I believe that part of the reluctance to decrease our dependence on oil is mainly due to the reason that we are trying to find a cure replacement for oil that is replace oil with “foo”. However, I do not believe one exists instead what we need to do is find other smaller more compact replacements for oils in certain markets. The big push right now is for bio diesels but,when you compare the properties of both, we find that bio diesels will only work for powering our vehicles. The other products that oil is used for example asphalt, plastics and medical supplies, Bio diesel is not choice candidate. For replacment lubrication, we need to examine the properties of Fossil oil before deciding. Currently the benefits to fossil oil is its viscosity at lower temptures. This is because of certain polymers added which which expand and contract as the tempture changes. Bio oils do not get this added benefit due to the difference of the fatty acids. In order for us to have bio oils as a viable alternative for lubrication we need to improve our bio oils to have the similar properties as our fossil oils. Currently oil produced from soybeans provide the best alternative for bio lubricants, however the viscosity index decreases at lower temperatures which means the performance drops.

When it comes to providing electricity for homes, we currently operate in the centralized model where we have one big oil or coal power plant that provides electricity to say Long Island. This model doesn't work with the greener solutions (like solar) due to the fact in order to match the output of fossil fuel plants we need either triple or quadruple the amount of land space. One solution this problem is look for a Distributed Energy Resource (DER) system. A DER system is a chain of small power generating devices (wind turbines, hydro plants, solar panels) spread out across multiple locations. Each power station generates a small amount of electricity (around 3 – 100 kW) which are arranged in micro-grids. An example of this is: every rooftop on Long Island to generate electricyt for the home and share extra to business. Homes and businesses would be able to provide electricity to each other in which case we only need to worry about the distribution system. Pakistan is currently investing in as one of the benefits of a distributed system is the more remote areas can now be easily provided with power, since they do not need to distribute power over vast distances. Farmers in the San Luis Valley in Colorado are finding it difficult to get electricity which power their irrigation systems due to the fact the only outlet is by archaic power lines coming over the mountain. A DER system will benefit these farmers greatly.

What about heating our homes? The only green solution out there currently is geothermal power. Geothermal involves digging deep wells into the earth where there's a constant temperature of 70-80°F. Liquid is then pumped through these wells then, using convection currents, heat and cool home. Geothermal systems are very expensive due since the wells that are needed cannot be drilled in certain areas due to tough bedrock or loose sand (such as the case on Long Island). If Long Island did have a DER system in place as I previously mentioned, we can use the electricity generated to heat our homes with electric heaters

Fossil oil itself is a scarce resource even if we continue to find new sources of oil eventually it will dry up. We do need to find alternative solutions for everything that uses oil and we need to start now while we still have oil left. There has been much heated debate within our government, once I says drill Wiley us is concerned. Happy medium between the two is: replace. In today's market with enough unemployment we have we can offer incentives for our unemployed workers to help build the micro-grids that will help reduce our dependence on oil for our electrical needs, build new charge stations for electric cars or bio diesel stations, and build the equipment needed for both.

Resources:

http://www.ecy.wa.gov/pubs/1104004.pdf

http://en.wikipedia.org/wiki/EP\_additive

http://www.toolbase.org/Technology-Inventory/HVAC/geothermal-heat-pumps

http://www.nytimes.com/2010/06/04/us/04electricity.html