

March 13, 1978

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Appeal Board

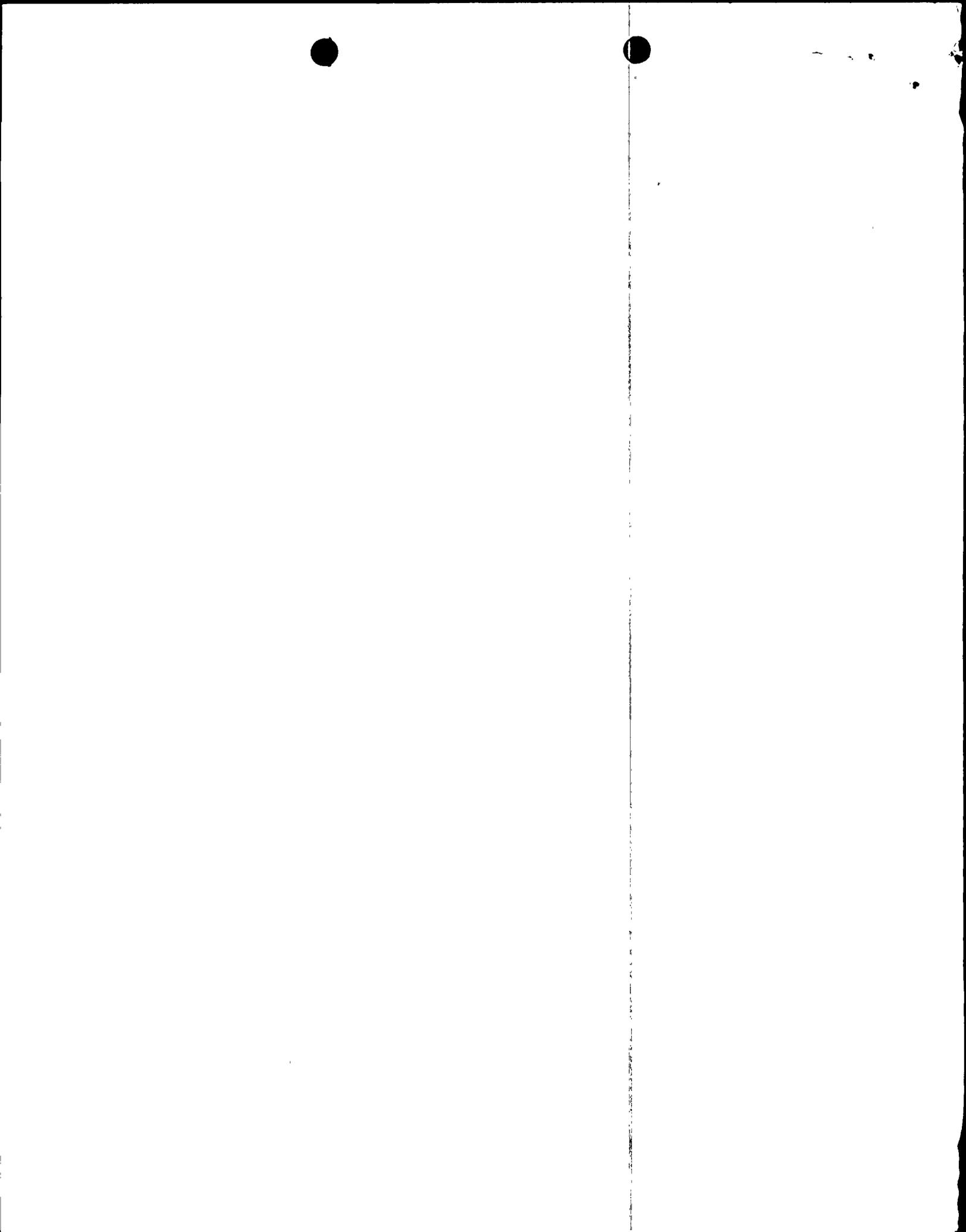
3/13/78

In the Matter of)	
)	
CAROLINA POWER AND LIGHT)	Docket Nos. 50-400
COMPANY)	401
)	402
(Shearon Harris Nuclear Power)	403
Plant, Units 1, 2, 3 & 4))	

APPLICANT'S RESPONSE IN OPPOSITION
TO INTERVENORS' EXCEPTIONS

I. INTRODUCTION

On February 21, 1978, Intervenor-Appellants filed "Appellants' Brief" in support of their February 6, 1978, exceptions to the Licensing Board's Initial Decision, dated January 23, 1978, which authorized issuance of construction permits for the four units of the Shearon Harris Nuclear Power Plant. Carolina Power and Light Company ("Applicant" or "CP&L") opposes Intervenor's appeal, which presents one question -- whether the Licensing Board's finding of future need for the power to be generated by the Shearon Harris units is reasonable where projections by Applicant, a state utility commission, and NRC Staff generally agree on the total future load but differ in their estimates of the components of future consumption by individual consumer classes.



