

Global Clean Energy Holdings, Inc.

6033 W. Century Boulevard, #895
Los Angeles, CA 90045

June 4, 2009

VIA FACSIMILE, U.S. MAIL AND EDGAR CORRESPONDENCE

John Reynolds
Assistant Director
Division of Corporation Finance
Mail Stop 3561
Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549

Re: **Global Clean Energy Holdings, Inc.**
Form 10-K for the year ended December 31, 2008
File No. 000-12627

Dear Mr. Reynolds:

This letter responds to your letter of comments, dated May 20, 2009, to Global Clean Energy Holdings, Inc. ("Company"). If the Staff agrees with our responses, we propose to file Amendment No. 1 to the Form 10-K for the year ended December 31, 2008 ("Form 10-K/A No. 1"), which amendment will contain various revisions, many of which are directly in response to your comments and others of which have been made to further clarify and/or supplement the disclosures contained in the earlier filing of that report. Our responses, correspond to the numbers you placed adjacent to your comments. We have either indicated below whether the comment has been responded to in the enclosed proposed filings or provided the Staff with the reasons why we believe a response is either inapplicable or inappropriate.

Form 10-K for Fiscal Year Ended December 31, 2008

General

1. **In future filings consider clarifying the extent to which you are related to Global Clean Energy, Inc., a company with securities registered under Section 12(g) of the Exchange Act.**

This Company, "Global Clean Energy Holdings, Inc.", is not related in any manner to "Global Clean Energy, Inc." (the "Other Company"). The confusion caused by the names is unfortunate, and we have engaged our counsel to evaluate how we can remedy the situation. This Company acquired the "Global Clean Energy Holdings" name and business before the Other Company changed its name to "Global Clean Energy, Inc." and we have registered the trademark "Global Clean Energy Holdings" with the United States Patent & Trademark Office.

Until the name confusion is resolved, we will prominently insert the following sentence in the introduction of all of our future filings:

“Global Clean Energy Holdings, Inc. is not related to, or affiliated in any manner with “Global Clean Energy, Inc.” Readers are cautioned to confirm the entity that they are evaluating or in which they are making an investment before completing any such investment.”

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations, page 22

Liquidity and Capital Resources, page 24

2. **We note the reference on page 20 to “the significant amount of outstanding and unpaid obligations [you] owe to a number of creditors.” With a view to disclosure in future filings, please advise us of the creditors, amount and nature of the obligations, and how the obligations are expected to affect your liquidity, including your ability to obtain future financing.**

The reference in “Item 3 Legal Proceedings” to significant outstanding obligations is a general reference to the significant liabilities, particularly the current liabilities, that are currently outstanding. Because we had more than \$7 million of current liabilities as of December 31, 2008 and only \$423,000 of current assets, we believe that it is appropriate to make reference to the fact that creditors may, in the future, initiate legal proceedings to collect on some of the current liabilities. However, there are no legal proceedings pending or threatened regarding these liabilities, other than the \$60,000 judgment that we disclosed.

Our obligations and liabilities are owed to many smaller and larger creditors, including \$2.6 million of outstanding research and development obligations liabilities related to the development of its legacy pharmaceutical assets, and over \$1.7 million in accounts payable and accrued officer's compensation that it incurred over two years ago in regard to these legacy assets.

We agree that these accrued liabilities on the balance sheet may negatively impact the Company’s ability to obtain future financing. Accordingly, we propose to add the following disclosure to the “Liquidity and Capital Resources” section of our future filings:

“We currently have a working capital deficit of \$ _____ and over \$ _____ of outstanding indebtedness. The existence of the foregoing working capital deficit and liabilities is expected to negatively impact our ability to obtain future equity or debt financing and the terms on which such additional financing, if available, can be obtained.”

