3.18 | 2.94 | 7.10 | 6.93 | NCA |
| | 1990 | 3.39 | 3.85 | 3.62 | 8.95 | 8.79 | 3.37 |
| | 2000 | 5.35 | 5.81 | 5.58 | 14.25 | 14.09 | 5.33 |
| 12500 | 1980 | 2.22 | 2.39 | NCA | 5.67 | 5.69 | NCA |
| | 1985 | 2.72 | 2.87 | 2.94 | 7.10 | 6.93 | NCA |
| | 1990 | 3.39 | 3.55 | 3.62 | 8.95 | 8.79 | 3.37 |
| | 2000 | 5.35 | 5.51 | 5.58 | 14.25 | 14.09 | 5.33 |
| 25,000 | 1980 | 2.21 | 2.39 | NCA | 5.67 | 5.69 | NCA |
| | 1985 | 2.71 | 2.87 | 2.94 | 7.09 | 6.92 | NCA |
| | 1990 | 3.39 | 3.54 | 3.62 | 8.94 | 8.78 | 3.37 |
| | 2000 | 5.34 | 5.50 | 5.58 | 14.25 | 14.10 | 5.33 |
| 37,500 | 1980 | 2.21 | 2.39 | NCA | 5.67 | 5.69 | NCA |
| | 1985 | 2.70 | 2.87 | 2.94 | 7.09 | 6.92 | NCA |
| | 1990 | 3.38 | 3.54 | 3.62 | 8.94 | 8.78 | 3.37 |
| | 2000 | 5.34 | 5.50 | 5.58 | 14.25 | 14.10 | 5.33 |
| 50,000 | 1980 | 2.21 | 2.39 | NCA | 5.67 | 5.69 | NCA |
| | 1985 | 2.70 | 2.87 | 2.94 | 7.09 | 6.92 | NCA |
| | 1990 | 3.38 | 3.54 | 3.62 | 8.94 | 8.78 | 3.37 |
| | 2000 | 5.34 | 5.50 | 5.58 | 14.25 | 14.10 | 5.33 |
| 250,000 | 1980 | 2.20 | 2.39 | NCA | 6.57 | 5.69 | NCA |
| | 1985 | 2.70 | 2.87 | 2.94 | 7.09 | 6.92 | NCA |
| | 1990 | 3.38 | 3.54 | 3.62 | 8.94 | 8.78 | 3.37 |
| | 2000 | 5.33 | 5.50 | 5.58 | 14.25 | 14.10 | 5.33 |

