UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. and POWER AUTHORITY OF THE STATE OF NEW YORK (Indian Point Station, Unit No. 3)	)	Docket No. 50-286 (Selection of Preferred Alternative Closed-Cycle Cooling System)

ADDITIONAL COMMENTS OF POWER AUTHORITY OF THE STATE OF NEW YORK WITH RESPECT TO DRAFT ENVIRONMENTAL STATEMENT

On October 3, 1977 Power Authority of the State of New York ("the Power Authority") filed its Comments with Respect to the Draft Environmental Statement ("DES") concerning designation of a preferred alternative closed-cycle cooling system at Indian Point Station, Unit No. 3 ("Indian Point 3"). As indicated on page 12 of those comments, certain economic information contained in the DES was more directed to circumstances that would have obtained were Indian Point 3 still owned by Consolidated Edison Company of New York, Inc. ("Con Edison"). In these additional comments, the Power Authority will present economic data concerning the preferred alternative cooling system premised on the fact that the Power Authority now owns Indian Point 3 and will be the owner at such time as a change is made--should one be required to be made--in the installed cooling system.

At the outset, several observations should be made which serve to distinguish Power Authority and Con Edison econimic analyses. These differences flow from the distinct legal character of these two entities. First, as noted in the October 3 comments, the Power Authority is not subject to federal, state or local taxations. As a consequence, the overall annual carrying charges that were developed as a percent of capital cost would be lower than shown in the DES, the data in which were predicated on Con Edison's taxable status. This difference serves to reduce by approximately 12% the annual carrying charges as a percent of capital cost for a natural draft wet cooling tower. Annual carrying charges for other alternative systems would be similarly reduced.

Second, the Con Edison cost data were based upon that company's experienced discount rate of 15 3/8%. The Staff, however, at page 6-2 of the DES has rejected this in keeping with its own convention of a 10% discount rate for investor-owned utilities. As pointed out on page 13 of the October 3 comments, use of such a convention is inappropriate since the Power Authority is

not an investor-owned utility. The Power Authority's data are based upon a 6.5% social discount rate that reflects an assessment of the opportunity costs associated with this type of investment. Use of this 6.5% discount rate serves to increase the sum present worth of the project costs. This phenomenon is equally present with respect to each of the alternative closed-cycle systems.

With respect to the alternative closed-cycle systems deemed to be feasible, the Power Authority concurs in general with Con Edison's presentation of the direct construction costs. It should be borne in mind, however, that those costs were estimated as of a date in 1975, and accordingly should be understood as having experienced uniform escalation since that time. In addition those data uniformly take into account certain real estate taxes that are not pertinent to Power Authority economic analysis. Hence, from the standpoint of direct construction costs, no change in the ordering of alternatives is occasioned by substitution of the Power Authority

Con Edison as owner. The Power Authority also concurs with the Con Edison Aanlysis of derating impacts of the various alternative systems; here again, no material change in the overall selection process is necessitated by Power Authority ownership of the facility.

In addition, the Power Authority notes that the Staff's analysis apparently fails, despite the implications of the first paragraph of § 6.1 and of § 6.2.1(4), to present in a quantified fashion the costs associated with provision of replacement capacity during down-time for cooling system tie-in. Our analysis indicates that over $16,000,000 (1978 dollars) of additional cost over the life of the project would be attributable to this feature of system installation, assuming a seven-month cutover outage. If, as shown in Table 6-17B of the DES, down-time costs for cooling system tie-in--replacement energy are the same for all alternatives, then this discrepancy between the analyses of the Staff and the Power Authority is immaterial from the standpoint of comparing alternative systems.

The cost of replacing the loss of peak generating capacity due to plant derating was based, in § 6.2.2.2(c) on a derating of 77.5 MWe for a natural draft wet cooling tower.

The derating experienced--and hence the size of this cost--varies from alternative to alternative. The Power Authority's analysis of this cost is $304/KW installed in 1984 as opposed to the Staff's estimate of $330/KW installed in 1981. Moreover, with regard to the replacement of peak capacity, while the Power Authority concurs in the assessment that gas turbines would have to be the source for such capacity, it is believed that, in the event this capacity is required, it would be purchased from an investor-owned utility in the State of New York. The Power Authority estimates the total fixed charges associated with the capital investment in the required gas turbine capacity as 20.6%, rather than the 22.8% shown in Table 6-3 of the DES.

On page 6-6 the Staff has noted its position that installation of additional gas turbine capacity is an inappropriate means of evaluating the peak derating associated with installation of a cooling tower. Whatever the merits of the Staff's analysis given Con Edison's planned capacity, load and reserve margins, it is clear that those factors cannot be applied to the Power Authority.. Hence, it would be incorrect to disregard this cost on the theory

that present or projected Power Authority capacity conditions would cover the reduced availability of peak capacity attributable to the derating.

On page 6-2 of the DES, the Staff has stated its methodology for determining the total project cost for each alternative. Its formula, however, implies continuous compounding, whereas the Authority's analysis assumes that compounding would take place on an annual basis.

Attached hereto is a chart comparing the Staff and Power Authority estimates of expenses associated with installation of a natural draft wet cooling tower at Indian Point 3, expressed in 1978 dollars.

With respect to direct comparison of the alternatives, there are divergent aspects of the Staff's and the Power Authority's analyses which would be consistently applicable within each analysis, and which, as a consequence, would not skew the rank order of the alternative systems. Thus, the Staff's analysis refers to the sum present worth of capital costs, DES § 6.2.2.2, over the period 1978-2005. This implies a 23-year useful life, which is not in keeping with the average life of facilities of this character. The Power Authority, in contrast, would develop this cost over the projected life of the cooling system from 1984

through 2016, a 32-year average life. This would raise the sum present worth of annual capital expenses. In each case, however, the calculation would apply uniformly to any cooling system that might be selected. Selection of the useful life has implications for other areas of the economic analysis wherever a sum present worth is developed.

A final area of disagreement is the selection of an annual escalation rate. In § 6.2.2.2(b), the Staff has posited a 5% rate, whereas the Power Authority's judgment, based on current experience, is that a rate of 5.5% is required. This Staff position has the effect of understating the revenue requirements for a cooling system, but again, the error would be constant and hence would not alter the selection of a particular system.

Respectfully submitted,

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COMPARISON OF EXPENSES ASSOCIATED WITH
INSTALLING A NATURAL DRAFT WET COOLING TOWER
AT INDIAN POINT 3

Expense	Power Authority Estimate	NRC Staff Estimate
Maintenance and other operating expenses	$ 4,127,000	$ 1,404,000
Carrying cost of capital for cooling tower	104,635,000	103,737,000
Cost of replacing deficient energy (annual derating)	98,796,000	58,924,000
Carrying cost of capital for replacement capacity	43,368,000	- 0 -
Replacement energy for plant downtime to cut in cooling tower	52,101,000	54,984,000
Firm purchase for replacement capacity for downtime to cut in cooling tower	16,827,000	- 0 -
Total (1978 dollars):	$319,854,000	$219,049,000