II. DISCUSSION

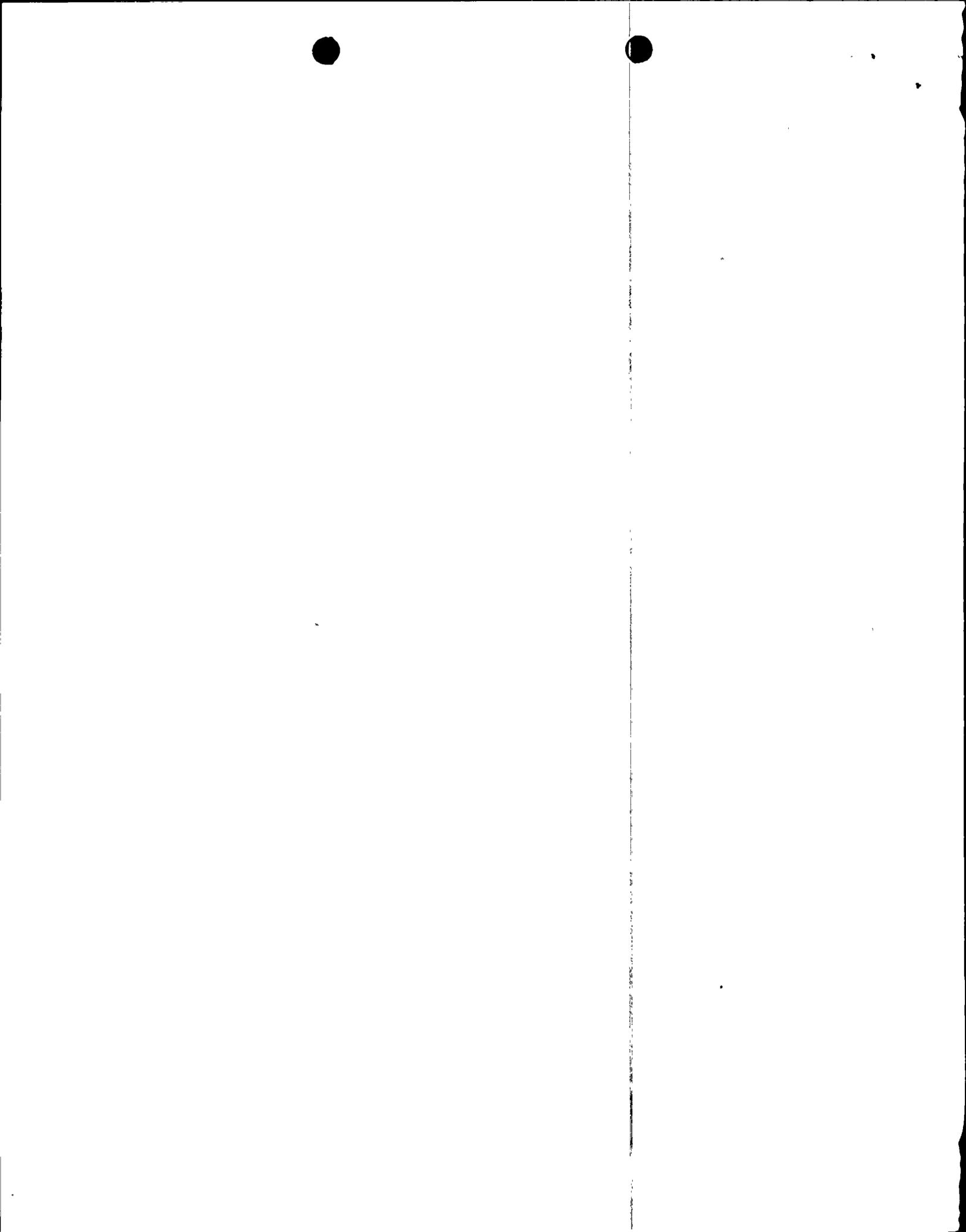
Intervenors' appeal presents a narrow question. All fifteen exceptions initially filed by Intervenors on February 6, 1978, were concerned with the Licensing Board's consideration of future load projections, the need for the Harris units and Applicant's revenue production from future sales. In their brief of February 21, 1978, Intervenors have further narrowed the scope of their appeal, expressly dropping their exceptions 3, 4, 7, 8, 9, 13 and 14, ^{1/} (on witness qualifications, the Licensing Board's own load forecast, substitution, and financial qualifications), and focusing their argument on exceptions 1 and 2 relating to the differences between the component parts of load forecasts by Applicant, the North Carolina Public Utilities Commission (NCUC) and the NRC Staff. ^{2/}

There were three principal witnesses who presented testimony on load forecasts. ^{3/} Applicant's Vice President -

^{1/} See Intervenors' Brief, at 1, where they refer to exceptions 1, 2, 5, 6, 10, 11, 12 and 15 as being the subject of their argument in Section II. Since all the argument in Intervenors' Brief follows this single heading and no argument is included in Section II in support of exceptions 3, 4, 7, 8, 9, 13 and 14, Applicants regard these exceptions as waived. See, e.g., Florida Power & Light Co. (St. Lucie Nuclear Power Plant Unit No. 2) ALAB-435, 6 NRC 541, 542 (1977); Union Electric Co. (Callaway Units 1 and 2) ALAB-347, 4 NRC 216 (1976).