Item 9A(T). Controls and Procedures, page 26

3. **You indicate on page 27 that the material weaknesses you identified relate to inadequate controls over the accounting and cash management functions in Mexico, and that you have implemented new controls to improve these functions. Please revise to clarify the nature of the deficiencies and management's plan to remediate them. For example, briefly describe the impact the deficiencies have on financial reporting and the control environment, and describe the new controls management is implementing to remediate the weaknesses.**

We believe that the wording of our disclosure may have caused some confusion. Therefore, we propose to amend and restate the paragraph in Item 9A(T) that discusses the deficiencies in Mexico in the Form 10-K/A No. 1 to state the following:

Based on our evaluation of our internal control over financial reporting in our Mexico subsidiary, we have determined that we currently have inadequate controls over the accounting functions in Mexico and over cash management in Mexico. However, management does not believe that this material weakness resulted in any material misstatements in our financial condition for the current reporting period. Management is attempting to implement new controls to improve both of these deficiencies. The deficiencies consist of controls over the disbursement of cash from our accounts in Mexico and the proper categorization of such expenses for accounting purposes. The Company has begun to take appropriate steps to remediate these weaknesses as follows: The Company recently established new bank accounts in Mexico that require dual control of two persons for most disbursements. The Company has required that the Company be promptly notified of these disbursements for control and categorization purposes. Furthermore, we are commencing the implementation of procedures for remote real time access by the Company U.S. executives to bank accounts in Mexico. Accordingly, each disbursement will be able to be monitored in the U.S. to ensure proper use and to properly record such disbursements. The Company expects to complete the implementation of real time monitoring in the second half of 2009, assuming financial resources are available. The effectiveness of our internal controls following our remediation efforts will not be known until we test those controls in connection with management's tests of internal control.

Item 11. Executive Compensation, page 30

Summary Compensation Table, page 30

4. **We note the May 2008 release of 4,567,518 shares of common stock from escrow pursuant to the Global Agreement, and your disclosure on page F-15 and elsewhere that you are accounting for the escrow shares “as share-based compensation.” To the extent these shares are issued to your named executive officers, in future filings please disclose the release of the shares in the stock awards column of your summary compensation table, or advise. Refer to Regulation S-K Item 402(n)(2)(v).**

The 4,567,518 shares held in escrow were issued to Richard Palmer and Mobius Risk Group, LLC, the two owners of Global Clean Energy Holdings, LLC on September 7, 2007 as part of the purchase price paid by this Company for all of the equity interests in Global Clean Energy Holdings, LLC. The parties entered into the agreement for the acquisition of Global Clean Energy Holdings, LLC concurrently with the appointment of Mr. Palmer as this Company’s Chief Executive Officer. Since the shares were issued to two unaffiliated entities as payment for the membership interests of Global Clean Energy Holdings, LLC, neither the issuance of those shares, nor the release of those shares from escrow, was included in the disclosure regarding executive compensation because the issuance of those shares was not intended to constitute compensation for services provided to this Company. However, since the release of those escrowed shares (and possibly the release of additional shares in the future) is being accounted for as share-based compensation (see our response to Comment 7, below), as required by Rule 402(n)(2)(v) we will include the release of those shares in the executive compensation tables and discussion in future filings.

Employment Agreements, page 32

5. **In future filings, please disclose your named executive officer’s severance entitlements in your discussions of their employment agreements. Refer to Regulation S-K Item 402(q)(2). In this regard, we note your disclosure on page F16 that Mr. Palmer is entitled to severance payments including 100% of base salary, 50% target bonus, and the vesting of his incentive stock options. Please provide us with supplemental draft disclosure, or an analysis as to why it is appropriate to omit this disclosure from your future filings.**

We agree that the description of the severance entitlements contained in the named executive officers’ employment agreements should have been disclosed in the discussion of their employment agreements, and hereby agree to add the following disclosure in future filings to the description of the employment agreements of Mr. Palmer and Mr. Nelson (our two named executive officers):

Mr. Palmer:

“In the event that (i) we terminate Mr. Palmer’s employment for reasons other than “cause” (as defined in his employment agreement to include material breaches by him of his employment agreement, fraud, misappropriation of funds or embezzlement), or if (ii) Mr. Palmer resigns because we breached his employment agreement, we will be obligated to pay Mr. Palmer an amount equal to one (1) times his then-current annual base salary plus fifty percent (50%) of the target bonus in effect on the date of his termination. In addition, the incentive stock options referred to above shall fully vest, to the extent not already vested. However, if Mr. Palmer’s employment is terminated for death or disability, or if Mr. Palmer resigns or is terminated for “cause,” he will not be entitled to receive any severance payments or other post-employment benefits.”