PARAMETER: LIFE-CYCLE COST (10%) UNITS: 1980 Dollars/10⁶ Btu

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ ·6 H ₂ O | Na ₂ SO ₄ ·10 H ₂ O | Na ₂ O ₃ ·5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|---------------------------------------|--|--|-----------------|-------------------|--------------------------|
| 50 | 1980 | 7.36 | 8.92 | NCA | 10.58 | 11.39 | NCA |
| | 1985 | 6.06 | 7.46 | 7.78 | 14.02 | 14.21 | NCA |
| | 1990 | 8.99 | 10.40 | 10.45 | 22.04 | 22.23 | 10.42 |
| | 2000 | 21.39 | 22.79 | 22.85 | 56.05 | 56.24 | 22.81 |
| 100 | 1980 | 7.17 | 8.22 | NCA | 10.52 | 11.17 | NCA |
| | 1985 | 5.88 | 7.13 | 7.12 | 13.93 | 14.04 | NCA |
| | 1990 | 8.83 | 10.07 | 10.06 | 21.97 | 22.09 | 10.05 |
| | 2000 | 21.22 | 22.46 | 22.46 | 55.72 | 55.84 | 22.44 |
| 250 | 1980 | 6.95 | 8.10 | NCA | 10.45 | 10.91 | NCA |
| | 1985 | 5.69 | 6.72 | 6.67 | 13.91 | 13.94 | NCA |
| | 1990 | 8.64 | 9.67 | 9.61 | 21.93 | 21.96 | 9.59 |
| | 2000 | 21.05 | 22.08 | 22.03 | 55.74 | 55.78 | 22.00 |
| 500 | 1980 | 6.79 | 7.78 | NCA | 10.38 | 10.72 | NCA |
| | 1985 | 5.54 | 6.43 | 6.33 | 13.82 | 13.79 | NCA |
| | 1990 | 8.48 | 9.37 | 9.27 | 21.84 | 21.81 | 9.22 |
| | 2000 | 20.87 | 21.77 | 21.67 | 55.85 | 55.82 | 21.61 |
| 1000 | 1980 | 6.63 | 7.47 | NCA | 10.33 | 10.56 | NCA |
| | 1985 | 5.40 | 6.15 | 6.01 | 13.74 | 13.94 | NCA |
| | 1990 | 8.34 | 9.09 | 8.95 | 21.79 | 21.89 | 8.86 |
| | 2000 | 20.73 | 21.49 | 21.34 | 55.54 | 55.73 | 21.25 |
| 5000 | 1980 | 6.30 | 6.82 | NCA | 10.21 | 10.23 | NCA |
| | 1985 | 5.11 | 5.57 | 5.33 | 13.65 | 13.49 | NCA |
| | 1990 | 8.04 | 8.50 | 8.27 | 21.76 | 21.51 | 8.02 |
| | 2000 | 20.44 | 20.90 | 20.67 | 55.68 | 55.52 | 20.42 |
| 12500 | 1980 | 6.31 | 6.48 | NCA | 10.22 | 10.24 | NCA |
| | 1985 | 5.11 | 5.27 | 5.34 | 13.64 | 13.47 | NCA |
| | 1990 | 8.05 | 8.21 | 8.28 | 21.72 | 21.56 | 8.03 |
| | 2000 | 20.47 | 20.62 | 20.70 | 55.47 | 55.31 | 20.45 |
| 25,000 | 1980 | 6.30 | 6.48 | NCA | 10.22 | 10.24 | NCA |
| | 1985 | 5.10 | 5.26 | 5.34 | 13.69 | 13.52 | NCA |
| | 1990 | 8.05 | 8.21 | 8.28 | 21.70 | 21.53 | 8.03 |
| | 2000 | 20.46 | 20.62 | 20.70 | 55.52 | 55.35 | 20.45 |
| 37,500 | 1980 | 6.30 | 6.48 | NCA | 10.22 | 10.24 | NCA |
| | 1985 | 5.10 | 5.26 | 5.34 | 13.69 | 13.52 | NCA |
| | 1990 | 8.05 | 8.21 | 8.28 | 21.70 | 21.53 | 8.03 |
| | 2000 | 20.46 | 20.62 | 20.70 | 55.52 | 55.35 | 20.45 |
| 50,000 | 1980 | 6.30 | 6.48 | NCA | 10.22 | 10.24 | NCA |
| | 1985 | 5.10 | 5.26 | 5.34 | 13.69 | 13.53 | NCA |
| | 1990 | 8.05 | 8.21 | 8.28 | 21.70 | 21.54 | 8.03 |
| | 2000 | 20.46 | 20.62 | 20.70 | 55.52 | 55.36 | 20.45 |
| 250,000 | 1980 | 6.29 | 6.48 | NCA | 10.22 | 10.24 | NCA |
| | 1985 | 5.09 | 5.26 | 5.34 | 13.69 | 13.53 | NCA |
| | 1990 | 8.04 | 8.21 | 8.28 | 21.70 | 21.54 | 8.03 |
| | 2000 | 20.45 | 20.62 | 20.70 | 55.52 | 55.36 | 20.45 |

PARAMETER: CHARGE TIME

UNITS: Minutes

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ ·6 H ₂ O | Na ₂ SO ₄ ·10 H ₂ O | Na ₂ O ₃ ·5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|---------------------------------------|--|--|-----------------|-------------------|--------------------------|
| 50 | 1980 | 510 | 390 | NCA | 480 | 480 | NCA |
| | 1985 | 510 | 390 | 390 | 480 | 480 | NCA |
| | 1990 | 510 | 390 | 390 | 480 | 480 | 780 |
| | 2000 | 510 | 390 | 390 | 480 | 480 | 780 |
| 100 | 1980 | 510 | 390 | NCA | 480 | 480 | NCA |
| | 1985 | 510 | 390 | 390 | 480 | 480 | NCA |
| | 1990 | 510 | 390 | 390 | 480 | 480 | 780 |
| | 2000 | 510 | 390 | 390 | 480 | 480 | 780 |
| 250 | 1980 | 510 | 390 | NCA | 480 | 480 | NCA |
| | 1985 | 510 | 390 | 390 | 480 | 480 | NCA |
| | 1990 | 510 | 390 | 390 | 480 | 480 | 780 |
| | 2000 | 510 | 390 | 390 | 480 | 480 | 780 |
| 500 | 1980 | 510 | 390 | NCA | 480 | 480 | NCA |
| | 1985 | 510 | 390 | 390 | 480 | 480 | NCA |
| | 1990 | 510 | 390 | 390 | 480 | 480 | 780 |
| | 2000 | 510 | 390 | 390 | 480 | 480 | 780 |
| 1000 | 1980 | 510 | 390 | NCA | 480 | 480 | NCA |
| | 1985 | 510 | 390 | 390 | 480 | 480 | NCA |
| | 1990 | 510 | 390 | 390 | 480 | 480 | 780 |
| | 2000 | 510 | 390 | 390 | 480 | 480 | 780 |
| 5000 | 1980 | 510 | 390 | NCA | 480 | 480 | NCA |
| | 1985 | 510 | 390 | 390 | 480 | 480 | NCA |
| | 1990 | 510 | 390 | 390 | 480 | 480 | 780 |
| | 2000 | 510 | 390 | 390 | 480 | 480 | 780 |
| 12500 | 1980 | 510 | 390 | NCA | 480 | 480 | NCA |
| | 1985 | 510 | 390 | 390 | 480 | 480 | NCA |
| | 1990 | 510 | 390 | 390 | 480 | 480 | 780 |
| | 2000 | 510 | 390 | 390 | 480 | 480 | 780 |
| 25,000 | 1980 | 510 | 390 | NCA | 480 | 480 | NCA |
| | 1985 | 510 | 390 | 390 | 480 | 480 | NCA |
| | 1990 | 510 | 390 | 390 | 480 | 480 | 780 |
| | 2000 | 510 | 390 | 390 | 480 | 480 | 780 |
| 37,500 | 1980 | 510 | 390 | NCA | 480 | 480 | NCA |
| | 1985 | 510 | 390 | 390 | 480 | 480 | NCA |
| | 1990 | 510 | 390 | 390 | 480 | 480 | 780 |
| | 2000 | 510 | 390 | 390 | 480 | 480 | 780 |
| 50,000 | 1980 | 510 | 390 | NCA | 480 | 480 | NCA |
| | 1985 | 510 | 390 | 390 | 480 | 480 | NCA |
| | 1990 | 510 | 390 | 390 | 480 | 480 | 780 |
| | 2000 | 510 | 390 | 390 | 480 | 480 | 780 |
| 250,000 | 1980 | 510 | 390 | NCA | 480 | 480 | NCA |
| | 1985 | 510 | 390 | 390 | 480 | 480 | NCA |
| | 1990 | 510 | 390 | 390 | 480 | 480 | 780 |
| | 2000 | 510 | 390 | 390 | 480 | 480 | 780 |

