

IV. PRIORITIES AMONG OBJECTIVES

The sub-program on Energy Conversion Techniques is concerned with six major types of systems, as follows: (1) coal gasification, (2) gas turbines, (3) MHD, (4) potassium topping cycle, (5) fuel cells, and (6) low-temperature cycles. In order to assess the comparative importance of these objectives, we selected 13 criteria as measures of merit. The individual objectives were then scored for each criterion by each member of the panel. The total scores for each system assigned by each member of the panel were tabulated, compared, and discussed. Finally, the validity of the scoring process itself were discussed, and judgment was used in combination with the scores in order to form a consensus on the assignment of the various objectives to four priorities.

The 13 criteria were as follows:

- (1) Does it exploit nuclear energy?
- (2) Does it use clean low-cost fuel derived from coal?
- (3) Does it use coal directly and thereby avoid the energy loss in gasification?
- (4) Does it exploit new energy sources such as solar or geothermal sources?
- (5) Does it substantially increase overall efficiency?
- (6) Does it reduce thermal pollution of our waters?
- (7) Does it reduce atmospheric pollution?
- (8) Does it permit use of otherwise wasted heat?
- (9) Will its first commercial use occur at an early date?
- (10) Does the program have low risk?

- (11) Does the concept hold the promise of high reliability?
- (12) Will it reduce power system cost?
- (13) Is it efficient at the low power levels characteristic of decentralized power?

Although the following priorities were assigned it should be emphasized that each technology has a definite role to play in meeting the Nation's energy requirements and all should be vigorously pursued in a reasonable manner.

First Priority

1. Coal Gasification (low-Btu gas)
2. Gas Turbines

Second Priority

3. Potassium Topping Cycle
4. MRD

Third Priority

5. Fuel Cells

Lowest Priority

6. Low-Temperature Cycles
7. Use of Waste Heat and Fuel
8. Advanced Concepts
9. Enabling Technology