Mr. Nelson:

"In the event that, commencing after March 20, 2009, (i) we terminate Mr. Nelson's employment for reasons other than "cause" (as defined in his employment agreement to include material breaches by him of his employment agreement, fraud, misappropriation of funds or embezzlement), or if (ii) Mr. Nelson resigns because we breached his employment agreement, we will be obligated to pay Mr. Nelson an amount equal to the salary he would have received through the end of the term of his employment agreement. In addition, the stock options referred to above shall fully vest, to the extent not already vested. However, if Mr. Nelson's employment is terminated for death or disability, or if Mr. Nelson resigns or is terminated for "cause," he will not be entitled to receive any severance payments or other post-employment benefits."

Financial Statements

Report of Independent registered public accounting firm, page F-2

6. **For the period from November 20, 1991 (inception) to December 31, 2003, we note that the current audit report refers to, and indicates reliance on the audit reports issued by your predecessor auditors as follows: (i) audit report dated February 18, 2004 (dual dated November 15, 2004) issued by Eide Bailly LLP and (ii) audit report dated March 20, 2000 issued by Tanner LC. Please revise to include (i) Eide Bailly LLP's audit report dated February 18, 2004 (dual dated November 15, 2004) and (ii) Tanner LC's audit report dated March 20, 2000 for this period as required by Rule 2-05 of Regulation S-X.**

This Company was under the premise that Rule 2-05 and the obligation to include the reports of the two prior accountants was only applicable to 1933 Act filings. We also did not investigate the need to obtain these reports because (i) the financial statements referred to in those reports were issued five or more years ago and have no relevance to the Company's current operations, (ii) the financial information referred to in the financial statements audited by Tanner LC and Eide Bailly LLP relates solely to this Company's discontinued operations, and (iii) all financial information presented in the current financial statements, other than the information summarized in the "from inception" column, was audited by our current auditors, who have audited our financial statements for the past five years.

Furthermore, if we are required to follow the technical requirements of Rule 2-05, we have been informed that this Company will have to incur substantial additional fees to engage both Tanner LC and Eide Bailly LLP solely for the purposes of issuing audit reports confirming the information that was contained in their prior audit reports. We respectfully request that the Company be spared the effort, delay and expense of obtaining these audit reports regarding financial statements that are outdated, relate to discontinued operations, and are not questioned or disputed. We note that Rule 2-05 does permit companies to omit the reports of other accountants in annual reports for proxy and information statements. We respectfully request that the Commission extend that exception to the Company in this case.

Note C-Jatropha Business Venture

Share Exchange Agreement, page F-14

7. We note that 27,405,111 restricted shares of common stock were held in escrow to be released when the certain specified performance (operational) and market related milestones were satisfied. While some of the milestones were achieved in November 2007, April 2008 and May 2008, it appears that the corresponding shares released related to these milestones were all valued at \$ 0.027, based on the closing price of the company's stock on September 7, 2007. Considering the acquisition transaction and the shares were held in escrow subject to satisfying the milestones in the future, tell us the basis for valuing the shares as of the acquisition date of September 7, 2007 instead of recording the fair value of the shares as of the date the performance conditions were met. See paragraph 27 of SFAS 141. In your response, please demonstrate to us how the valuation of the contingent consideration (shares held in escrow) as of the same measurement date of September 7, 2007 is appropriate when in fact the contingency or performance conditions were met at a future date at which date the trading value of the shares far exceeded the fair value of shares at September 7, 2007; disclose how the period over which the expenses are recognized in your financial statements are appropriate or revise your financial statements as appropriate. Discuss why you accounted for these shares under SFAS 123(R) when these shares were issued related to the acquisition of Global Clean Energy Holdings, LLC.