PARAMETER: DISCHARGE TIME

UNITS: Minutes

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ ·6 H ₂ O | Na ₂ SO ₄ ·10 H ₂ O | Na ₂ O ₃ ·5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|---------------------------------------|--|--|-----------------|-------------------|--------------------------|
| 50 | 1980 | 930 | 420 | NCA | 600 | 840 | NCA |
| | 1985 | 930 | 420 | 420 | 600 | 840 | NCA |
| | 1990 | 930 | 420 | 420 | 600 | 840 | 360 |
| | 2000 | 930 | 420 | 420 | 600 | 840 | 360 |
| 100 | 1980 | 930 | 420 | NCA | 600 | 840 | NCA |
| | 1985 | 930 | 420 | 420 | 600 | 840 | NCA |
| | 1990 | 930 | 420 | 420 | 600 | 840 | 360 |
| | 2000 | 930 | 420 | 420 | 600 | 840 | 360 |
| 250 | 1980 | 930 | 420 | NCA | 600 | 840 | NCA |
| | 1985 | 930 | 420 | 420 | 600 | 840 | NCA |
| | 1990 | 930 | 420 | 420 | 600 | 840 | 360 |
| | 2000 | 930 | 420 | 420 | 600 | 840 | 360 |
| 500 | 1980 | 930 | 420 | NCA | 600 | 840 | NCA |
| | 1985 | 930 | 420 | 420 | 600 | 840 | NCA |
| | 1990 | 930 | 420 | 420 | 600 | 840 | 360 |
| | 2000 | 930 | 420 | 420 | 600 | 840 | 360 |
| 1000 | 1980 | 930 | 420 | NCA | 600 | 840 | NCA |
| | 1985 | 930 | 420 | 420 | 600 | 840 | NCA |
| | 1990 | 930 | 420 | 420 | 600 | 840 | 360 |
| | 2000 | 930 | 420 | 420 | 600 | 840 | 360 |
| 5000 | 1980 | 930 | 420 | NCA | 600 | 840 | NCA |
| | 1985 | 930 | 420 | 420 | 600 | 840 | NCA |
| | 1990 | 930 | 420 | 420 | 600 | 840 | 360 |
| | 2000 | 930 | 420 | 420 | 600 | 840 | 360 |
| 12500 | 1980 | 930 | 420 | NCA | 600 | 840 | NCA |
| | 1985 | 930 | 420 | 420 | 600 | 840 | NCA |
| | 1990 | 930 | 420 | 420 | 600 | 840 | 360 |
| | 2000 | 930 | 420 | 420 | 600 | 840 | 360 |
| 25,000 | 1980 | 930 | 420 | NCA | 600 | 840 | NCA |
| | 1985 | 930 | 420 | 420 | 600 | 840 | NCA |
| | 1990 | 930 | 420 | 420 | 600 | 840 | 360 |
| | 2000 | 930 | 420 | 420 | 600 | 840 | 360 |
| 37,500 | 1980 | 930 | 420 | NCA | 600 | 840 | NCA |
| | 1985 | 930 | 420 | 420 | 600 | 840 | NCA |
| | 1990 | 930 | 420 | 420 | 600 | 840 | 360 |
| | 2000 | 930 | 420 | 420 | 600 | 840 | 360 |
| 50,000 | 1980 | 930 | 420 | NCA | 600 | 840 | NCA |
| | 1985 | 930 | 420 | 420 | 600 | 840 | NCA |
| | 1990 | 930 | 420 | 420 | 600 | 840 | 360 |
| | 2000 | 930 | 420 | 420 | 600 | 840 | 360 |
| 250,000 | 1980 | 930 | 420 | NCA | 600 | 840 | NCA |
| | 1985 | 930 | 420 | 420 | 600 | 840 | NCA |
| | 1990 | 930 | 420 | 420 | 600 | 840 | 360 |
| | 2000 | 930 | 420 | 420 | 600 | 840 | 360 |

