



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

December 23, 2010

Randall Gausman
RAE Systems Inc.
3775 North First Street
San Jose, CA 95134

**Re: RAE Systems Inc.
Preliminary Revised Proxy Statement on Schedule 14A
Filed December 14, 2010
File No. 001-31783
Amendment no. 2 to Schedule 13E-3
Filed December 14, 2010
File no. 005-58813**

Dear Mr. Gausman:

We have limited our review of your filings to those issues we have addressed in our comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter within ten business days by amending your filings, by providing the requested information, or by advising us when you will provide the requested response. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your filings and the information you provide in response to these comments, we may have additional comments.

1. Please expand your response to prior comment 2 to clarify how you determined that Mr. Gausman will not be an affiliate of the Purchaser or otherwise “engaged in” this transaction given your disclosure on page 45 regarding your expectation of who will be the initial officers of the Purchaser and that the severance agreement relates to a post-merger termination of Mr. Gausman’s employment. Given this, and the increased consideration he has received and is entitled to receive, it remains unclear why Mr. Gausman is not a filing person.
2. Given that Lien Chen filed the Schedule 13E-3 in response to prior comment 1, please revise to include all disclosure applicable to her as a filing person. In this regard, you indicate on page 3 of the amended Schedule 13E-3 that she is part of the “Rollover Holders”; however, the letter to stockholders in your preliminary proxy statement indicates that she is not part of that group. Please revise.

Summary Term Sheet, page 1

3. We reissue prior comment 3. Each filing person is required to disclose whether it reasonably believes the going private transaction is fair to unaffiliated security holders. Item 1014(a) of Regulation M-A. The disclosure under the caption “Position of RAE Systems as to the Fairness of the Merger” on page 3 does not comply with that requirement because it does not exclude from the fairness determination all affiliated security holders, only the Rollover Holders.

Implementation of a Strategic Process, page 14

4. Your revisions in response to prior comment 7 indicate that the Special Committee determined not to proceed with Bidders E-J because its proposals were substantially lower than those of the other bidders. However, it remains unclear how the Special Committee determined that those bidders, despite the “substantially lower” initial proposals,” would not at a later point reach valuations competitive with the other bidders. Please revise.
5. We reissue prior comment 9:
 - You disclose on page 19 that Battery Ventures “proposed material terms” to Mr. Chen and Dr. Hsi, but it is unclear what those terms were. It is similarly unclear whether any counterproposals were made and, if so, what were the terms of those proposals; and
 - You disclose on page 20 that Mr. Chen and Dr. Hsi “had come to an understanding” on the important business terms but it is unclear how and when that understanding was reached given that your prior disclosure referred only to a unilateral proposal by Battery Ventures as to “proposed material terms” and a discussion of that entity’s “expectations”.

Please revise.

Reasons for the Merger, page 22

6. Your revisions in response to the fourth bullet of prior comment 11 appear to relate only to how alternative structures of going private would not address risks you face or provide access to capital. Those revisions do not appear to address how it was determined that no comparable value could be obtained through other alternatives. For example, why would the consideration to be received in an alternatively structured transaction not be comparable to an acquisition?

Opinion of the Financial Advisor to RAE Systems’ Special Committee, page 27

7. We reissue prior comment 13 as it relates to the Selected Transactions Analysis. Please revise your disclosure on page 30 to include a column that shows the multiple of enterprise value to LTM EBITDA for each comparable transaction as it is included on page 14 of the UBS presentation. Also, clarify supplementally, with a view toward revised disclosure, why the UBS presentation refers to the multiple as enterprise value to

LTM EBITDA but the second table on page 30 is captioned transaction value to LTM EBITDA.

Position of the Purchaser Group . . . , page 32

8. We reissue prior comment 17. The disclosure you added here simply states as a fact that the transaction is not structured such that approval of a majority of unaffiliated shareholders is required. It does not discuss how the conclusions regarding the procedural fairness are affected by that fact. Additionally, it continues to appear that your disclosure regarding the conclusions of the “Rollover Holders” as to the procedural fairness of the transaction does not address Item 1014(c) of Regulation M-A. Please revise substantially.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. Since the filing persons are in possession of all facts relating to each filing person’s disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In responding to our comments, please provide a written statement from each filing person acknowledging that:

- the filing persons are responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the filings persons may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please contact Jay Mumford at (202) 551-3637 or Geoffrey Kruczek at (202) 551-3641 with any questions.

Sincerely,

Russell Mancuso
Branch Chief

CC (by facsimile): David K. Michaels, Esq. – Fenwick & West LLP