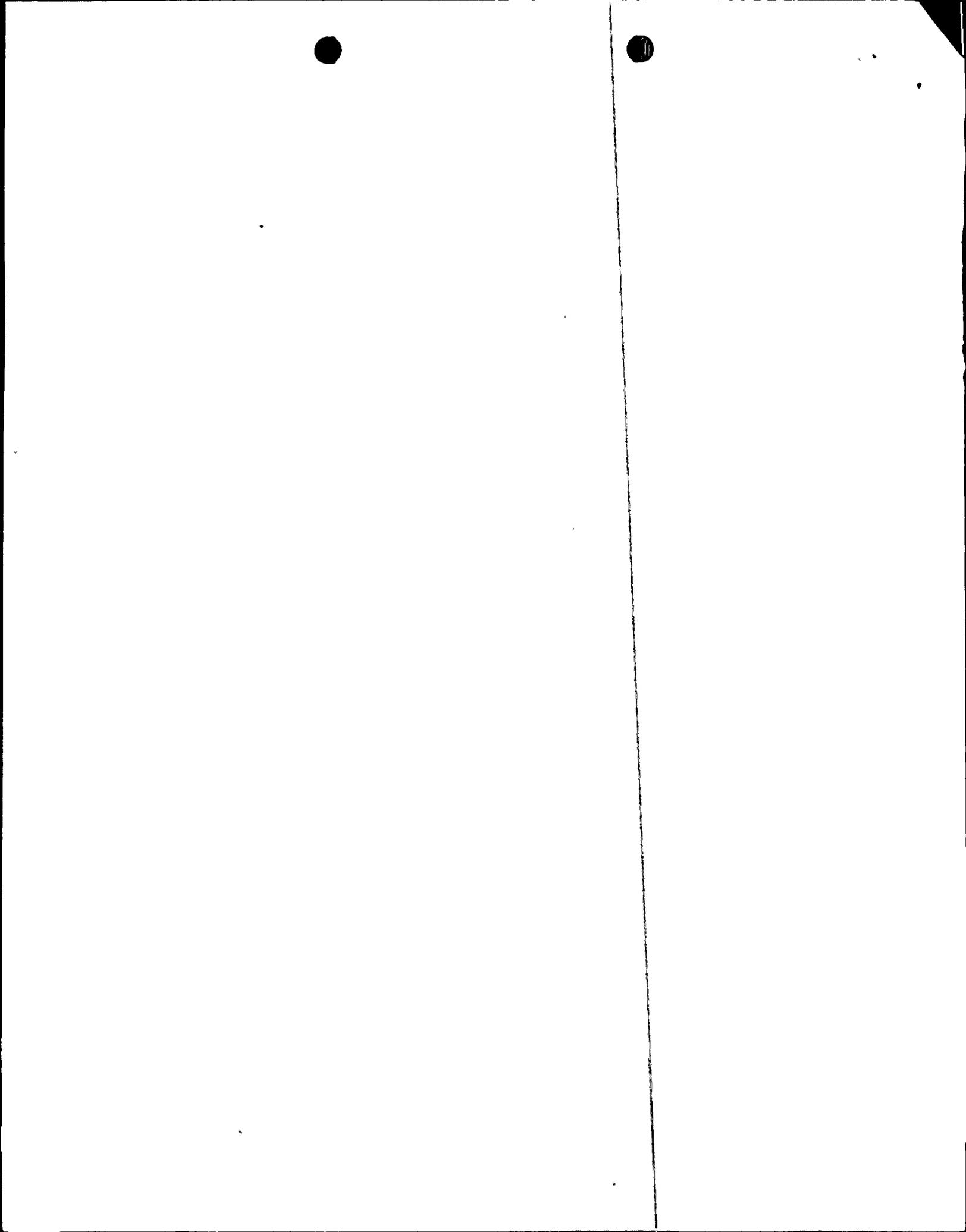
^{2/} Intervenors also refer to exceptions 5, 6, 10, 11, 12 and 15 as supported by their Argument. In fact, these exceptions are not directly addressed in their Brief. Intervenors' total brief is directed at the differences between the three projections advanced by Applicant, the state utility commission and the NRC Staff, and the impact of those differences.

^{3/} Other witnesses concentrated on special topics such as conservation or use of solar power as an alternative.



System Planning & Coordination, Mr. Wilson Morgan, presented CP&L's load projections for its service area into the 1990's (Morgan Testimony, following tr. 1659). A private consultant, Dr. Robert Spann, who had assisted the Staff of the North Carolina Utilities Commission (NCUC) in its preparation of an independent forecast through 1990 of future demands on Applicant's system, addressed the state's official forecast (Testimony of Robert M. Spann, following tr. 1731). The third principal witness was an economist from Oak Ridge National Laboratory, Dr. Robert C. Spore, who addressed the NRC Staff's review of the methodologies and results of the Applicant and NCUC forecasts for the CP&L system and the analysis performed by the NRC Staff (Testimony of Robert C. Spore, following tr. 1991). Intervenors presented no load forecast.

The Applicant's forecasts (addressed by Mr. Morgan) demonstrate a need for all four units of the Shearon Harris facility on the scheduled completion dates of 1984, 1986, 1988 and 1990 in order to meet forecasted demand and provide reserves (Morgan, at Tables 3, 4 and 5). Indeed, Mr. Morgan observed that, even with the Harris units on their current schedule, projected reserves did not assure the reliability CP&L would like to provide. Tr. 1726. The Applicant's forecasts of demand and the NCUC forecasts, although performed independently (Spann, at 2), yielded almost identical results (Spann, at 3). While they conducted cross-examination of Mr. Morgan, Intervenors asked no questions at all of Dr. Spann, and raised no objection to the



