Department of Agriculture and Food
Government of Western Australia

The Secretary
Select Committee on Fuel and Energy
PO Box 6100
Parliament House
CANBERRA ACT 2600

Dear Sir

FUEL AND ENERGY SUBMISSION

Please find the attached submission to the Select Committee on Fuel and Energy.

As you are no doubt aware the election for the State Government will be held on 6 September 2008. Accordingly, the Government is currently in a caretaker role until the completion of the election process and I would be pleased if you could treat the submission as confidential.

Yours sincerely

Roger O'Dwyer
EXECUTIVE DIRECTOR
INDUSTRY AND RURAL SERVICES

28 August 2008

Attachment: Submission to the Fuel and Energy

INDUSTRY AND RURAL SERVICES
3 Baron-Hay Court, South Perth, Western Australia 6151
Postal address: Locked Bag 4, Bentley Delivery Centre WA 6983
Telephone: (08) 9368 3554 Facsimile: (08) 9474 5974

Senate Select Committee on Fuel and Energy

The agriculture sector in Western Australia has undergone a period of sustained, elevated input cost pressure, driven by higher worldwide energy prices. While this impact has been partly offset by higher commodity prices, the viability of farming in some regions and enterprise mixes will be seriously challenged if current pricing regimes persist.

The purpose of this note is to examine the impact of higher energy prices, in particular diesel prices, on the agricultural regions of Western Australian.

Western Australian Diesel Prices

The scale of most local broadacre farming operations dictates that diesel will typically be sourced through a wholesale operation and delivered directly to on-farm storage capacity. Contractual arrangements vary greatly, however the delivered price will typically be pegged to a daily wholesale price indicator plus a transport margin. Consequently, average retail prices in rural areas provide an indicator of price changes confronting farmers.

Figure 1 shows the trend in the average price of diesel fuel for regional Western Australia from January 2001 to July 2008 (*DOCEP*, *2008*). While this price fluctuates in positive and negative directions, the over all trend is increasing with the most significant price spike occurring over 2008. (The rural price is less volatile than the equivalent graph for metropolitan prices, possibly reflecting the relative levels of competition).

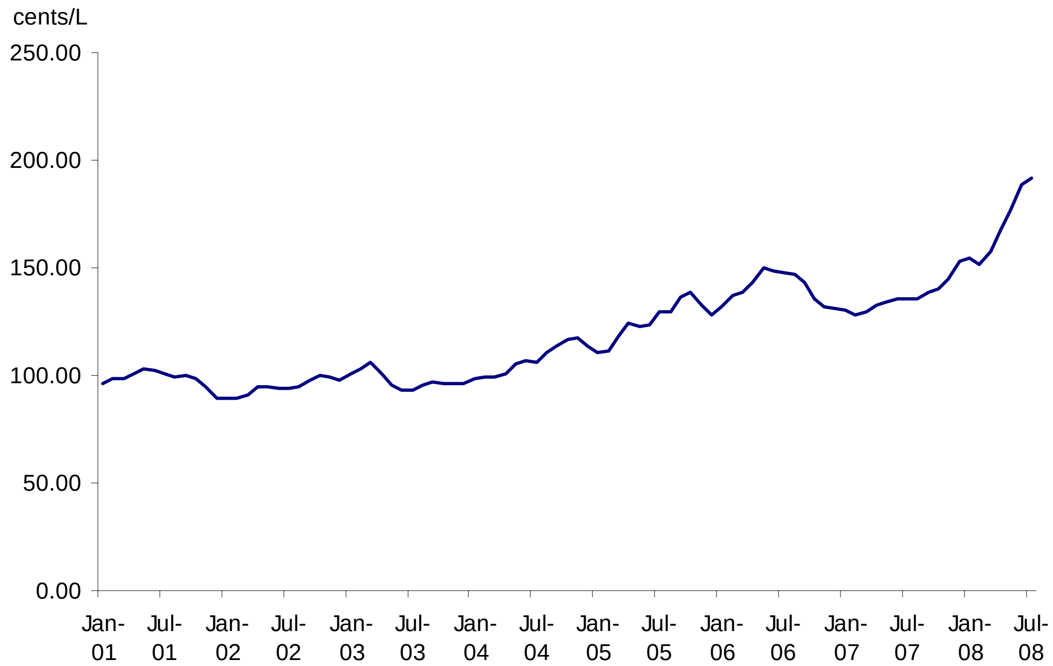

Figure 1. Average Diesel Fuel Prices for Regional Western Australia

Examining the fluctuations in price more closely, Table 1 contains the annual percentage change in the price of diesel fuel. As can be seen there is significant variation in fuel prices from year to year. Most notably the 24.2 % change in price from 2007 to July 2008 has impacted most significantly on farmers' operations when combined with fertiliser and chemical price increases of over 100%.

