

ECONEWS

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OIL – THE QUEST FOR A SOLUTION

The one supposedly killer argument that is used to defend the extraction of bitumen from under Alberta's boreal forest is that we depend on the oil, and our global civilization would collapse without it.

"Don't you use oil to drive to your meetings and fly to your conferences?" defenders of the tar sands ask.

The rational response is to admit that yes, we do, but the tar-sands produce some of the world's dirtiest oil, and we urgently need to redesign the world so that we don't need it, whether it goes to China or Houston, Texas.

Out of the 87 million barrels of oil that the world burns every day, the tar sands contribute 1.5 million barrels, but compared to conventional oil its extraction process produces 300% more greenhouse gases per barrel, while eliminating the boreal forest above it and polluting the Athabaska River with toxic chemicals.

Could we plan for an organized phase-out of oil? We must, since oil's carbon emissions are contributing to the slow disaster that is global warming, and even the most avid oil-junkies know that global oil production will soon peak, if it has not already done so, and then start becoming tight.

Far from expanding production, we should be planning an annual reduction as we make an organized transition to a green, sustainable world.

In North America, 40% of the oil is used for cars and light trucks, and last month's EcoNews showed how we could reduce this by 99% by embracing cycling, transit, rail and lightweight electric and hybrid electric vehicles.

Finding a substitute for the 28% of the oil that is used in trucks, boats and planes is a much tougher challenge.

100,000 civil ships roam the Earth's oceans, burning 3.8 million barrels of oil a day (4.4% of the total). Tonne for tonne, shipping is 2.5 times more efficient than rail, eight times more efficient than trucking.

By simply slowing from 23.5 to 20 knots, ships can reduce their use of oil by 25%. Ship owners can save 20% by using Ecospeed, a non-toxic coating, combined with regular underwater cleaning. Annual underwater polishing of the propeller saves 2%. For ships cruising at 10 knots, the addition of SkySails cuts the use of oil by 20%.

These improvements could cut future oil-use by 62%, but if global growth projections for 2050 pan out, there would still be a demand for 4 million barrels a day.



There are ships on the design board that use hull-skins to reduce water-friction and fixed wing solar sails, but they will all need some kind of liquid biofuel or green hydrogen.

Flying uses five million barrels a day, but here too any efficiency improvements will be eaten up by the assumed growth in demand, unless a carbon tax could act as a brake on demand by making oil more expensive.

One calculation found that if the fuel for flying was biofuel made from algae you'd only need 66,000 sq. km., or 0.13% of the world's farm and pastureland – but that's only if algae farming can be made to work on a large scale, which no-one has done yet.

Globally, there is a very active search going on for advanced drop-in cellulose fuels, and designer enzymes that can turn wastes or seaweed into biofuel. Big money is being invested to find new sources of hopefully sustainable fuel.

The solutions for trucking may be easier. In Amory Lovins' great new book *Re-inventing Fire – Bold Business Solutions for the New Energy Era*, he and his colleagues at the Rocky Mountain Institute show that various improvements in design and operations, could reduce trucking's use of oil by 60% below the projected demand for 2050.

48% of North America's railway capacity is used to transport coal, so when we cease burning coal that will become available, and railways can also be electrified using renewable energy. If we are willing to think adventurously, freight could be shipped in high speed solar-electric tubes, shuttling between cities at 500 kph instead of clogging up the roads on trucks. We could ship the goods by pipeline, instead of the oil.

For all of our shipping, we could reduce our fuel need if we grew much more food locally, and engaged in more local manufacturing.

If we were to approach the crisis rationally, we would agree on a global oil depletion treaty to reduce global oil production each year, and use the income from a carbon tax to accelerate the shift to sustainable energy.

We've done it before, when we faced another emergency. At the start of World War II, the Detroit auto-industry retooled to make tanks and planes in just *six months*, and Canada achieved similar miracles. But that is when we had a national consensus.

Lacking that ability, we are forced to tackle the problem from the bottom up, as our ancestors did when they struggled to end slavery, and win civil rights, and the vote for women.

Oil makes good money for many people. Slavery made good money for many people too, but that did not make it right. Sustainable energy can also make good money. Will we risk our children's and our planet's future for the sake of some quick cash? Many people, all over Canada, are saying no.

- Guy Dauncey