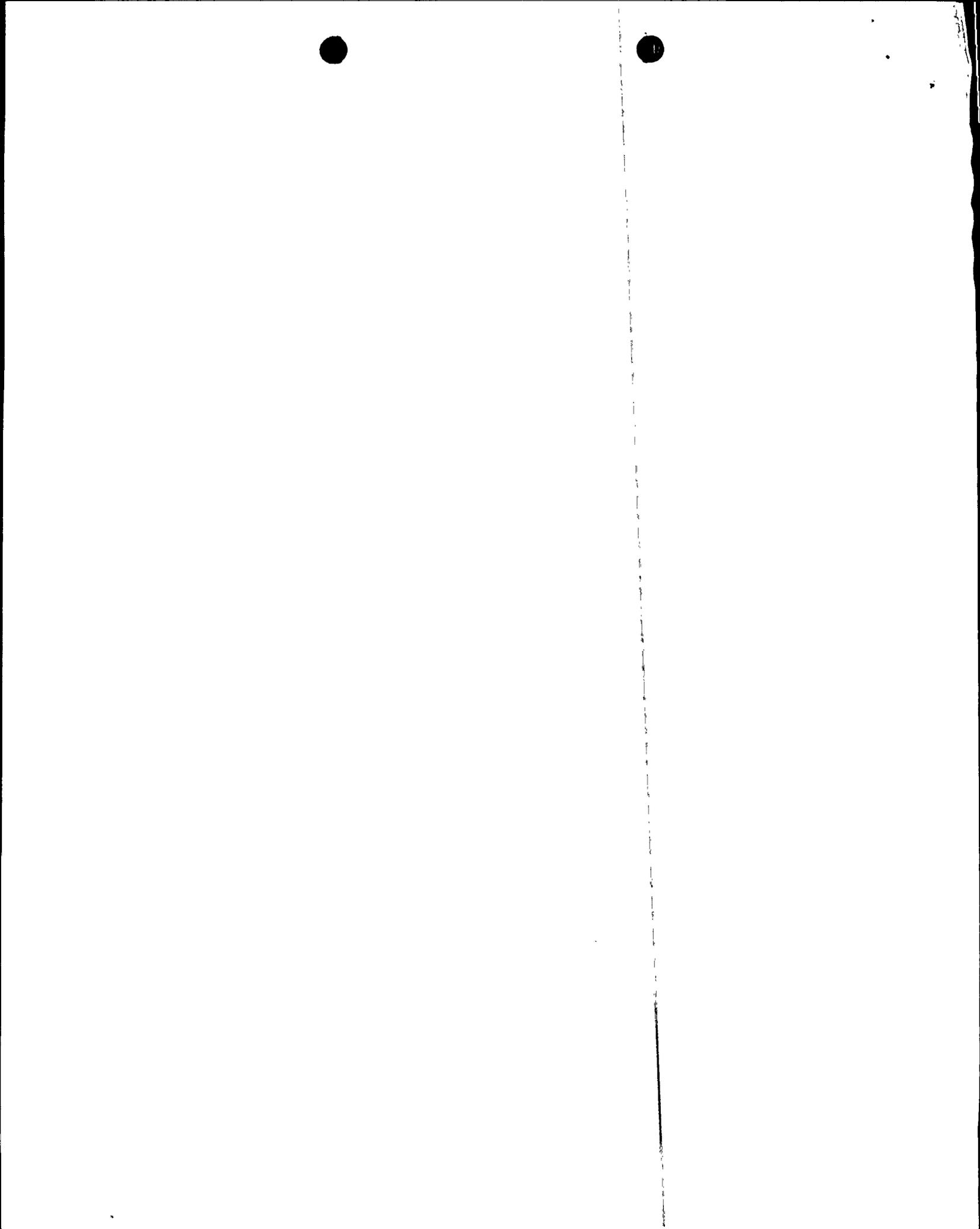
introduction of his testimony or to the NCUC forecast and underlying documentation. ^{4/}

The NRC Staff conducted a review of the methodologies and results of Applicant's and the NCUC forecasts for the CP&L system. Not only did it evaluate the forecasts done by Applicant and by NCUC, it also did an independent analysis using its own regional econometric model and data on future needs in North Carolina and South Carolina as a confirmatory test of the forecasts by Applicant and NCUC. ^{5/} Dr. Spore viewed as remarkable the agreement between the total energy forecasts arrived at independently by CP&L, NCUC and the NRC Staff, regarded their overall agreement as confirmatory of each other, and stated that his confidence in the results would not have been disturbed by a greater variation between them (Spore Testimony, at 1-44; tr. 2027, 2050). Based on its review, the NRC Staff found the Applicant's forecast reasonable (Spore at 1-44). It was Applicant's forecast, then, that the NRC Staff used in performing its assessment of need for new base-load generating capacity (Id.).

The sole question presented by Intervenors' appeal is whether the record evidence described above reveals that Applicant

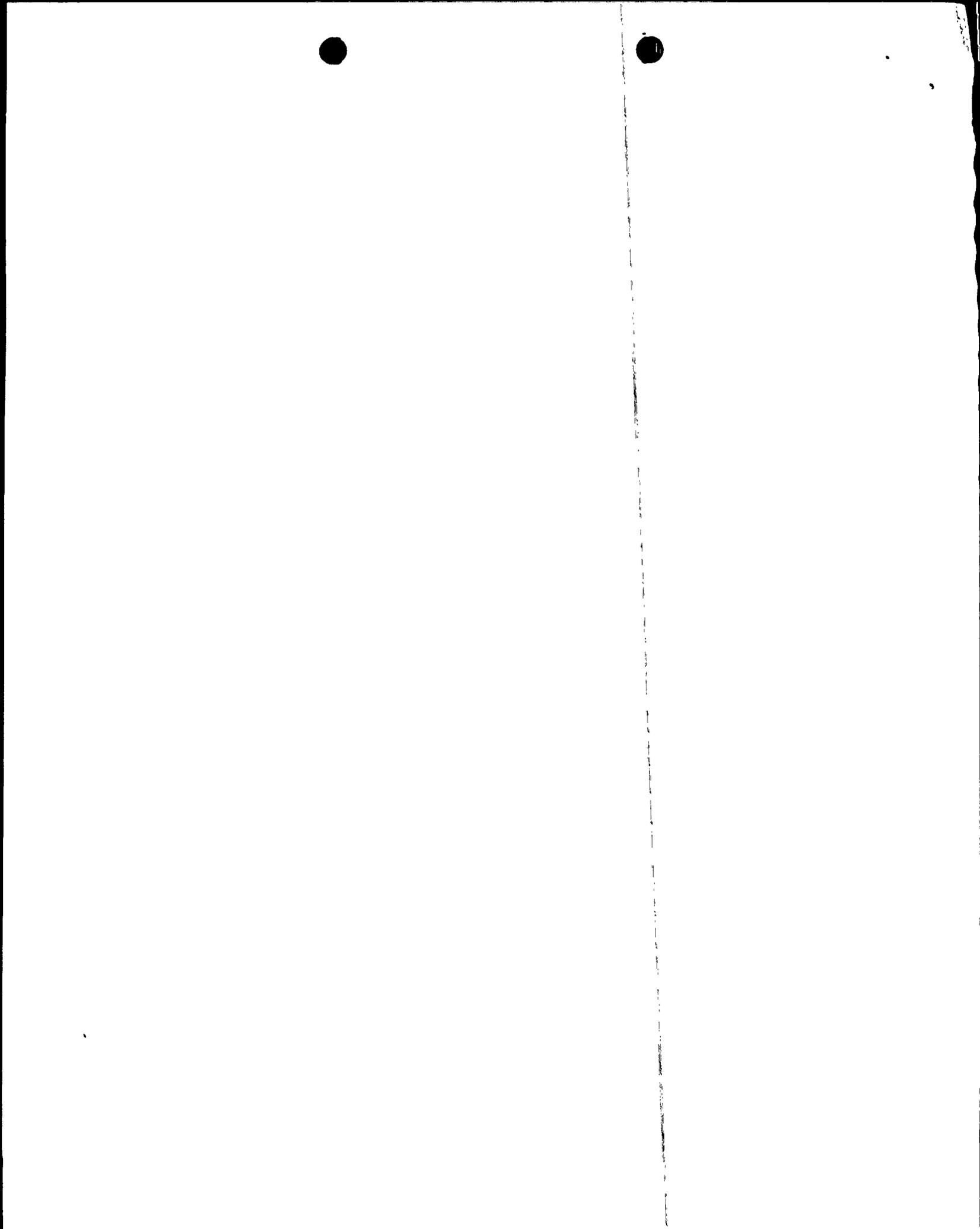
^{4/} See tr. 1732. The NCUC forecast and NCUC Order adopting that forecast are Applicant's Exhibits CC and DD sponsored by Dr. Spann (tr. 1731-32). This forecast was adopted by the NCUC as the state's official forecast following an adjudicatory hearing in which one of the instant Joint Intervenors participated.