We evaluated the applicability of SFAS 141, *Business Combinations*, to the Share Exchange Agreement between Medical Discoveries, Inc., on the one hand, and Richard Palmer and Mobius Risk Group, on the other hand. According to the criteria outlined in EITF 98-3, it seemed clear that Medical Discoveries, Inc. did not acquire a "Business" in the Share Exchange Agreement. Global Clean Energy Holdings, LLC did not meet the definition of a business with regard to inputs, processes, and outputs, and was clearly in the development stage. In spite of the Share Exchange Agreement stating that Global Clean Energy Holdings, LLC owned certain proprietary rights, intellectual property, know-how, business plans, financial projections, contracts, agreements, understandings, term sheets, business relationships, and other information regarding the production of seed oil from the seed of the Jatropha plant, a review indicated that there were only items related to the very early stages and concepts of a future business, i.e. a business plan, financial model, various draft agreements, goodwill, and research and development. There are no "proprietary rights", "intellectual property", "contracts", "agreements", etc. As such, there are no tangible assets and no identifiable intangible assets.

Concurrently with the execution of the Share Exchange Agreement, Eric Melvin, an owner and the Chief Executive Officer of Mobius Risk Group, was appointed to be a director of Medical Discoveries, Inc. Furthermore, concurrently with the execution of the Share Exchange Agreement, Richard Palmer became the Chief Operating Officer, the prospective Chief Executive Officer, and a Director of Medical Discoveries, Inc. Mr. Palmer was an owner of Global Clean Energy Holdings, LLC. Given that the Share Exchange Agreement was not governed by SFAS 141, and given that the escrowed shares were to be released to Mr. Palmer and to Mobius Risk Group (an entity owned and controlled by employees and directors of Medical Discoveries, Inc.), we concluded that the escrowed shares issued under the Share Exchange Agreement should be accounted for as share-based compensation under SFAS 123(R), *Share-Based Payment*.

With regard to the 13,702,556 "Operational Milestone" shares, management concluded that these shares represented share-based payment for services to be rendered related to obtaining land lease agreements, and land and operations management agreements. Under SFAS 123(R), the share-based payment is measured at grant date fair value, which was \$369,969 based on \$0.027 per share. Under SFAS 123(R), this compensation would be amortized over the period the services are rendered. Management's estimate was that the milestones would be satisfied within approximately four months of executing the Share Exchange Agreement. Accordingly, the compensation related to the Operational Milestones, as measured on the "grant date" was amortized over a period of four months from the date of the execution of the Share Exchange Agreement.

With regard to the 13,702,555 "Market Capitalization Milestone" shares, management concluded that these shares represented share-based payments with market conditions. Under SFAS 123(R), the share-based payment is measured at grant date fair value, which was \$369,969 based on \$0.027 per share. Under SFAS 123(R), this compensation would be recognized over a requisite service life based on a derived period of when the shares were expected to be earned. An analysis of average daily trading volumes and market capitalization was performed, with the following conclusions. The first tranche of 4,567,518 shares would be earned by November 30, 2007. As such, the fair value of these shares (\$123,323) should be recognized over the period from September 7, 2007 through November 30, 2007. The second tranche of 4,567,518 shares would be earned by December 10, 2007. As such, the fair value of these shares (\$123,323) would be recognized over the period from September 7, 2007 through December 10, 2007. The third tranche of 4,567,519 shares had not been earned and would likely not be earned in the immediate future. Therefore, a derived service period needed to be identified. The shares must be earned within two years or they will be forfeited. A derived service period of two years seemed like a rational period of time given the uncertainty surrounding the achievement of this milestone. As such, the fair value of these shares (\$123,323) is being recognized over the period from September 7, 2007 through September 7, 2009.