PARAMETER: VOLUME

UNITS: Cubic Feet

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ · 6 H ₂ O | Na ₂ SO ₄ · 10 H ₂ O | Na ₂ O ₃ · 5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|--|---|---|-----------------|-------------------|--------------------------|
| 50 | 1980 | 12 | 14 | NCA | 8 | 5 | NCA |
| | 1985 | 12 | 14 | 7 | 8 | 5 | NCA |
| | 1990 | 12 | 14 | 7 | 8 | 5 | 10 |
| | 2000 | 12 | 14 | 7 | 8 | 5 | 10 |
| 100 | 1980 | 24 | 26 | NCA | 16 | 10 | NCA |
| | 1985 | 24 | 26 | 13 | 16 | 10 | NCA |
| | 1990 | 24 | 26 | 13 | 16 | 10 | 20 |
| | 2000 | 24 | 26 | 13 | 16 | 10 | 20 |
| 250 | 1980 | 59 | 60 | NCA | 40 | 22.5 | NCA |
| | 1985 | 59 | 60 | 33 | 40 | 22.5 | NCA |
| | 1990 | 59 | 60 | 33 | 40 | 22.5 | 50 |
| | 2000 | 59 | 60 | 33 | 40 | 22.5 | 50 |
| 500 | 1980 | 120 | 110 | NCA | 80 | 45 | NCA |
| | 1985 | 120 | 110 | 65 | 80 | 45 | NCA |
| | 1990 | 120 | 110 | 65 | 80 | 45 | 99 |
| | 2000 | 120 | 110 | 65 | 80 | 45 | 99 |
| 1000 | 1980 | 230 | 210 | NCA | 160 | 90 | NCA |
| | 1985 | 230 | 210 | 130 | 160 | 90 | NCA |
| | 1990 | 230 | 210 | 130 | 160 | 90 | 200 |
| | 2000 | 230 | 210 | 130 | 160 | 90 | 200 |
| 5000 | 1980 | 1200 | 920 | NCA | 800 | 400 | NCA |
| | 1985 | 1200 | 920 | 650 | 800 | 400 | NCA |
| | 1990 | 1200 | 920 | 650 | 800 | 400 | 990 |
| | 2000 | 1200 | 920 | 650 | 800 | 400 | 990 |
| 12500 | 1980 | 2900 | 2100 | NCA | 2000 | 860 | NCA |
| | 1985 | 2900 | 2100 | 1600 | 2000 | 860 | NCA |
| | 1990 | 2900 | 2100 | 1600 | 2000 | 860 | 2500 |
| | 2000 | 2900 | 2100 | 1600 | 2000 | 860 | 2500 |
| 25,000 | 1980 | 5700 | 4000 | NCA | 4000 | 1650 | NCA |
| | 1985 | 5700 | 4000 | 3300 | 4000 | 1650 | NCA |
| | 1990 | 5700 | 4000 | 3300 | 4000 | 1650 | 5000 |
| | 2000 | 5700 | 4000 | 3300 | 4000 | 1650 | 5000 |
| 37,500 | 1980 | 8500 | 5700 | NCA | 6000 | 2400 | NCA |
| | 1985 | 8500 | 5700 | 4900 | 6000 | 2400 | NCA |
| | 1990 | 8500 | 5700 | 4900 | 6000 | 2400 | 7400 |
| | 2000 | 8500 | 5700 | 4900 | 6000 | 2400 | 7400 |
| 50,000 | 1980 | 11000 | 7400 | NCA | 8000 | 3200 | NCA |
| | 1985 | 11000 | 7400 | 6500 | 8000 | 3200 | NCA |
| | 1990 | 11000 | 7400 | 6500 | 8000 | 3200 | 9900 |
| | 2000 | 11000 | 7400 | 6500 | 8000 | 3200 | 9900 |
| 250,000 | 1980 | 56000 | 31000 | NCA | 40000 | 14000 | NCA |
| | 1985 | 56000 | 31000 | 33000 | 40000 | 14000 | NCA |
| | 1990 | 56000 | 31000 | 33000 | 40000 | 14000 | 50000 |
| | 2000 | 56000 | 31000 | 33000 | 40000 | 14000 | 50000 |