^{5/} See Spore 1-44; tr. 2047-48. The NRC Staff's forecast, done as a check on the reasonableness of Applicant's and the NCUC forecasts, was based on different physical areas and different future periods than the area and periods used in either Applicant's or NCUC's forecast.



has demonstrated with reasonable specificity a need for the Shearon Harris units. ^{6/} Intervenor's argue that the record does not reveal such a demonstration because it includes three projections of future loads and, while all three demonstrate a need for the Harris units, their components of future need (residential usage, commercial usage and industrial usage) are so different that none can be credible. Intervenor's Brief, at 5. The Licensing Board in this proceeding having rejected Intervenor's position and determined that need for power was more than adequately demonstrated (Initial Decision, slip opinion at 96, ¶¶ 158 and 159), the Appeal Board must now decide whether Intervenor's exceptions to the contrary are well placed. In deciding the appeal, the Appeal Board is not bound by the "substantial evidence" rule but by the same token may not ignore the Licensing Board's evaluation and its disposition of questions similar to those posed on appeal; the Appeal Board must, in fact, attach significance to the Licensing Board's evaluation of evidence and its determinations based on the evidence. See Duke Power Company (Catawba Nuclear Station, Units 1 and 2) ALAB-355, 4 NRC 397, 403-04 (1976) and cases cited therein. Applicant, of course, disagrees with Intervenor's position and submits that the record adequately demonstrates a need for the Harris units and that the Licensing Board's Initial Decision should be affirmed.

^{6/} Applicant has the burden of showing that its demand projections are reasonable and that additional or replacement generating capacity is needed to meet that demand. See Public Service Company of New Hampshire, Et Al. (Seabrook Station, Units 1 and 2) ALAB-422, 6 NRC 33, 90 (1977), and cases cited therein.



The subject matter of Intervenors' appeal revolves about the accuracy of power projections, a subject which appeal boards have considered in a number of prior decisions. It has been recognized that "[a]s with most methods of predicting the future, load forecasting involves at least as much art as science."

Niagara Mohawk Power Corporation (Nine Mile Point Nuclear Station, Unit 2) ALAB-264, 1 NRC 347, 365 (1975). A substantial margin of uncertainty is inherent in any forecast of future electric power demands. See Duke Power Company (Catawba Nuclear Station, Units 1 and 2) ALAB-355, 4 NRC 397, 410 (1976) (citing ALAB-264, supra). Most recently, for example, an appeal board has had occasion to consider in the Wolf Creek case, projections of annual growth rate for the total system load of 2.6% and 5.3%, and to choose between them. Kansas Gas and Electric Company, et al. (Wolf Creek Generating Station, Unit No. 1) ALAB-462, 7 NRC _____ (March 9, 1978) (see slip opinion, at 10-24).

