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Over the last 6 years I've followed the research of a group of petroleum (ASPO, geologists Association for the Study of Peak Oil. http://www.peakoil.net/), many of whom are retired from senior positions in the oil industry. In 1999, when oil was around \$10 a barrel, they were predicting steep price increases for oil as major oil fields decline and production is replaced by oil extracted from smaller, more expensive sources. With 6 years of hindsight, their predictions appear to have been accurate. Their data and analysis suggest the current upward oil price trend will increase, possibly dramatically, in the near future. As a scientist I find the weight and strength of their evidence compelling. If their future predictions are correct, economic hardship of oil dependent economies is inevitable. There are many ways to soften such an economic blow, many of which are already being implemented in Queensland, such as natural gas powered public transport and improved rail infrastructure.

From my own research, undertaken for personal interest, there are a number of alternative vehicle fuels, some of which are ideally suited to being manufactured in Queensland. These fuels may be advantageous to Queensland by reducing ever more costly oil imports, spurring economic growth and reinvigorating rural industries.

Ethanol is already comparable in price with taxed petrol. Recent advancements in refining (pervaporation) and feedstock utilisation (ethanol from woody biomass) mean production costs for ethanol will continue to decline, while petroleum fuels are likely to continue to rise. This constellation of events creates an opportunity for the Queensland Government to catalyse the creation of a rapidly growing new industry.

- Global oil demand continues to grow
- Production of easily accessible, conventional (cheap) oil has likely peaked (see Chevron's website http://www.willyoujoinus.com/)
- Much of the remaining oil is heavy/sour crude and often in difficult to extract places such as deepwater and arctic regions giving rise to higher extraction costs
- These non conventional oils, including oils made from coal, tar sands and gas need considerable time (5-10 years) to meaningfully increase production
- Production constraints on non conventional oil will make it difficult for these sources to completely replace declining conventional oil production
- World oil production is declining at approximately 8% (Schlumberger CEO: <u>http://newsroom.slb.com/press/inside/article.cfm?ArticleID=213&</u>)
- Most of the major oil companies have declining oil production (Petroleum Review, Oct. 2005)
- Only OPEC has significant spare production capacity and it is in the form of heavy, sour, difficult to refine crude (http://www.ameinfo.com/56862.html)
- Some analysts fear that the Saudi Arabian supergiant oil fields, in production for 40 years, which produce much of the world's cheap oil, are about to decline rapidly (http://www.simmonscointl.com/research.aspx?Type=msspeeches)
- The Burgan oilfield, the second largest in the world, is now in terminal decline (http://www.ameinfo.com/71519.html)

- Study of large fields coming online in the next few years show there is insufficient new production to compensate for production declines and rising global demand (Skrebowski, Petroleum Review Jan. 2004)
- It is likely that all major oilfield discoveries have already been made and are currently in production
- Petrol and diesel prices will therefore rise in the foreseeable future as global competition for an increasingly scarce resource forces prices upwards
- Fuel prices in Queensland have reached the point where alternative fuels, such as ethanol produced in Queensland, will be cheaper than imported petroleum fuels
- Ethanol can be blended with petrol to increase the octane rating, producing cleaner, better burning, cheaper fuel
- Advances in ethanol production technology (pervaporation; use of cellulose feedstocks; consolidated bioprocessing) will mean that the cost of ethanol production will continue to decrease