



DIVISION OF
CORPORATION FINANCE

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

November 16, 2010

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

**Re: RAE Systems Inc.
Preliminary Proxy Statement on Schedule 14A
Filed October 21, 2010
File No. 001-31783
Schedule 13E-3
Filed October 21, 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.

Schedule 13E-3

1. Given your disclosure on pages 41-43, please provide us your analysis of whether Ms. Lien Chen, Mr. Gausman and continuing management are engaged in the going-private transaction and required to file a Schedule 13E-3.

Introduction, page 3

2. We note your statement in the last sentence of the first paragraph that each filing person expressly disclaims any obligation to file the Schedule. Remove this disclaimer.

Item 1. Summary Term Sheet, page 4

3. Briefly highlight the purpose of the structure of the transaction, including the purpose of the Rollover Agreement and why a portion of the shares beneficially owned by the Rollover Holders are being converted into the right to receive the merger consideration.

Preliminary Proxy Statement on Schedule 14A

4. Please file the form of proxy card.
5. It is unclear how your disclosure complies with Item 1013 of Regulation M-A. For example:
 - Each Schedule 13E-3 filing person must state the purpose(s) and reason(s) for engaging in the going private transaction. This requirement is distinct from any disclosure supporting a fairness determination. With respect to RAE Systems, the “Reasons for the Merger...” subsection does not appear to address why the company proposes to go private and why it is doing so at this time as opposed to other times in its operating history, particularly in light of the projected financial information disclosed on pages 64-66 as such information relates to your recent and historical financial performance. Likewise, it is unclear from the disclosure why the other filing persons seek to take the company private and why they seek to do so now.
 - While your disclosure indicates that a merger structure is preferable, it is unclear what is the material purpose of the transaction structure, including the material purpose of the partial equity rollover by the Rollover Holders. In this regard, ensure your disclosure pursuant to Item 1014 of Regulation M-A address the tax consequences to your affiliates.
 - It is similarly unclear what alternatives were considered by each filing person. Such disclosure should include, at a minimum, why the company will not remain public and alternate means of going private. If no such alternatives were considered please state so directly.
 - It appears you have not provided the disclosures required by Item 1013 of Regulation M-A as they relate to Battery Ventures.

Please revise accordingly. We may have further comment based upon your revisions.

Summary Term Sheet, page 1

6. We note your disclosure here (on page 3) and elsewhere in the proxy statement that the special committee and the board of directors (and the Purchaser parties, also on page 3)

determined that the merger and the merger agreement are “substantively and procedurally fair to, and in the best interests of, RAE Systems’ stockholders (other than the Rollover Holders).” We note, similarly, that the fairness determination of the Rollover Holders (on page 4) addresses the “RAE Systems’ stockholders.” Please revise here and throughout the filing to more clearly and consistently articulate whether the going private transaction is substantively and procedurally fair to *unaffiliated* security holders. See Item 1014(a) of Regulation M-A. Note also that the staff views officers and directors of the issuer as affiliates of that issuer.

Caution Regarding Forward-Looking Statements, page 12

7. The information required by Items 7, 8 and 9 of Schedule 13E-3 must appear in a “Special Factors” section at the beginning of the proxy statement, immediately following the summary section. See Rule 13e-3(e)(1)(ii). Please relocate this section and the “Risk Factors” section such that the “Special Factors” follow the Questions and Answers section.

Battery Ventures Proposal . . . , page 15

8. Please revise to disclose your share price at the time you received the March 12 proposal. Also revise to clarify the reasons for the equity exchange proposed by Battery Ventures.

Implementation of a Strategic Process, page 15

9. We note your reference to “preliminary financial analyses” in the first full paragraph of page 16. Please revise to state whether these were presented in written form and, if so, please provide the disclosure required by Item 1015 of Regulation M-A.
10. Please revise page 18 to explain why the special committee terminated discussions with bidders E through J.
11. Revise your disclosure on page 20 to clarify how the \$1.60 share price was determined.
12. Please revise this section to clarify how the terms of the agreements with the Rollover Holders were determined. As one example, it is unclear from your disclosure on page 20 what terms were proposed to Dr. Hsi and Mr. Chen at the August 17, 2010 meeting. It is similarly unclear what were the “important business terms” that Mr. Chen agreed to with Battery Ventures, as noted on page 21, and how those terms were determined.
13. Please update the status of your discussions with the private equity firm described in the penultimate paragraph in this section, on page 22.