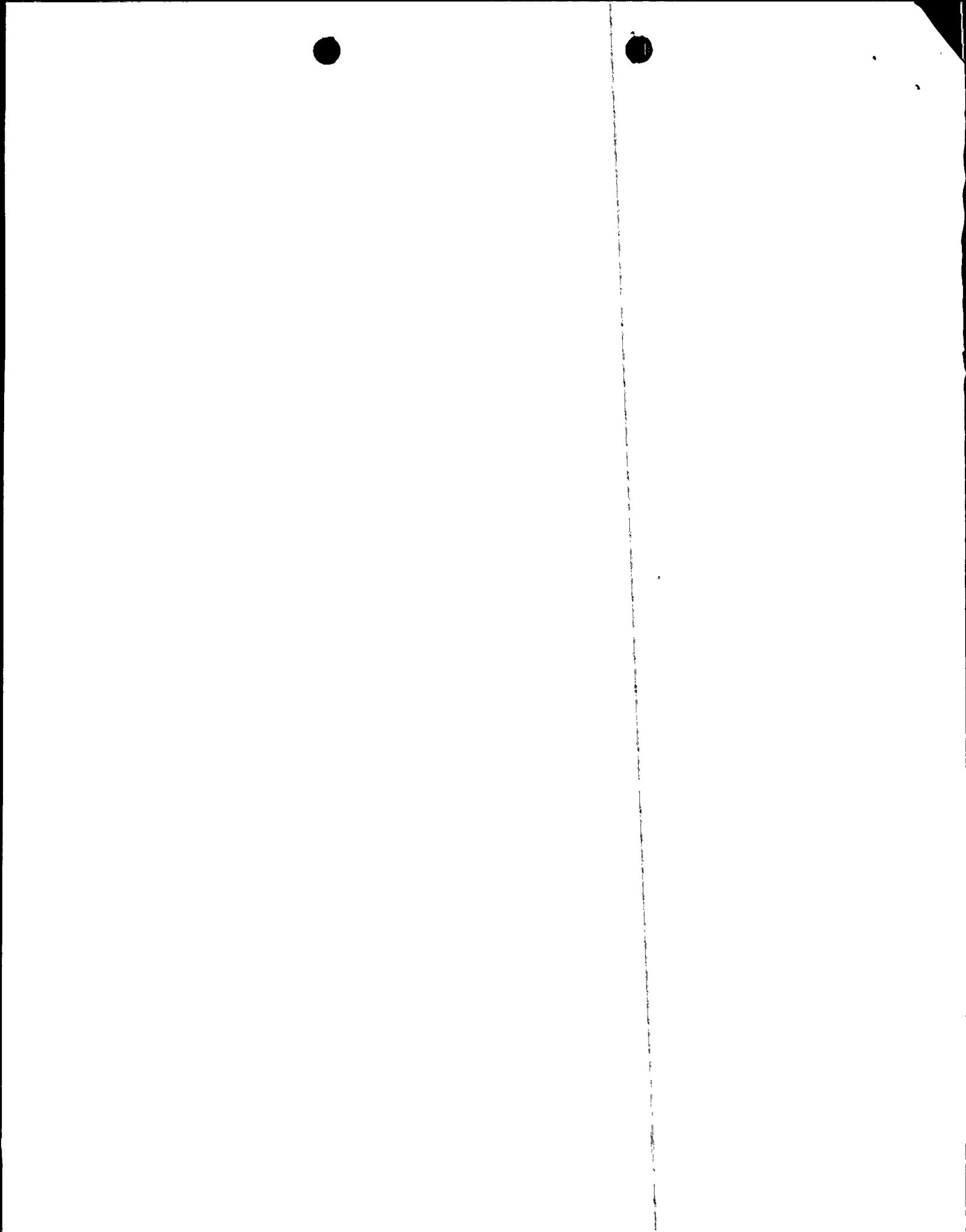
Despite the inherent uncertainty, future power demand must be predicted with the reasonable accuracy that circumstances permit to determine whether the additional or replacement generating capacity is needed to meet that demand. Duke Power Company, ALAB-355, supra, at 405 and cases cited therein. Forecasts have been found sufficient where, for a period of operation just five years into the future, different forecasters disagreed by two years on the predicted year of need (See ALAB-264, supra, 1 NRC at 365-66). In Wolf Creek, supra, forecasts differing by 100% in annual growth rate were considered, yet they were not both



rejected merely because a difference existed. ALAB-462, supra (slip opinion, at 24). Finally, that the need for construction of power plants should be based not only on meeting the demand actually forecast, but also on providing as well an adequate reserve margin, is recognized. See, e.g., Tennessee Valley Authority (Hartsville Nuclear Plant, Units 1A, 2A, 1B and 2B) ALAB-367, 5 NRC 92 (where reserve margin was as much as 23%).

In the instant case, there is no disagreement with the total system loads projected in the three forecasts presented. The three forecasts generally agree on the combined future loads. See, e.g., Spore Testimony, Table 1-9. Intervenors concede this to be the case. Intervenors' Brief, at 2-3. The quarrel Intervenors have with the Licensing Board's finding a need for the Harris units stems from their assertion that differences exist as between the sector components in each of the forecasts. Intervenors' Brief, at 3. Applicant submits that whereas predicting total combined future loads has been characterized as more art than science and therefore distinguishing between total load forecasts has proved less than a perfect scientific practice, attempting here as Intervenors do to discern great significance from differences in component parts of the whole may be even less fruitful. ^{7/} In any event, for at least two basic reasons, Intervenors' attack fails on the adequacy of the need for power demonstration in this record.

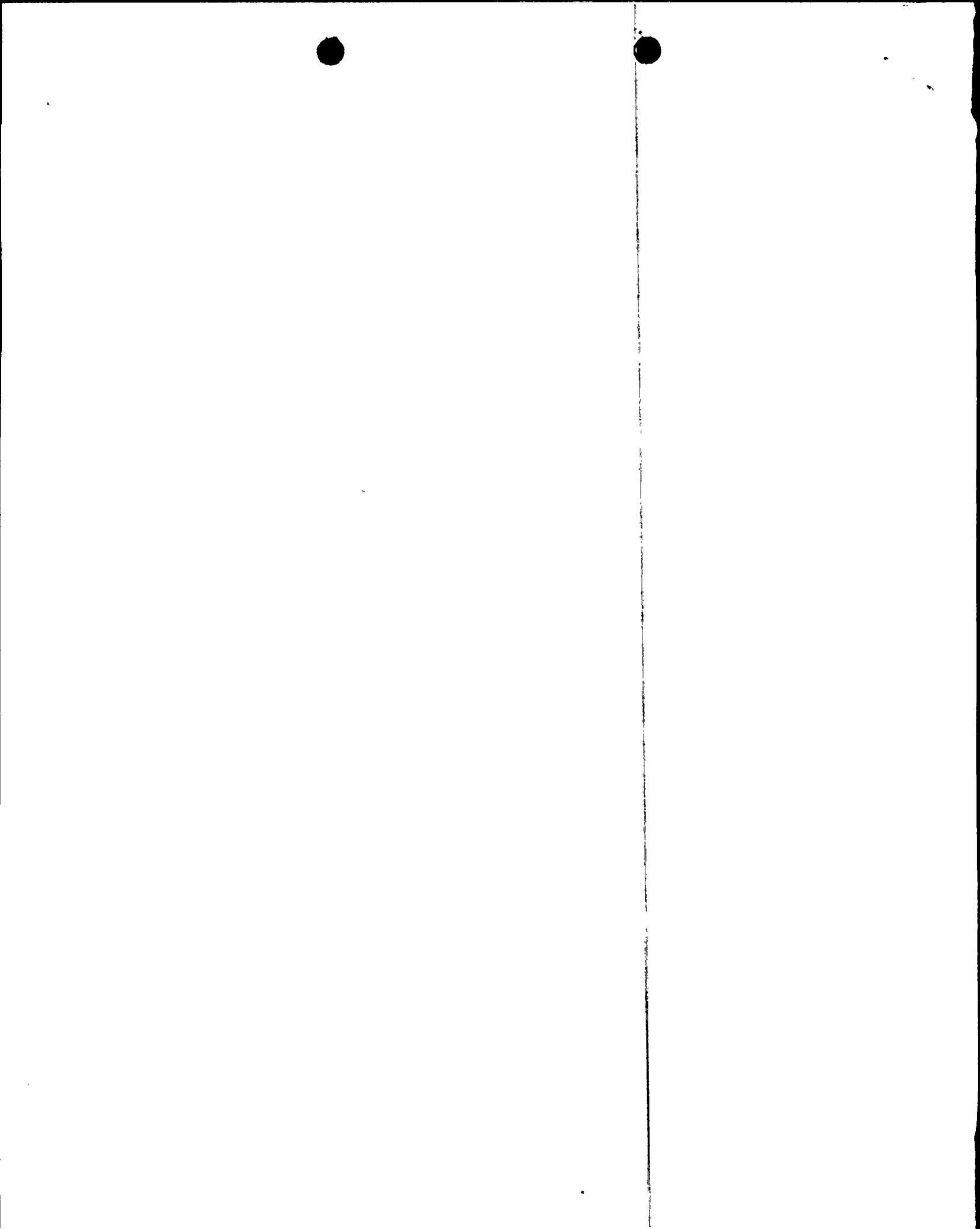
^{7/} This may be "mere craft." Compare ALAB-462, supra (slip opinion at 13; fn.17).