GCE Mexico I, LLC, page F-17

8. We note you own 50% of the issued and outstanding common membership units of GCE Mexico I, LLC and have not and are not required to make capital contributions. Considering apparent lack of your controlling financial interest and you do not have any capital at risk, please demonstrate to us the basis for your consolidation of this entity. Please disclose the specific accounting literature that supports your conclusion and revise to provide the required disclosures as appropriate. Disclose the salient features of the LLC including the profit (loss) allocation, rights and obligations of the common membership unit holders and the preferred membership unit holders. Please discuss who has control of the entity. Refer to EITF 04-5 and FIN 46(R) for further guidance. In addition, please ensure to file the GCE Mexico I, LLC agreement as an Exhibit.

As described in the last paragraph under the caption "History" in Note A to the Consolidated Financial Statements, Global Clean Energy Holdings, Inc. owns 50% of the common membership interest of GCE Mexico I, LLC (GCE Mexico) and owns 1% of Asideros Globales Corporativo (Asideros). GCE Mexico owns the remaining 99% of Asideros. Accordingly, Global Clean Energy Holdings, Inc. owns 50.5% of the equity interest of Asideros as a result of its 1% direct ownership interest and its 49.5% indirect ownership interest through GCE Mexico. As such, Global Clean Energy Holdings, Inc. owns a controlling financial interest in Asideros and should be consolidated pursuant to ARB 51, *Consolidated Financial Statements*, with the preferred membership interest in GCE Mexico presented as Minority Interest in the consolidated financial statements.

As described under the caption "GCE Mexico I, LLC" in Note C to the Consolidated Financial Statements, the land acquired in Mexico and the related mortgage are in the name of Asideros. GCE Mexico I, LLC owns no assets and has no liabilities, other than its ownership interest in Asideros. Upon further review of the disclosure under "Principles of Consolidation" in Note A to the Consolidated Financial Statements, the disclosure should state that the consolidated financial statements includes the accounts of Asideros and the reference to GCE Mexico should be removed. We propose to make this correction in our future periodic filings.

GCE Mexico I, LLC is governed by four board members, two appointed by the Preferred Members and two appointed by the Company. Initial board members consisted of Mr. Resnick and Mr. Zilkha, who were appointed by the Preferred Members, and Richard Palmer and Bruce Nelson, who were appointed by the Company.

With regard to disclosure of salient features of the LLC, including profit (loss) allocation, and rights and obligations of the common and preferred membership interest, we point out that we have disclosed the following in Note C to the Consolidated Financial Statements:

1. That profits and losses are allocated according to investment balances, with all losses to date having been allocated to the preferred membership interest.
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2. That the preferred membership interests have been obligated to make the capital contributions for the development of the Jatropa farm.
3. That the common membership interests have not been required to make capital contributions.
4. That the preferred membership interests are entitled to a 12% return on their investment.

We will provide the GCE Mexico I, LLC agreement as an exhibit in a future filing.

Exhibits

9. **Please file all material agreements in their entirety, including all schedules, exhibits, annexes, appendices, etc. We direct your attention to the loan and security agreement with Mercator, which is filed as Exhibit 10.5 but does not appear to include all of the schedules to the agreement. In addition, we note that the service agreement with the LODEMO Group and the January 12, 2009 note amendment and maturity date extension between the company and Mercator do not appear to be filed. Please explain why these were not filed in their entirety pursuant to Item 601(b)(10) of Regulation S-K, or file the agreements with all attachments.**

We will respond to the Staff's comments regarding the (i) loan and security agreement, (ii) LODEMO Group agreement and (iii) the January 12, 2009 note amendment and extension agreement separately as follows:

(i) The loan and security agreement was attached as an exhibit to the Form 8-K that the Company filed on September 17, 2007. The loan and security agreement contained four exhibits, three of which were filed, and the fourth (Exhibit C, the "Draw-Down Schedule") was not filed. The undersigned was not the Chief Financial Officer of the Company at the time the loan and security agreement was filed, so I have no explanation as to why the Draw-Down Schedule was not filed. I assume that Exhibit C was omitted as a result of an administrative oversight. However, after reviewing the Company's files, I note that the missing Draw-Down Schedule was described virtually verbatim in the body of Item 2.03 of the Form 8-K. The Form 8-K states:

"The \$1,000,000 amount of the Loan will become available to the Company subject to the following schedule:

- \$250,000 was advanced to the Company upon execution of the Loan Agreement;
 - \$500,000 shall be available to the Company on September 28, 2007; and
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· \$250,000 shall be available to the Company on October 12, 2007.”

