

Renewable fuel is our biggest opportunity to reduce greenhouse gases

Global warming is accepted as fact by more than 1200 scientists making up the Intergovernmental Panel on Climate Change. There is considerable discussion about how Australia can reduce its output of carbon dioxide and other greenhouse gases.

Elimination of tree clearing and planting more forests have been touted as the main ways in which Australia will meet its voluntary targets for reduced greenhouse gas emissions. However, tree clearing was largely over in Australia ten years ago, and tree planting has been quite limited. We need to move on to some new efforts to reduce greenhouse gas emissions.

Electricity production and vehicles are the two main contributors of greenhouse gases. Clean coal technology may be a way of reducing greenhouse gas emissions from power generation, but will come at the cost of more expensive power.

If half the petrol and diesel used in Queensland was replaced by renewable fuels, it would reduce vehicle greenhouse gas emissions by 30-40%. At the same time it would boost economic activity. It is a win-win situation, which may come at very little cost to consumers and tax payers.

It also helps solve another major issue, which is a decline in oil production in Australia. Already we import around 30% of oil needs and by 2020, production of oil in Australia will be less than 20% of demand. By that time, the major oil fields in the Bass Strait will be almost depleted and 1 million barrels of oil per day will need to be imported, placing an huge demand upon Australia's exports to even up the trade balance.

Why send an enormous amount of money for fuel overseas if it can be produced in Australia and help us reduce greenhouse emissions at the same time? A sensible fuel mix for Australia in 2020, will be to replace 40% of petrol and diesel with renewable fuels, 40% from natural gas, while the remainder will still come from oil.

How can we produce that much ethanol in Queensland, when total grain production each year is less than 3 million tonnes? A rise in grain prices will stimulate extra grain production, which could make it feasible to use 1 million tonnes of grain for ethanol, but this would only produce 400 million litres of ethanol - enough to mix with 10% of the petrol consumed in Queensland.

To replace another 40% of our petrol with renewable fuel, we need to take note of Brazil, which now produces in excess of 20 billion litres of ethanol from sugar cane. To produce another 1.6 billion litres of ethanol in Queensland would require around 160,000 hectares of irrigated cassava, corn or sugar cane.

As new technology to convert cellulose into ethanol becomes available, only 80,000 hectares of sugar cane would be needed to produce 40% of Queensland's current fuel needs. This is a relatively small area compared with the land which could be suitable for irrigated sugar cane in the Gulf of Carpentaria. It is only about twice the size of the Burdekin irrigation area. Half of this production could even come from using surplus water from the Burdekin dam.

The use of land and water for cropping in the north is a major issue. But with 6 billion people on this planet and major challenges like climate change and dwindling supplies of oil, we can't sit on such resources forever. There are already huge areas of land set aside for national parks on Cape York Peninsula and in the Gulf Country. If it is thought these are insufficient, they should be increased, and then development should be allowed to proceed in an environmentally cautious way in other areas.

Irrigation farming can be managed sustainably. Rather than build big dams, water could be harvested in the wet season and used from on-farm storages during the dry season.

If it is viable to produce ethanol from sugar, why are we not building ethanol plants to convert sugarcane into fuel at the moment? One reason is that, although it is viable to produce ethanol at the current price of oil and sugar, cane farmers hope the price of sugar will rise and do not want to be locked into ethanol production.

An alternative is to start new vertically integrated farm and fuel production units. Large irrigated cane plantations are likely to produce sugar for around half the price of the average (small) cane farm in Queensland and if they are part of an ethanol business, could be profitable without being subject to fluctuations in sugar prices.

Second generation fuels like butanol are likely to take over from ethanol. Conversion of cellulose into ethanol is well advanced and will add to ethanol capacity, while production of bio-diesel from cellulose and growing algae are also being tested.

There is a pressing need to obtain new fuel supplies in Australia to manage our balance of trade in the future. If this can slash the output of carbon dioxide from fossil fuels by millions of tonnes and at the same time help to clean up the air in our major cities, it is worthy of closer consideration.