Table 1. Percentage change in price of diesel fuel in regional Western Australia

Year	% change
2001-02	-3.9%
2002-03	3.2%
2003-04	9.8%
2004-05	16.9%
2005-06	12.0%
2006-07	-2.8%
2007-08*	24.2%

*2008 average from 1st January to 31st July

Farm Survey Data

To determine what impact this variability in fuel price has on farming businesses, data were collected from the 2006 PlanFarm WA farm business survey. The survey covered 415 farm businesses from across the state of WA. Farms were grouped according to the Department of Agriculture and Food WA rainfall regions. A breakdown of farm receipts and operating costs were calculated per hectare for each region.

Figure 2 is a map of the agricultural rainfall regions of Western Australia. For the Farm survey each of these regions was further grouped into North and South.

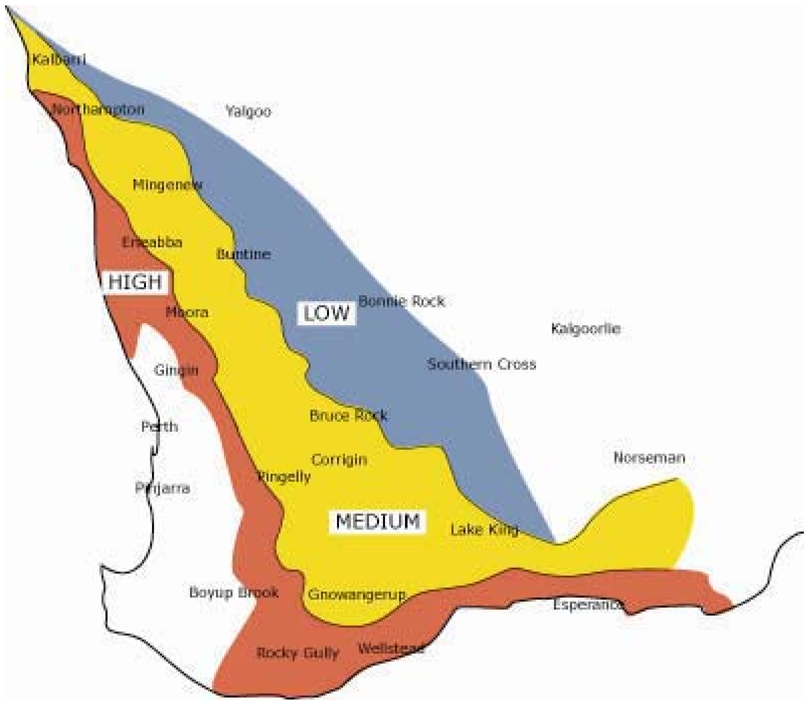

Figure 2. Map of the Western Australian agricultural rainfall regions

The proportions of total farm operating costs spent on fuel and oil in the different rainfall regions of Western Australia from 2001 to 2006 are indicated in Table 2.

Table 2. Proportion of total farm operating costs spent on fuel and oil

	2001	2002	2003	2004	2005	2006
HR North	7.7%	6.9%	7.3%	7.4%	8.2%	8.9%
HR South	8.7%	7.4%	7.0%	7.6%	8.5%	10.3%
MR North	8.8%	7.7%	7.9%	8.3%	9.3%	9.7%
MR South	9.8%	8.3%	8.5%	8.9%	10.2%	10.6%
LR North	10.7%	9.1%	9.5%	10.2%	11.8%	12.9%
LR South	10.7%	8.7%	9.7%	9.2%	10.4%	12.2%

(HR = High Rainfall, MR = Medium Rainfall, LR = Low Rainfall)

While there appears to be a general trend towards a greater proportion of the farm operating costs being directed towards fuel and oil, the results do not correlate with increases in the regional fuel price. This may be due to other operating costs, such as fertiliser and chemicals, increasing at a proportionately higher rate than fuel. The current fuel tax credit system provides a set 38.143¢/L credit for fuel used on the farm and offsets some of the above increases.

Table 3. Annual percentage change in cost of fuel and oil per hectare

	2001-02	2002-03	2003-04	2004-05	2005-06
HR North	0.0%	-3.7%	15.7%	16.8%	-1.0%
HR South	3.1%	9.5%	10.3%	12.5%	24.5%
MR North	-0.9%	8.8%	9.5%	20.7%	-9.9%
MR South	1.6%	9.5%	11.6%	15.4%	2.8%
LR North	-8.9%	18.5%	9.0%	16.5%	-18.1%
LR South	-8.2%	16.8%	9.6%	8.8%	13.5%
Fuel Prices	-3.9%	3.2%	9.8%	16.9%	12.0%

Table 3 contains the annual percentage change in the per hectare cost of fuel and oil. Again there is no strong correlation between the increase in fuel prices and the increase in the amount spent on fuel and oil on farm. There are many reasons why this may not be apparent. For example in a drought year, broad acre cropping farms may use less fuel as there is less to harvest, treat etc. Farmers may also start to use more fuel efficient technology to reduce fuel use. While these results do not cover the current period and subsequent price spike it would be reasonable to assume that the approximately 30% increase in diesel prices would result in an increase in the proportion of costs attributed to this category. However the increase in fertiliser and chemicals costs may be statistically overwhelming.