The entire text of the un-filed Exhibit C of the loan and security agreement is attached to this letter as Exhibit “C”. As the Staff will note, the foregoing description is virtually identical to the exact text of Exhibit C. Therefore, although Exhibit C was omitted from the Form 8-K, we do not believe that any material information was withheld from a reader. The draw down as scheduled to occur in 2007, and the Company no longer has the right to request further draw downs under the loan agreement. Therefore, we believe that re-filing the loan and security at this time merely to add Exhibit C, the terms of which are already fully disclosed in the text of the Form 8-K, will not provide any additional beneficial information to investors. Accordingly, we submit that it should not be necessary to correct the foregoing oversight by re-filing the loan agreement merely to add Exhibit C. Please advise if you disagree, and we will gladly file Exhibit C.

(ii) The LODEMO Group management agreement was not filed because we considered that agreement to be a contract made in the ordinary course of business and, therefore, not a “material contract.” We currently anticipate that we will enter into other ordinary service agreements with other local service providers if and when we commence operating additional Jatropha farms in other Central American countries. As disclosed in the Form 10-K, we hired the LODEMO Group to provide us with certain logistical and day-to-day operational assistance that can most easily be provided by local service providers. However, as stated in the Form 10-K, the services that the LODEMO Group is providing are being performed under our supervision. We are merely outsourcing some of the logistical functions. The LODEMO Group has three employees who provide us with services and who monitor the approximately 125 employees who work at the Mexico farm (the 125 employees are being hired as employees of our Asideros Globales Corporativo subsidiary in Mexico). All of the material financial terms of the service agreement with LODEMO Group have been disclosed in our SEC filings. Accordingly, we respectfully contend that it was not necessary to file the LODEMO Group service agreement.

(iii) As indicated by the asterisk following Exhibit 10.6, the Company intended to file “Note Amendment And Maturity Date Extension, dated January 12, 2009, between the Company and Mercator Momentum Fund III, L.P.” It appears, however, that the extension was not filed due to an administrative error. Accordingly, that document will be filed as an exhibit to the Form 10-K/A No. 1.

* * * * *

As requested by the Staff, we hereby acknowledge that:

- This Company is 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
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This Company 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 direct questions regarding this letter or the amended Form 10-K to the undersigned at (310) 641-4234. We trust the foregoing is responsive to your comments. We look forward to receiving your approval of the enclosed proposed amendments to our filings so that we may officially file those amendments as soon as possible.

Sincerely yours,

GLOBAL CLEAN ENERGY HOLDINGS, INC.

/s/ BRUCE NELSON
Bruce Nelson,
Chief Financial Officer

Enclosures

cc: Mr. Richard Palmer (w/enclosures)
Mr. David Walker (w/enclosures)
Mr. Scott Gilderman, CPA (w/enclosures)
Mr. Craig Allen, CPA (w/enclosures)
Mr. Mark Andersen, CPA (w/enclosures)
Ms. Alawna Echols, CPA (w/enclosures)
Istvan Benko, Esq. (w/enclosures)

EXHIBIT C

DRAW-DOWN SCHEDULE

1. Two Hundred Fifty Thousand Dollars (\$250,000) shall be advanced to Borrower on execution of this Loan Agreement.
2. An additional Five Hundred Thousand Dollars (\$500,000) shall be available to Borrower and may be drawn down on September 28, 2007.
3. An additional Two Hundred Fifty Thousand Dollars (\$250,000) shall be available to Borrower and may be drawn down on October 12, 2007.