



## **Perspective Paper - Analysis on Responses to Climate Change**

### Abstract

This perspective paper critiques cost-benefit analysis involved in engineering by Barney and Lois (2011). For one, it argues the idea that the concept behind managing solar radiation is critically and arbitrary not grounded on an unrealistic set of assumptions on how our global system really works. The actual result is a precise analysis, but not entirely accurate. It also provides a summary on the analysis of the possible role of different technologies in the process of decarbonization of the economy, identifying the costs involved together with the assessments on conventional mitigation policies. This paper also concludes on the justification for the need for further research on different technologies surrounding solar radiation management.

### Introduction

Barney and Lois (2011) focuses on the field of ‘climate engineering’, particularly in the aspect of the different technologies used, such as marine cloud whitening and stratospheric aerosol injection. Both of these technologies serve with the goal of altering radiation balance of the system through albedo changes. It also applies a methodology on cost-benefit analysis used in evaluating possible value of implementing these technologies.

A part in this paper provides a critique on the aspect involving cost-benefit analysis, arguing that this is arbitrary and not grounded in a fairly realistic set of assumptions on how our global system in this planet really works. I am arguing that the currently existing understandings on the possible effects of introducing climate engineering.

Another portion also works toward summarizing the analysis involved with the possible roles of different air capture technologies playing in the process of decarbonization in the worldwide economy. According to the conclusion presented, I also argue that the process of air capture also deserves to get a similar close evaluation of other mitigation policies.

### Body

Barney and Lois (2011) deserve praise when it comes to sticking their necks on this very difficult and complex subject. This type of intellectual leadership is usually followed by a critical discussion, with which, this case has to go through. One thing to note about the work is that the policy recommendations do not necessarily follow the cost benefit analysis. With



overwhelmingly positive ratios on cost benefit, the authors are led to recommend immediately, a strategy involving climate engineering as one of its core policy responses towards climate change. Rather, the authors only recommend investing on further research. As such, the reluctance of the authors to recommend other solutions aside from an initial investment only reflects a degree that is appropriate for the analysis.

The concerns presented by the authors also introduce a question of whether this type of cost-benefit analysis is a good tool that can be used on an uncertain and complex subject as climate engineering. More particularly, it is also possible that presenting an accurate looking ratio can even mislead rather than offering insight on the actual advantages of climate engineering.

With this, I argue that the different technologies involved in solar radiation management as well as marine cloud whitening are not necessarily developed sufficiently in order to allow for any type of valuable cost-benefit analysis. Further, I go and argue that the framework being used also represents a misleading analysis of how the global system of the earth really works, and may not be able to lead to a useful and meaningful evaluation of both the cost and benefits of different technologies used in climate engineering.

## Conclusion

The work of Barney and Lois (2011) raise some important questions on how to assess the role of technological fixes in stabilizing efforts in concentrating greenhouse gases, particularly carbon dioxide, present in the atmosphere. With this, I have argued that the analyses involved in cost-benefit interactions are limited when it comes to the understanding that they can offer on complex systems which are understood incompletely. In conclusion, I apply these criteria briefly to climate engineering as a technology, making a sound conclusion that indirect techniques involved in climate engineering fall short in employing a technological fix. In contrast, air capture technology also offers better promise. True enough, the recommendation for further study is necessary in order to dig deeper into the analysis of the highly complex subject.

## Bibliography

Barney, H.F, and W. Lois, 2011. The economics behind climate engineering, *Climactic Change*.