

Engineering's Next Grand Challenge: Reducing Global Fossil Fuel Emissions and Greenhouse Gases

The human civilization has survived through the centuries with the engineering of tools, machines, electricity, and etc. Whenever times were difficult, we were able to create things to help or solve our problem. Now, we are once again facing a huge problem that must be solved, and there is a timeline this time. Since the beginning of the Industrial Revolution, the concentrations of many greenhouse gases have increased. One such greenhouse gas, CO₂, has increased by about 100 ppm (parts per million) in the last 300 years. The global amount of fossil fuel carbon emissions has also risen over the last 250 years. Augmenting greenhouse gas concentrations and the amount of fossil fuel carbon emissions are leading to one thing: global warming. We are all familiar with this extremely controversial phrase, but how serious is it, and who will help in solving this problem? The answer lies in the engineers of our world.

The real problem within the outer dilemma is how quickly we will be able to solve global warming by reducing greenhouse gases in the atmosphere. Engineers can play the key role in widening the time gap between now and when the world will go into another Ice Age, just like the history of human civilization has shown. Several engineers who have already started thinking ahead have produced numerous green items that can replace those greenhouse gas-emitting objects we currently use everyday. For example, Angela Belcher, a bioengineer, has researched and found a new kind of battery. Belcher has engineered a virus that latches onto and coats itself with bits of inorganic materials, and then grows into a long tube shape, which amounts to a minuscule length of wire. By coaxing these nano-wires to line up, Belcher had the components of a battery that is far more compact and powerful than anything available. This virus-battery, if it works as a commercially viable product, will replace conventional batteries. Another example is engineer Shuji Nakamura, who was responsible for creating LED lights. His next goal is to create an LED with zero energy loss. Nakamura's LED lights are now in almost every modern day household, replacing other types of small light bulbs that spend much more energy and release more greenhouse gases into the atmosphere.

Belcher and Nakamura have shown how much engineers can and will continue to contribute to solving the problem of global warming. They do this by offering more green tools and everyday objects that will replace more environmentally harmful things, such as conventional batteries and incandescent or halogen light bulbs. Sure, general people can also make a difference, but it is really the engineers who have the ideas, knowledge and skills that will propel them into researching and finding more alternative energy sources and greener solutions. They play a big role in saving the earth. If there is progress in the current endeavor to reducing global warming, carbon emissions will perhaps be cut down to the same amount there was before the Industrial Revolution. So, engineering's next grand challenge? Global warming.

Bibliography:

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