PARAMETER: AREA

UNITS: Square Feet

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ · 6 H ₂ O | Na ₂ SO ₄ · 10 H ₂ O | Na ₂ O ₃ · 5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|--|---|---|-----------------|-------------------|--------------------------|
| 50 | 1980 | 1.9 | 2.8 | NCA | 2.4 | 0.9 | NCA |
| | 1985 | 1.9 | 2.8 | 1.1 | 2.4 | 0.9 | NCA |
| | 1990 | 1.9 | 2.8 | 1.1 | 2.4 | 0.9 | 1.3 |
| | 2000 | 1.9 | 2.8 | 1.1 | 2.4 | 0.9 | 1.3 |
| 100 | 1980 | 3.9 | 5.6 | NCA | 4.8 | 1.9 | NCA |
| | 1985 | 3.9 | 5.6 | 2.1 | 4.8 | 1.9 | NCA |
| | 1990 | 3.9 | 5.6 | 2.1 | 4.8 | 1.9 | 2.5 |
| | 2000 | 3.9 | 5.6 | 2.1 | 4.8 | 1.9 | 2.5 |
| 250 | 1980 | 9.6 | 14 | NCA | 12 | 4.7 | NCA |
| | 1985 | 9.6 | 14 | 5.3 | 12 | 4.7 | NCA |
| | 1990 | 9.6 | 14 | 5.3 | 12 | 4.7 | 6.4 |
| | 2000 | 9.6 | 14 | 5.3 | 12 | 4.7 | 6.4 |
| 500 | 1980 | 19 | 28 | NCA | 24 | 9.4 | NCA |
| | 1985 | 19 | 28 | 11 | 24 | 9.4 | NCA |
| | 1990 | 19 | 28 | 11 | 24 | 9.4 | 13 |
| | 2000 | 19 | 28 | 11 | 24 | 9.4 | 13 |
| 1000 | 1980 | 39 | 56 | NCA | 48 | 19 | NCA |
| | 1985 | 39 | 56 | 21 | 48 | 19 | NCA |
| | 1990 | 39 | 56 | 21 | 48 | 19 | 25 |
| | 2000 | 39 | 56 | 21 | 48 | 19 | 25 |
| 5000 | 1980 | 190 | 280 | NCA | 240 | 94 | NCA |
| | 1985 | 190 | 280 | 110 | 240 | 94 | NCA |
| | 1990 | 190 | 280 | 110 | 240 | 94 | 130 |
| | 2000 | 190 | 280 | 110 | 240 | 94 | 130 |
| 12500 | 1980 | 480 | 700 | NCA | 600 | 230 | NCA |
| | 1985 | 480 | 700 | 260 | 600 | 230 | NCA |
| | 1990 | 480 | 700 | 260 | 600 | 230 | 320 |
| | 2000 | 480 | 700 | 260 | 600 | 230 | 320 |
| 25,000 | 1980 | 960 | 1400 | NCA | 1200 | 470 | NCA |
| | 1985 | 960 | 1400 | 530 | 1200 | 470 | NCA |
| | 1990 | 960 | 1400 | 530 | 1200 | 470 | 640 |
| | 2000 | 960 | 1400 | 530 | 1200 | 470 | 640 |
| 37,500 | 1980 | 1400 | 2100 | NCA | 1800 | 700 | NCA |
| | 1985 | 1400 | 2100 | 790 | 1800 | 700 | NCA |
| | 1990 | 1400 | 2100 | 790 | 1800 | 700 | 950 |
| | 2000 | 1400 | 2100 | 790 | 1800 | 700 | 950 |
| 50,000 | 1980 | 1900 | 2800 | NCA | 2400 | 940 | NCA |
| | 1985 | 1900 | 2800 | 1100 | 2400 | 940 | NCA |
| | 1990 | 1900 | 2800 | 1100 | 2400 | 940 | 1300 |
| | 2000 | 1900 | 2800 | 1100 | 2400 | 940 | 1300 |
| 250,000 | 1980 | 9600 | 14000 | NCA | 12000 | 4700 | NCA |
| | 1985 | 9600 | 14000 | 5300 | 12000 | 4700 | NCA |
| | 1990 | 9600 | 14000 | 5300 | 12000 | 4700 | 6400 |
| | 2000 | 9600 | 14000 | 5300 | 12000 | 4700 | 6400 |

