

XA8007196

**INFCE**

International  
Nuclear  
Fuel  
Cycle  
Evaluation

INFCE/DEP/WG.5/31

ECONOMIC DATA USED IN WORKING GROUP 5 ANALYSIS

Attention Microfiche User,

The original document from which this microfiche was made was found to contain some imperfection or imperfections that reduce full comprehension of some of the text despite the good technical quality of the microfiche itself. The imperfections may be:

- missing or illegible pages/figures
- wrong pagination
- poor overall printing quality, etc.

We normally refuse to microfiche such a document and request a replacement document (or pages) from the National INIS Centre concerned. However, our experience shows that many months pass before such documents are replaced. Sometimes the Centre is not able to supply a better copy or, in some cases, the pages that were supposed to be missing correspond to a wrong pagination only. We feel that it is better to proceed with distributing the microfiche made of these documents than to withhold them till the imperfections are removed. If the removals are subsequently made then replacement microfiche can be issued. In line with this approach then, our specific practice for microfiching documents with imperfections is as follows:

1. A microfiche of an imperfect document will be marked with a special symbol (black circle) on the left of the title. This symbol will appear on all masters and copies of the document (1st fiche and trailer fiches) even if the imperfection is on one fiche of the report only.
2. If imperfection is not too general the reason will be specified on a sheet such as this, in the space below.
3. The microfiche will be considered as temporary, but sold at the normal price. Replacements, if they can be issued, will be available for purchase at the regular price.
4. A new document will be requested from the supplying Centre.
5. If the Centre can supply the necessary pages/document a new master fiche will be made to permit production of any replacement microfiche that may be requested.

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The original document from which this microfiche has been prepared has these imperfections:

- missing pages/figures numbered: Part 1 missing  
First part of C missing ?
- wrong pagination
- poor overall printing quality
- combinations of the above
- other

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SA-41

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## II. Data

### A. Reactor Characteristics

	<u>LWR-Std</u>	<u>LWR-15%</u>	<u>LWR-30%</u>	<u>FBR-Pu-U/U</u>
1. Fissile Charge (kg/GWe-yr)				
U-235	737	635	526	32
Fissile Pu	0	0	0	1,261
2. Fissile Discharge (kg/GWe-yr)				
U-235	213	104	64	18
Fissile Pu	147	119	97	1,521
3. Heavy Metal Charge (kg/GWe-yr)	25,527	16,620	14,255	23,715
4. Number of Batches	3	5	6	2(Core + Ax.B1.), 5(Rad.B1.)
Fuel Time (yrs)	3	5	6	" "
5. Capacity Factor (%)	65.9	65.9	65.9	65.9

## B. System Characteristics

	<u>LWR-Std</u>	<u>LWR-15%</u>	<u>LWR-30%</u>	<u>FBR-Pu-U/U</u>
1. Enrichment Tails Assay (%)				
Standard Enrichment	0.20	0.20	0.20	0.20
Advanced Enrichment	0.05	0.05	0.05	0.05
2. Fabrication Loss Rate (%)	1.0	1.0	1.0	1.0
3. Reprocessing Loss Rate (%)	1.0	1.0	1.0	1.0

C. Fuel Cost Data (Con't)

	<u>LWR-Std</u>	<u>LWR-15%</u>	<u>LWR-30%</u>	<u>FBR-Pu-U/U</u>
3. Fabrication Costs (1/1/78 \$/kg HM)				
Core	115	115	115	750
Blanket	-	-	-	160
4. Enrichment Costs (\$/SMU)	100	100	100	-
5. Reprocessing Costs (1/1/78 \$/kg HM)	280	280	280	290
6. Throwaway Cost (1/1/78 \$/kg HM)	130	130	130	-
7. Spent Fuel Shipping Cost (1/1/78 \$/kg HM)	20	20	20	95
8. Waste Shipping Cost (1/1/78 \$/kg HM)	15	15	15	55
9. Waste Storage Cost (1/1/78 \$/kg HM)	50	50	50	130
10. Lead/Lag Times (yrs)	1/1	1/1	1/1	1/1
11. Fissile Plutonium Value for Initial Inventory Plus Reload (\$/gm fis Pu)	-	-	-	17

D. Capital Cost Data

	<u>LWR-Std</u>	<u>LWR-15%</u>	<u>LWR-30%</u>	<u>FBR-Pu-U/U</u>
1. Unit Cost (1/1/78 \$/KWe, including owner's costs and IDC)	770	770	770	1155
2. Plant Size (MWe)	1000	1000	1000	1000

E. Operation and Maintenance Cost Data  
(1/1/78 \$/KWe-yr)

1. Fixed O & M	11.2	11.2	11.2	11.7
2. Variable* O & M	0.5	0.5	0.5	0.9

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\* Must be multiplied by the capacity factor for given year.

**F. Economic Data**

1. Debt Rate (%)	2.5
2. Equity Rate (%)	7.0
3. Debt Fraction (%)	55.
4. Equity Fraction (%)	45.
5. Effective Income Tax Rate (%)	50.
6. Fixed Charge Rate on Plant (%)	9.80
a. Components of Fixed Charge Rate (%)	
- Return on Capital	4.53
- Return of Capital	1.63
- Income Tax	1.48
- Depreciation Scheme	Sum-of-years Digits
- Property Tax	1.56
- Property Insurance	0.25
- Capital Replacement	0.35
- Salvage Value	0
7. Fixed Charge Rate on First Core	
(Same as 6. above)	