Reasons for the Merger of RAE Systems and Recommendations of the Board of Directors, page 22

14. We note your fifth bullet point on page 23. Please revise to discuss whether, and if so how, the Board of Directors of RAE evaluated the historical prices mentioned on page 67 with regards to its fairness determination.
15. Please address how any filing person relying on the UBS opinion was able to reach the fairness determination as to unaffiliated security holders given that the UBS fairness opinion addressed fairness with respect to security holders other than the Rollover Holders, rather than all security holders unaffiliated with the company.
16. Please revise to clarify the extent to which the conclusions you disclose here, pages 30-32 and elsewhere regarding the procedural fairness of the transaction as determined by each filing person are based on the matters referenced in Item 1014(c) and (d) of Regulation M-A, particularly in light of the percentage of shares your affiliates intend to vote in favor of the transaction.
17. Please revise to clarify the basis for the disclosed beliefs regarding the irrelevant factors mentioned in the last paragraph on page 24. For example, we note the statement on page 24 that liquidation value was not considered to be relevant as the Special Committee and your board of directors believe that RAE Systems was more valuable as a going concern than the sum value of assets. Please revise to disclose how the Special Committee came to such a conclusion. Also revise to clarify why the indicators of your going concern value noted in your disclosure are relevant to your going concern value such that a specific calculation was not relevant.
18. We note that the special committee adopted the financial advisor's opinion regarding the fairness of the transaction but there is no reference to whether the board of directors adopted the special committee's analysis and conclusions. Note that if any filing person has based its fairness determination on the analysis of factors undertaken by others, such person must expressly adopt this analysis and discussion as their own in order to satisfy the disclosure obligation. See Question 20 of Exchange Act Release No. 34-17719 (April 13, 1981). Please revise to clarify whether the board of directors adopted the special committee's analysis and opinion. Alternatively, revise your disclosure to include all of the disclosure required by Item 1014(b) of Regulation M-A.

Opinion of the Financial Advisor to RAE Systems' Special Committee, page 25

19. Please revise to disclose the data underlying the results described in each analysis. For example, disclose (i) the diluted equity values, enterprise values, enterprise values as a multiple of EBITDA and price-to-earnings ratios used in conducting the Selected Public Company Analysis (appearing on page 13 of the UBS presentation filed as an exhibit to the Schedule 13E-3), (ii) the transaction and enterprise values used in conducting the

Selected Transactions Analysis (UBS presentation page 14), and (iii) the company's projected results that were used in conducting the Discounted Cash Flow Analysis.

Selected Public Companies Analysis, page 27

20. Please disclose the criteria used to select the companies mentioned in this section. Also disclose whether any companies that met such criteria were excluded, and name the excluded companies and disclose the reasons for the exclusion.
21. We note the reference to "other things" UBS considered in conducting this and the following analysis. With a view toward disclosure, tell us what other things were considered in performing those analyses.

Selected Transactions Analysis, page 28

22. Please revise to clarify how the transactions mentioned were "selected," including the objective criteria used in making such selection and whether any transactions that met the disclosed criteria were excluded from consideration.

Miscellaneous, page 29

23. Please revise to clarify the amount of compensation contingent upon consummation of the merger.

Transactions with the Rollover Holders, page 42

24. Please include a tabular presentation of all payments to be received by the Rollover Holders as a result of this transaction.

Litigation Relating to the Merger, page 48

25. Please provide us with copies of the pleadings, including complaints and answers, related to the lawsuits discussed in this section. Please also provide us with copies of these documents for any lawsuits that have been filed subsequent to the filing of your preliminary proxy statement.

Selected Historical Financial Data, page 63

26. Please update this disclosure.

Certain Projections, page 64

27. We note your disclaimer relating to the preparation of information you have disclosed on page 65. A filing person such as Purchaser or Battery Ventures may not disclaim the accuracy or completeness of the information contained in its filing. Please revise.
28. We note that the projected financial information included in this section has not been prepared in accordance with GAAP. As a result, advise us what consideration you have given as to whether the projected financial information would require additional disclosure pursuant to Rule 100(a) of Regulation G. We may have additional comments after we review your response.

Security Ownership of Certain Beneficial Owners and Management, page 72

29. Given the information in the Schedule 13D filed September 29, 2010 and your disclosure regarding the terms of the Voting Agreement, please tell us why Battery Ventures, Purchaser and Merger Sub are not included in this table.

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.

Randall Gausman
RAE Systems Inc.
November 16, 2010
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Please contact Allicia Lam at (202) 551-3316 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