PARAMETER: WEIGHT

UNITS: POUNDS

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ · 6 H ₂ O | Na ₂ SO ₄ · 10 H ₂ O | Na ₂ O ₃ · 5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|--|---|---|-----------------|-------------------|--------------------------|
| 50 | 1980 | 870 | 840 | NCA | 230 | 280 | NCA |
| | 1985 | 870 | 840 | 580 | 230 | 280 | NCA |
| | 1990 | 870 | 840 | 580 | 230 | 280 | 610 |
| | 2000 | 870 | 840 | 580 | 230 | 280 | 610 |
| 100 | 1980 | 1600 | 1600 | NCA | 450 | 560 | NCA |
| | 1985 | 1600 | 1600 | 1200 | 450 | 560 | NCA |
| | 1990 | 1600 | 1600 | 1200 | 450 | 560 | 1200 |
| | 2000 | 1600 | 1600 | 1200 | 450 | 560 | 1200 |
| 250 | 1980 | 3400 | 3600 | NCA | 1100 | 1400 | NCA |
| | 1985 | 3400 | 3600 | 2900 | 1100 | 1400 | NCA |
| | 1990 | 3400 | 3600 | 2900 | 1100 | 1400 | 3000 |
| | 2000 | 3400 | 3600 | 2900 | 1100 | 1400 | 3000 |
| 500 | 1980 | 6100 | 6700 | NCA | 2300 | 2700 | NCA |
| | 1985 | 6100 | 6700 | 5800 | 2300 | 2700 | NCA |
| | 1990 | 6100 | 6700 | 5800 | 2300 | 2700 | 6100 |
| | 2000 | 6100 | 6700 | 5800 | 2300 | 2700 | 6100 |
| 1000 | 1980 | 11000 | 12000 | NCA | 4500 | 5400 | NCA |
| | 1985 | 11000 | 12000 | 12000 | 4500 | 5400 | NCA |
| | 1990 | 11000 | 12000 | 12000 | 4500 | 5400 | 12000 |
| | 2000 | 11000 | 12000 | 12000 | 4500 | 5400 | 12000 |
| 5000 | 1980 | 39000 | 52000 | NCA | 23000 | 27000 | NCA |
| | 1985 | 39000 | 52000 | 58000 | 23000 | 27000 | NCA |
| | 1990 | 39000 | 52000 | 58000 | 23000 | 27000 | 61000 |
| | 2000 | 39000 | 52000 | 58000 | 23000 | 27000 | 61000 |
| 12500 | 1980 | 77000 | 120000 | NCA | 57000 | 67000 | NCA |
| | 1985 | 77000 | 120000 | 140000 | 57000 | 67000 | NCA |
| | 1990 | 77000 | 120000 | 140000 | 57000 | 67000 | 150000 |
| | 2000 | 77000 | 120000 | 140000 | 57000 | 67000 | 150000 |
| 25,000 | 1980 | 130000 | 130000 | NCA | 110000 | 130000 | NCA |
| | 1985 | 130000 | 130000 | 290000 | 110000 | 130000 | NCA |
| | 1990 | 130000 | 130000 | 290000 | 110000 | 130000 | 300000 |
| | 2000 | 130000 | 130000 | 290000 | 110000 | 130000 | 300000 |
| 37,500 | 1980 | 160000 | 300000 | NCA | 170000 | 190000 | NCA |
| | 1985 | 160000 | 300000 | 430000 | 170000 | 190000 | NCA |
| | 1990 | 160000 | 300000 | 430000 | 170000 | 190000 | 450000 |
| | 2000 | 160000 | 300000 | 430000 | 170000 | 190000 | 450000 |
| 50,000 | 1980 | 200000 | 390000 | NCA | 230000 | 260000 | NCA |
| | 1985 | 200000 | 390000 | 580000 | 230000 | 260000 | NCA |
| | 1990 | 200000 | 390000 | 580000 | 230000 | 260000 | 610000 |
| | 2000 | 200000 | 390000 | 580000 | 230000 | 260000 | 610000 |
| 250,000 | 1980 | 400000 | 1600000 | NCA | 1100000 | 1200000 | NCA |
| | 1985 | 400000 | 1600000 | 2900000 | 1100000 | 1200000 | NCA |
| | 1990 | 400000 | 1600000 | 2900000 | 1100000 | 1200000 | 3000000 |
| | 2000 | 400000 | 1600000 | 2900000 | 1100000 | 1200000 | 3000000 |