Modelling

The farming system model MIDAS was used to examine the impact of increasing fuel prices on a representative farm in the central wheat-belt of Western Australia.

The model has been recently expanded to include the effect of a carbon emissions trading (CET) system. One of the major assumptions in the expanded version is that Agriculture is an ‘uncovered’ sector and as such no penalties apply to farm-based carbon emissions. Due to this the impact to the farming business is through increased input costs associated with products and services from ‘covered’ sectors such as transport, fuel and energy. These input price rises are modelled in MIDAS by using a CET tax to initiate an increase fuel and energy prices. It is important to note that the CET is just a tool by which we can model a scenario where fuel and energy prices rise simultaneously. These results can then be interpreted outside of the context of CET system.

MIDAS was also modified to include some of the flow-on costs attributed to fuel and electricity. For example fertiliser and chemical prices will increase as fuel and energy prices increase due to the large variable cost element these inputs have in their production. These flow-on cost impacts are at best an educated guess, based on an understanding of the significance of fuel and electricity costs as variable costs in each of the products or services being considered. They do however provide an added insight into how fuel prices will impact operating costs beyond that of a direct increase in fuel expenditure.

In this analysis a $10 CET tax will increase fuel prices by 3 ¢/L and electricity prices by $10 per megawatt hour. Four runs were performed with a tax value of $0, $10, $20 and $30 for farms with differing proportions of the farm dedicated to cropping.

Table 4 below shows the reduction in farm profits associated with the increase in fuel price of 3¢/L, 6¢/L and 9¢/L.

Table 4. Percentage change in farm profits with an increase in fuel and energy prices

Cropping Area (Ha)	3 ¢/L	6 ¢/L	9 ¢/L
400	-3.2%	-6.5%	-9.7%
600	-1.7%	-4.0%	-6.2%
800	-2.0%	-4.0%	-6.0%
1000	-2.0%	-4.0%	-6.0%
1200	-2.0%	-4.2%	-5.9%
1400	-2.4%	-4.8%	-7.1%
1600	-2.8%	-5.6%	-8.3%
1800	-3.3%	-6.6%	-9.9%

As can be seen there is a non-trivial reduction in profits. For an increase in 3¢/L in fuel price, farm profits fall roughly 2-3%. This relationship appears to hold at larger price increases as well. It can also be observed that the reduction in profits increase as the area of farm cropped increased. Broadacre cropping is a more fuel intensive operation than livestock and thus the impact of fuel prices is greater.

This version of the MIDAS may over estimate the impact of fuel price increases for two reasons. Firstly it does not allow for the farmer to pass on the added costs. This may not hold true for all commodities and as such the impact of a fuel price increase may be reduced.

Secondly the model does not take into account farmers substituting to more fuel efficient technology and practices. More efficient tractor engines, driving farm vehicles less or introducing practices such as Tramline farming will reduce the amount of fuel used on the farm. A tramline farming system is estimated to reduce fuel use by up to 25 per cent (*Department of Agriculture WA & GRDC, 2004*) by using a guidance system to control vehicle traffic in cropping systems. The system reduces overlap in seeding, thus reducing fuel use and the impact on the soil.

Conclusions

The proportion of farm operating costs resulting from expenditure on fuel and oil does appear to be increasing, however at a much lower rate than the increase in the diesel fuel price. No such trend is apparent in the per hectare costs of fuel and oil on farm. These, less than conclusive, results may be impacted by other factors such as drought years and the relative costs of other farm inputs.

In contrast the MIDAS modelling predicts that in a worst case scenario an increase in fuel by 3¢/L farm profits fall roughly 2-3%. This is significant when examined in the context of 2008 where average fuel prices jumped 33¢/L. While this impact has been partly offset by higher commodity prices the future may not be as forgiving. Such a large reduction in profits would put significant financial pressure onto farm businesses and the viability of farming in some regions and enterprise mixes will be seriously challenged if current pricing trends persist.

It is important to note however these results may be overstated. In the face of continued high fuel and energy costs farmers will tend to shift towards available technology and practices that reduce their reliance or increase their efficiency of these inputs.

Department of Agriculture and Food
August 2008.

References

Cannington, B. (2007). 2006 WA Farm Business Survey. *Landline* 256, 1-16.

Department of Agriculture Western Australia & GRDC (2004). *Tramline Farming Systems – Technical Manual*. Bulletin 4607.

Department of Consumer and Employment Protection (2008). *FuelWatch Historical Average Search*. Available from URL: http://www.fuelwatch.wa.gov.au/prices/dsp_hist_avg.cfm [accessed August 2008]