First, as described above, Applicant and the NCUC each performed independent projections of future power needs in Applicant's service area. These two forecasts provide virtually identical total load forecasts, either of which standing alone is sufficient to demonstrate need for the Harris units. ^{8/} Even the sector (residential, commercial and industrial) components of these two independent forecasts are very similar, notwithstanding Intervenor's contrary assertions. See Spore Testimony, Table 1-9 (recognizing the differences in forecasting periods). Thus, we submit Applicant's and the NCUC forecasts are complementary, enhance the credibility of either taken alone, and provide an even stronger demonstrated need for the Harris Plant than had either forecast appeared alone in the record.

Second, Intervenor's attack on the credibility of the Applicant and the NCUC load forecasts by comparing them with the NRC Staff's forecast is misdirected. The NRC Staff forecast was done merely as a check on the other two forecasts. The NRC Staff's witness who performed this analysis acknowledged that it was performed using different input data, and the forecasts were for different future time periods and different geographical regions than Applicant's and the NCUC forecasts. Nevertheless, the NRC witness felt that the NRC's independent analysis provided further confidence in the other two forecasts because of their

^{8/} Intervenor's never questioned Dr. Spann. Nor did they rebut or otherwise challenge the NCUC forecast. Under these circumstances, Applicant views Intervenor's present challenge to the NCUC forecast as particularly inappropriate. Cf. ALAB-355, *supra*, at 411.



overall similarity in results. There was no contrary opinion expressed. In any event, as Dr. Spore observed, the NRC did not use its own forecast but used that of the Applicant in the assessment of need for new base-load generating capacity. See Spore Testimony, at 1-44; Initial Decision, ¶ 152.

Under these circumstances, Intervenors' attack must be rejected.

III. CONCLUSION

For the reasons set out above, Intervenors' exceptions should be dismissed and Intervenors' request for further remand hearings should be denied. The Licensing Board's Initial Decision should be upheld in its determination that there exists an adequately demonstrated need for the power to be produced by the four Shearon Harris units on their current construction schedule.

