



THE SELECT COMMITTEE ON  
**ENERGY INDEPENDENCE AND GLOBAL WARMING**

Dear Mr. Rao:

Following your appearance in front of the Select Committee on Energy Independence and Global Warming, members of the committee submitted additional questions for your attention. I have attached the document with those questions to this email. Please respond at your earliest convenience, or within 3 weeks. Responses may be submitted in electronic form, at [aliya.brodsky@mail.house.gov](mailto:aliya.brodsky@mail.house.gov). Please call with any questions or concerns.

Thank you,  
Ali Brodsky

Ali Brodsky  
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1. What business operations does Lighting Science Group Corporation base in the US? For example, how many people do you employ here and abroad? Where are your LED bulbs and other components manufactured, i.e. how much of the work done for Lighting Science takes place in the US vs. internationally?
  - Lighting Science Group (LSG) has the following basic operations in the U.S.;
    - Research
    - Product Design and Development
    - Manufacturing
    - Sales & Marketing
  - We employ 86 FTEs in the U.S and 26 FTEs outside of the U.S.
  - Our LED light bulbs and fixtures are manufactured in Florida and our display solutions (like the Times Square ball) are designed and manufactured in Sacramento, California.
  - Overall, including work done by our partners and component suppliers, about 75% of the value of our products is built outside of the U.S.
  - About 60% of the work done in manhours, is done in the U.S.
  - For products sold in the U.S., total assembly is done in the U.S., with components sourced internationally and from within the U.S.
2. How secure do you feel about the protection of your patents/technology/innovative ideas in countries with a history of IP violations?
  - Not very secure, especially when it pertains to China. However, recent developments we have been monitoring in China give us renewed hope of IPR in China improving.

3. Your proposal for the creation of an IP clearinghouse/bazaar raises several questions:
- Are you suggesting one international clearinghouse or several national entities?
    - One global clearinghouse exclusively dedicated to technologies and innovation related to climate change
  - Who would oversee activities between them all and ensure that all were participating and sharing information fairly? (There almost certainly would be a difference in approach between nations like the US and China.)
    - With just one exchange, info flow and management becomes a relatively easier task.
    - Rules/guidelines for sharing IP into and from the exchange will be pre-determined and these guidelines will be based on milestones we should be achieving as a global community and not just on national affiliation. These guidelines should seek to normalize differences in approach between various countries.
  - How would disputes be resolved?
    - In addition to laying down global guidelines on getting IP in and out of the exchange, the governance model for the exchange should be well designed to include arbitration, dispute resolution, etc.
    - Structurally, all disputes with IP, related to the exchange and climate change will be dealt by an international arbitration panel, nominated by the board of the exchange.
  - How would members of the independent panel of technology and IP experts be selected?
    - Once the governance model is established, one of the existing intergovernmental panels/groups (IPCC, World Bank, UNDP, etc.) can establish selection criteria for the panel and proceed to fill the positions approval of the board.
    - If possible the governance model and the panel(s) should be discussed in Copenhagen this year.
  - Would this eliminate the role of the US Patent and Trademark Office in the arena of climate change technology?
    - This exchange would eliminate any direct role of the USPTO in the global IPX, however, representatives from the USPTO can be part of the governing council/board of the global IPX.
  - Have you discussed this proposal with other government or non-government entities? What reactions have you received thus far? If the reactions have been varied, have you noticed a trend - geographical or economical - between the countries that seem supportive vs. those opposed?
    - While I have discussed this proposal with several innovators and technologists in various countries, including the UK, India and China, I have not reviewed this with any governmental entities. I will be glad to lead an effort to build support and consensus for this proposal.
    - The private sector in all the countries I mentioned is very interested and enthusiastic about such an exchange. I already have volunteers from different countries to get started on this effort.

4. IP issues are approached from a protectionist framework for a reason. While technological development is necessary to mitigate and adapt to a changing climate, I am concerned about China's historic lack of respect for IPR. How do you propose to enforce IPR to protect American investors and businesses, while sharing our technology with the rest of the world, within the framework of your proposed IP clearinghouse?
- The working principles of the Global IPX are based on IP being contributed into the exchange in order for IP to be licensed out of the exchange.
  - Countries like China will have to put IP into the exchange in order to be eligible to take IP from the exchange.
  - Such an exchange based system automatically forces participating nations to strictly honor the principles of the system or risk being shut out.
  - China or any country's lack of respect for IPR will negatively affect their capability to access IP globally and it will also negatively impact their ability to sell technology in the global market – without the good housekeeping seal, which will be promoted by the global IPX.

5) Mr. Rao, I like your emphasis on energy conservation. I'm interested in your ideas around a broader collaboration surrounding this critical technology. Can you give me some examples of the types of information that would be shared?

- I believe we have to enable rapid innovation and simultaneously encourage adoption of these new innovation(s) into our day to day lives. Collaborating on technology platforms and enabling market adoption globally, will require innovators working across geographies and other boundaries. This multinational approach will depend on data and info used across the board to really drive open innovation with speed.
- Info and data on technologies will be shared based on the IP being submitted to the IPX which will determine the level playing field. Some examples of info shared will be core technology, patent info, channel and market data, etc.

How would you protect the R&D investments of companies while sharing the critical technologies?

- As mentioned above the IPX will have a governance role as well and will deal directly with arbitration. I propose creating a 'green bank' tied to the exchange. Based on pre-determined and established criteria, companies will be paid for the IP they bring into the exchange and they now will also have access to technology from other companies – for a fee.
- This method will guarantee protection of R&D investments upto a certain level and any dialogues after this will be left to the companies. This is one approach, and I am quite sure we can develop the most appropriate variations of such an approach that has a direct bearing on the speed at which we can commercialize innovations.