



Eco-Hope

It's hard not to be depressed about the state of our world and the environment in particular. Oil is over \$80 per barrel, a war is still raging in the middle-east, and our national law makers are arguing over the inconsequential.

Eco-Hope

There is however hope on the horizon - there are technically feasible solutions to nearly all our problems - if only we and our government have the courage to implement them. Let's consider a few of the technologies that could pull us out of this mess.

Energy

We can harness the power of the sun, using photovoltaic cells which convert solar energy into electricity. Many people do this already but it's an expensive proposition. But new manufacturing techniques are ready to bring the cost of per kilowatt (kw) down to about 5c per kw. These cells are also very flexible and can be integrated into roofing materials and even windows.

Tidal power is also becoming 'mainstream' and could provide large scale power to communities. Wind turbines are becoming more efficient and many smaller models can generate power at wind speeds as low as 9 mph. Vertical axis wind turbines take up little space and create power even in turbulent inner-city areas. Their low profile also means that they can be integrated into a buildings roof and are barely noticeable.

Appliances are becoming ever more efficient. Battery technology is also finally changing. Most modern batteries have changed little in the last 100 years and are currently about as efficient as they can get. But new technologies are allowing scientists to 'grow' batteries from organic substances.

Transportation

Almost everyone is familiar with hybrid vehicles such as the Toyota Prius, which is both frugal and emits very low

pollution. In Europe there are compact diesel injection engines that get from 70 to 100 miles per imperial gallon. That's about 55 to 80 miles per US gallon. These engines are small (1.5 liters) and economical to manufacture. Several companies have started to make ultra-small, two seater vehicles that are about half the length of the smaller US autos.

The US and Europe are both producing all-electric cars that can travel about 100 miles on a single charge. They are very expensive at the moment but many reach 60 mph in 4 seconds - performance rivaling that of a Porsche or Ferrari.

Several companies have also produced air-powered cars - these can travel over 100 miles at speeds of 65 mph on a charge of compressed air, held in carbon fiber tanks. They can be recharged at special pumps at gas stations or at home with a small compressor.

Many of us have heard of bio-fuels such as bio-diesel, but technology exists to convert even trap grease (the sludge filled with burnt food) from restaurants into a bio-fuel that can power jet aircraft. It's now possible to turn algae into ethanol.

Lighting

Compact fluorescent lights (CFLs) use typically 20 to 30% of old fashioned incandescent bulbs, and Australia has already banned the sales of incandescent lamps. Several other countries are also considering this. New cold compact fluorescent bulbs are instant-on, have very long lives (50,000 hours) and are compatible with dimmers.

Light Emitting Diodes (LEDs) are starting to overcome CFLs as they are even more efficient and have very long lives. In the past it was difficult to replicate true white light

but newer lamps produce very good light with low energy consumption and long life.

Water

Reverse Osmosis desalinization plants are becoming more efficient, using less power to extract clean water with less waste (briny water) produced. In El Paso, Texas, a new plant produces about million and a half gallons of drinking water per day from brackish groundwater, the briny waste is sequestered deep underground in suitable rock formations.

A company called 'Air2Water' sells a machine that can produce between 6 & 8 gallons of pure drinking water per day by condensing water from air.

Portland has probably the most aggressive program to install green (vegetated) roofs on commercial buildings. These often use the water collected to flush toilets, and in conjunction with waterless urinals can save thousands of gallons of water per building per year.

So we have the technology to mitigate or solve so many of our problems. But changing the status quo is the biggest problem. Off the coast of Nantucket the construction of a huge wind farm has been halted by protests that it will 'spoil the view' of the politically connected wealthy residents. In other cases politicians stall the switch to cleaner power to protect the financial interests of their lobbyists - coal, oil, gas and nuclear power companies.

Washington is known as a 'green' state, and is investing in green energy and green building. There are however many vested interests trying to stall these measures.

Recently our council started a proposal to reduce our effect on global warming/climate change, by implementing many ideas to reduce our collective carbon footprint. Whatever your political opinion, and whether you believe that global climate change is a problem, many of these ideas would reduce our dependence on foreign oil, and energy and food from the mainland. They would also improve the quality of life for all of us here, in most cases at little cost.

The hardest part will be changing our mindset, and the mindset of our leaders.