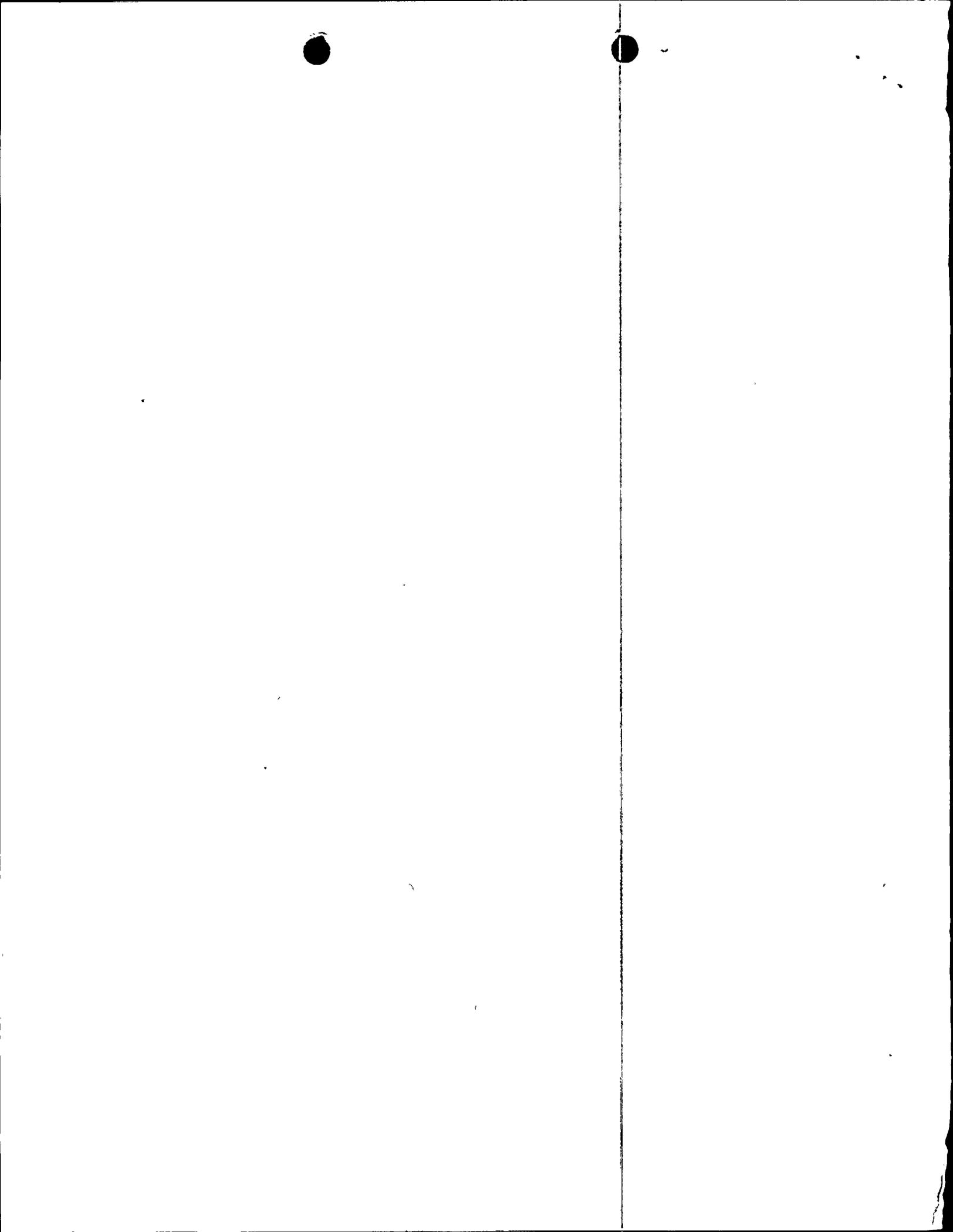
Respectfully submitted,

SHAW, PITTMAN, POTTS & TROWBRIDGE

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Dated: March 13, 1978



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CERTIFICATE OF SERVICE

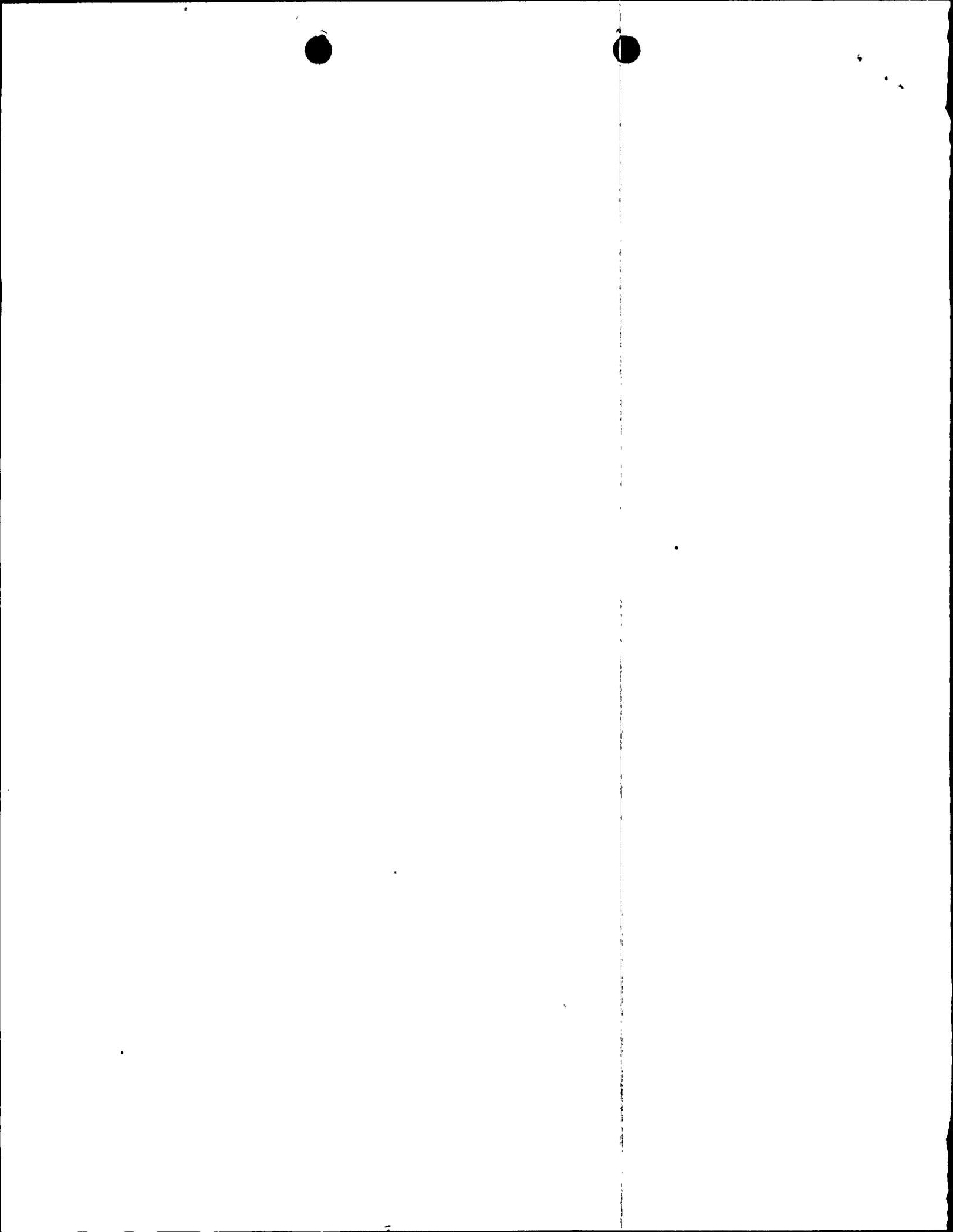
I hereby certify that copies of the foregoing
"Applicant's Response In Opposition To Intervenors' Exceptions"
dated March 13, 1978, have been served by mail, postage prepaid,
to those persons listed on the attached service list this 13th
day of March, 1978.

Ernest L. Blake, Jr.

Ernest L. Blake, Jr.

Counsel for Applicant

Dated: March 13, 1978



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Power Plant, Units 1, 2, 3 & 4))

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