

Sustainability Group

You are a **Bioplastics Innovator**

Your Background and Biography

You are a bioengineer. Your passion is to reengineer plants to grow biodegradable plastic in their cells, and you have been very successful in that pursuit. Your company has many patents on a process for doing just that. In fact, your material is just waiting to be commercially produced, and you believe it to be superior to other bioplastics.

Bioplastics produced by large chemical companies need to be disposed of through incineration or composting at high temperatures. Your material will decompose without heat in any environment. Your bioplastic material is generated in vats by microbial plants that feed on glucose from corn. The process isn't perfect yet, but in time your product will become more price competitive as efficiency improves. External conditions will contribute to the viability of your product as well: as oil prices rise, petroleum-derived materials will become more costly, and political and economic pressure to limit our oil dependence makes your process attractive to investors and politicians. You are also developing ways to feed your microbes with non-corn based sugar. Corn requires many acres, is expensive to cultivate, and by using it for an industrial process you are potentially limiting the supply available for food.

Your desire to become financially successful stems from your humble beginnings. You were born into a poor family with many children. Your father died when you were in your teens. Who knows what your destiny would have been had it not been for your chemistry teacher who recognized your potential? She helped you get into a prestigious university where you received a Ph.D. in molecular biology. The more you learned, the more drawn you were to the field of bioengineering.

Your competitive and entrepreneurial nature has driven you to start your own company. While you have already had much success in innovation, you still have not reaped the profits that others in the biomedical field have enjoyed. Yet you remain optimistic. After all, the public is clamoring for biodegradable plastic that is not derived from petroleum. Recycling efforts are inefficient at best, and the planet is filling up with plastic that will persist seemingly forever.

Your position at the hearings is to argue for the need to promote innovation and discovery. It is through the application of scientific research and technology that the planet will be saved. Government regulation should not be allowed to stifle new product development. How will we overcome the problems and improve our standard of living without significant investment in new approaches? The very future of our society depends on the advancement of science, technology, and engineering.

Your Mission

Your goal at this hearing is to convince the Regulators to include the Sustainability Group's recommendations in their final regulation. To make this argument effectively, you must

- Complete the assigned readings listed at the bottom of this page;
- Work closely with the other members of your group to develop clear answers to the Regulators' questions;
- Make use of as much specific information as possible to develop strong arguments for your position that creative problem solving and innovation are the best solutions to the pressing environmental problems caused by plastic waste and fossil fuel-based production;
- Read as much as you can about your position and the positions of the other groups; and
- Complete written reflections on your character, interest group, and readings as assigned.

Your Victory Objectives

- **You will receive 10 points** if the Regulators select your group's proposal as the final regulation.
- The Regulators will rank the interest groups by how well their goals are represented in the final regulation. **You will receive between 1 and 5 points** based on how the Sustainability Group is ranked and how well the regulation reflects your goals.

Sources

Sustainability Group Sources

- Case Study: The Future of Plastics
- "Interview with Paul Anastas," video, vimeo.com/channels/465871

Your Individual Sources

- "In the Fight against Plastics, Mushrooms Become an Unlikely Weapon," by Bernhard Warner, *Business Week*, January 14, 2013
- Select **one article** from the bibliography on *The Case of Plastics* website recommended for the Sustainability Group. Read the article and write two paragraphs summarizing the article and how it will be useful to you in the upcoming debate.