Power Costs of Nuclear and Other Power Sources During Operating Period in Japan

Power costs calculated on a trial basis under certain assumptions, using a hypothetical model plant starting operation in FY1998

・For the purpose of comparison, and based on past results, an operating period of 40 years is applied for all power sources, along with a capacity factor of 80% (except for hydropower generation).

Power source	Nuclear	Hydroelectric	Oil-fired thermal	LNG-fired thermal	Coal-fired thermal
Power cost (\/kWh)	5.9	13.6	10.2	6.4	6.5

<Assumptions>

(Main Economic Indicators)

・Foreign exchange rate: \128.02/US$ (average in fiscal 1998)

・Discount rate : 3%

・Fuel prices (averages in fiscal 1998)

Oil : $13.13 / bbl

Coal : $38.8 / t

LNG : \18,902 / t

・Fuel price increases

Oil : 3.36% / year

Coal : 0.88% / year

LNG : 1.82% / year

(Based on expected figures for the period 2015 through 2020 from the IEA's "World Energy Outlook" and average values for FY1998.)

Power source / Conditions	Nuclear	Hydro-electric	Oil-fired thermal	LNG-fired thermal	Coal-fired thermal
Output (MW)	1,300	15	400	1,500	900
Operating period (years)	40	40	40	40	40
Capacity factor (%)	80	45	80	80	80

Breakdown of Nuclear Power Generation Costs

Overall expenses			¥5.9	/kWh
	Cost of capital (depreciation, fixed-asset tax, decommissioning costs)		¥2.3	/kWh
	Operation and maintenance (repairs, general management, enterprise tax)		¥1.9	/kWh
	Fuel (nuclear fuel cycle costs)		¥1.7	/kWh
		Front end	¥0.74	/kWh
		Procuring ore, ore concentrates, conversion	¥0.17	/kWh
		Enrichment	¥0.27	/kWh
		Reconversion and fabrication	¥0.29	/kWh
		Reprocessing	¥0.63	/kWh
		Back end	¥0.29	/kWh
		Intermediate storage	¥0.03	/kWh
		Treatment/conditioning and disposal of waste	¥0.25	/kWh

(Source) A Report of the 70th Nuclear Energy Subcommittee, Advisory Committee for Energy, December 1999.

(Note) Power costs as described in an Application for Permission to Install a Reactor are calculated on different assumptions from those supporting the above figures; for example, an operating period of 16 years and 70% capacity factor.