PARAMETER: RAW MATERIALS

UNITS: Ordinal; 1-5

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ ·6 H ₂ O | Na ₂ SO ₄ ·10 H ₂ O | Na ₂ O ₃ ·5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|---------------------------------------|--|--|-----------------|-------------------|--------------------------|
| 50 | 1980 | 5 | 5 | NCA | 3 | 5 | NCA |
| | 1985 | 5 | 5 | 3 | 3 | 5 | NCA |
| | 1990 | 5 | 5 | 3 | 3 | 5 | 3 |
| | 2000 | 5 | 5 | 3 | 3 | 5 | 3 |
| 100 | 1980 | 5 | 5 | NCA | 3 | 5 | NCA |
| | 1985 | 5 | 5 | 3 | 3 | 5 | NCA |
| | 1990 | 5 | 5 | 3 | 3 | 5 | 3 |
| | 2000 | 5 | 5 | 3 | 3 | 5 | 3 |
| 250 | 1980 | 5 | 5 | NCA | 3 | 5 | NCA |
| | 1985 | 5 | 5 | 3 | 3 | 5 | NCA |
| | 1990 | 5 | 5 | 3 | 3 | 5 | 3 |
| | 2000 | 5 | 5 | 3 | 3 | 5 | 3 |
| 500 | 1980 | 5 | 5 | NCA | 3 | 5 | NCA |
| | 1985 | 5 | 5 | 3 | 3 | 5 | NCA |
| | 1990 | 5 | 5 | 3 | 3 | 5 | 3 |
| | 2000 | 5 | 5 | 3 | 3 | 5 | 3 |
| 1000 | 1980 | 5 | 5 | NCA | 3 | 5 | NCA |
| | 1985 | 5 | 5 | 3 | 3 | 5 | NCA |
| | 1990 | 5 | 5 | 3 | 3 | 5 | 3 |
| | 2000 | 5 | 5 | 3 | 3 | 5 | 3 |
| 5000 | 1980 | 5 | 5 | NCA | 3 | 5 | NCA |
| | 1985 | 5 | 5 | 3 | 3 | 5 | NCA |
| | 1990 | 5 | 5 | 3 | 3 | 5 | 3 |
| | 2000 | 5 | 5 | 3 | 3 | 5 | 3 |
| 12500 | 1980 | 5 | 5 | NCA | 3 | 5 | NCA |
| | 1985 | 5 | 5 | 3 | 3 | 5 | NCA |
| | 1990 | 5 | 5 | 3 | 3 | 5 | 3 |
| | 2000 | 5 | 5 | 3 | 3 | 5 | 3 |
| 25,000 | 1980 | 5 | 5 | NCA | 3 | 5 | NCA |
| | 1985 | 5 | 5 | 3 | 3 | 5 | NCA |
| | 1990 | 5 | 5 | 3 | 3 | 5 | 3 |
| | 2000 | 5 | 5 | 3 | 3 | 5 | 3 |
| 37,500 | 1980 | 5 | 5 | NCA | 3 | 5 | NCA |
| | 1985 | 5 | 5 | 3 | 3 | 5 | NCA |
| | 1990 | 5 | 5 | 3 | 3 | 5 | 3 |
| | 2000 | 5 | 5 | 3 | 3 | 5 | 3 |
| 50,000 | 1980 | 5 | 5 | NCA | 3 | 5 | NCA |
| | 1985 | 5 | 5 | 3 | 3 | 5 | NCA |
| | 1990 | 5 | 5 | 3 | 3 | 5 | 3 |
| | 2000 | 5 | 5 | 3 | 3 | 5 | 3 |
| 250,000 | 1980 | 5 | 5 | NCA | 3 | 5 | NCA |
| | 1985 | 5 | 5 | 3 | 3 | 5 | NCA |
| | 1990 | 5 | 5 | 3 | 3 | 5 | 3 |
| | 2000 | 5 | 5 | 3 | 3 | 5 | 3 |

PARAMETER: OPERATIONAL CONSTRAINTS UNITS: Ordinal; 1-5

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ ·6 H ₂ O | Na ₂ SO ₄ · 10 H ₂ O | Na ₂ O ₃ ·5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|---------------------------------------|---|--|-----------------|-------------------|--------------------------|
| 50 | 1980 | 3 | 3 | NCA | 3 | 3 | NCA |
| | 1985 | 3 | 3 | 4 | 3 | 3 | NCA |
| | 1990 | 3 | 3 | 4 | 3 | 3 | 3 |
| | 2000 | 3 | 3 | 4 | 3 | 3 | 3 |
| 100 | 1980 | 3 | 3 | NCA | 3 | 3 | NCA |
| | 1985 | 3 | 3 | 4 | 3 | 3 | NCA |
| | 1990 | 3 | 3 | 4 | 3 | 3 | 3 |
| | 2000 | 3 | 3 | 4 | 3 | 3 | 3 |
| 250 | 1980 | 3 | 3 | NCA | 3 | 3 | NCA |
| | 1985 | 3 | 3 | 4 | 3 | 3 | NCA |
| | 1990 | 3 | 3 | 4 | 3 | 3 | 3 |
| | 2000 | 3 | 3 | 4 | 3 | 3 | 3 |
| 500 | 1980 | 3 | 3 | NCA | 3 | 3 | NCA |
| | 1985 | 3 | 3 | 4 | 3 | 3 | NCA |
| | 1990 | 3 | 3 | 4 | 3 | 3 | 3 |
| | 2000 | 3 | 3 | 4 | 3 | 3 | 3 |
| 1000 | 1980 | 3 | 3 | NCA | 3 | 3 | NCA |
| | 1985 | 3 | 3 | 4 | 3 | 3 | NCA |
| | 1990 | 3 | 3 | 4 | 3 | 3 | 3 |
| | 2000 | 3 | 3 | 4 | 3 | 3 | 3 |
| 5000 | 1980 | 3 | 3 | NCA | 3 | 3 | NCA |
| | 1985 | 3 | 3 | 4 | 3 | 3 | NCA |
| | 1990 | 3 | 3 | 4 | 3 | 3 | 3 |
| | 2000 | 3 | 3 | 4 | 3 | 3 | 3 |
| 12500 | 1980 | 3 | 3 | NCA | 3 | 3 | NCA |
| | 1985 | 3 | 3 | 4 | 3 | 3 | NCA |
| | 1990 | 3 | 3 | 4 | 3 | 3 | 3 |
| | 2000 | 3 | 3 | 4 | 3 | 3 | 3 |
| 25,000 | 1980 | 3 | 3 | NCA | 3 | 3 | NCA |
| | 1985 | 3 | 3 | 4 | 3 | 3 | NCA |
| | 1990 | 3 | 3 | 4 | 3 | 3 | 3 |
| | 2000 | 3 | 3 | 4 | 3 | 3 | 3 |
| 37,500 | 1980 | 3 | 3 | NCA | 3 | 3 | NCA |
| | 1985 | 3 | 3 | 4 | 3 | 3 | NCA |
| | 1990 | 3 | 3 | 4 | 3 | 3 | 3 |
| | 2000 | 3 | 3 | 4 | 3 | 3 | 3 |
| 50,000 | 1980 | 3 | 3 | NCA | 3 | 3 | NCA |
| | 1985 | 3 | 3 | 4 | 3 | 3 | NCA |
| | 1990 | 3 | 3 | 4 | 3 | 3 | 3 |
| | 2000 | 3 | 3 | 4 | 3 | 3 | 3 |
| 250,000 | 1980 | 3 | 3 | NCA | 3 | 3 | NCA |
| | 1985 | 3 | 3 | 4 | 3 | 3 | NCA |
| | 1990 | 3 | 3 | 4 | 3 | 3 | 3 |
| | 2000 | 3 | 3 | 4 | 3 | 3 | 3 |

PARAMETER: RELIABILITY

UNITS: Ordinal; 1-5

| Thermal Energy Capacity, 10 ³ Btu | Year | CaCl ₂ · 6 H ₂ O | Na ₂ SO ₄ · 10 H ₂ O | Na ₂ O ₃ · 5 H ₂ O | Olivine Ceramic | Magnisite Ceramic | Form-Stable Polyethylene |
|--|------|--|---|---|-----------------|-------------------|--------------------------|
| 50 | 1980 | 4 | 4 | NCA | 4 | 4 | NCA |
| | 1985 | 4 | 4 | 3 | 4 | 4 | NCA |
| | 1990 | 4 | 4 | 3 | 4 | 4 | 4 |
| | 2000 | 4 | 4 | 3 | 4 | 4 | 4 |
| 100 | 1980 | 4 | 4 | NCA | 4 | 4 | NCA |
| | 1985 | 4 | 4 | 3 | 4 | 4 | NCA |
| | 1990 | 4 | 4 | 3 | 4 | 4 | 4 |
| | 2000 | 4 | 4 | 3 | 4 | 4 | 4 |
| 250 | 1980 | 4 | 4 | NCA | 4 | 4 | NCA |
| | 1985 | 4 | 4 | 3 | 4 | 4 | NCA |
| | 1990 | 4 | 4 | 3 | 4 | 4 | 4 |
| | 2000 | 4 | 4 | 3 | 4 | 4 | 4 |
| 500 | 1980 | 4 | 4 | NCA | 4 | 4 | NCA |
| | 1985 | 4 | 4 | 3 | 4 | 4 | NCA |
| | 1990 | 4 | 4 | 3 | 4 | 4 | 4 |
| | 2000 | 4 | 4 | 3 | 4 | 4 | 4 |
| 1000 | 1980 | 4 | 4 | NCA | 4 | 4 | NCA |
| | 1985 | 4 | 4 | 3 | 4 | 4 | NCA |
| | 1990 | 4 | 4 | 3 | 4 | 4 | 4 |
| | 2000 | 4 | 4 | 3 | 4 | 4 | 4 |
| 5000 | 1980 | 4 | 4 | NCA | 4 | 4 | NCA |
| | 1985 | 4 | 4 | 3 | 4 | 4 | NCA |
| | 1990 | 4 | 4 | 3 | 4 | 4 | 4 |
| | 2000 | 4 | 4 | 3 | 4 | 4 | 4 |
| 12500 | 1980 | 4 | 4 | NCA | 4 | 4 | NCA |
| | 1985 | 4 | 4 | 3 | 4 | 4 | NCA |
| | 1990 | 4 | 4 | 3 | 4 | 4 | 4 |
| | 2000 | 4 | 4 | 3 | 4 | 4 | 4 |
| 25,000 | 1980 | 4 | 4 | NCA | 4 | 4 | NCA |
| | 1985 | 4 | 4 | 3 | 4 | 4 | NCA |
| | 1990 | 4 | 4 | 3 | 4 | 4 | 4 |
| | 2000 | 4 | 4 | 3 | 4 | 4 | 4 |
| 37,500 | 1980 | 4 | 4 | NCA | 4 | 4 | NCA |
| | 1985 | 4 | 4 | 3 | 4 | 4 | NCA |
| | 1990 | 4 | 4 | 3 | 4 | 4 | 4 |
| | 2000 | 4 | 4 | 3 | 4 | 4 | 4 |
| 50,000 | 1980 | 4 | 4 | NCA | 4 | 4 | NCA |
| | 1985 | 4 | 4 | 3 | 4 | 4 | NCA |
| | 1990 | 4 | 4 | 3 | 4 | 4 | 4 |
| | 2000 | 4 | 4 | 3 | 4 | 4 | 4 |
| 250,000 | 1980 | 4 | 4 | NCA | 4 | 4 | NCA |
| | 1985 | 4 | 4 | 3 | 4 | 4 | NCA |
| | 1990 | 4 | 4 | 3 | 4 | 4 | 4 |
| | 2000 | 4 | 4 | 3 | 4 | 4 | 4 |

END

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DTIC