

The BRC Energy and commodities bulletin

May 2008 Issue 5

Bi-monthly review of energy and commodity trends and research for users and producers of energy in Ireland

Preparing for \$200 oil

\$130 \$200
\$24



Bio-resources Research Centre, UCD

Contents

- The markets
- National and international news
- Main article: \$200 oil, the impact on renewable energy

Editors note:

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Editor: The BRC Energy and Commodities Bulletin

Its time to prioritise

“Zapata” (George Blake). No he is not a Disney character (although he does look like one). He is in fact a geologist, investor and commodities expert. On the 26th March when oil was around \$105 a barrel he stated that \$130 per barrel was a month away and that \$160 was not far beyond that. Although a month late he was to be proved right on the first count. He reckons the squeeze is enough price oil at \$160/barrel on the low side and \$220 on the high side. You can get his interview on commodity watch radio at <http://commoditywatch.podbean.com/2008/03/26/160-oil-sooner-than-you-think/> its well worth a listen.

So, if Zapata is correct and \$200 oil and all its consequences are just around the corner what do we do? The first chorus for tax cuts has already begun, however, would it not be more prudent to increase the tax on energy (heating, electricity and gas), at least for sectors outside of the haulage industry. This will do 5 things 1) Drive efficiency 2) soften further energy cost increases 3) make feasible alternative technologies 4) maintain tax income and 5) help shift focus, correctly, from environmental arguments to more relevant (to today's society) security and cost of supply issues.

We must start by promoting the technologies with the least energy related variable costs that will return the greatest gain when energy costs rise. A solar panel should last 20 years and will cost little more to run than now. A/D plants, wind turbines and tidal power, all of these also fit into the low energy input class. Biofuels on the other hand will never reap the same benefits due to high energy inputs. As regards second generation biofuels the suggested feedstock are no less immune to supply and demand price curves than any other traded material and the idea that such material is limitless or even abundant is tenuous and the level of demand by the combined use in power stations, CHPs, pellet producers and biofuels if fulfilled will inevitably drive the demand and value of all biomass up and ultimately out of the reach of some or most processes.

The scientific industry has an obligation to look at the whole picture in order to promote the best solutions for our energy needs and technologies should be promoted based on a maximum return for minimum input.

The BRC Energy and Commodities Bulletin is a bi-monthly publication produced by staff and researchers in Bioresources research centre (BRC) in University College Dublin. The BRC is a dedicated research centre of excellence that focuses on environmental research with particular emphasis on renewable energy.

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Markets



Crude oil still to find a ceiling

Oil broke through record closing prices 18 times since the last issue to finally peak at a closing high of over \$132 per barrel. At the time of writing it had eased back somewhat to around \$127 dollars. Most analysts believe that high oil prices are here to stay for at least the short to medium term. The best analysis can be found at the Platts (www.platts.com) and WTRG (www.wtrg.com) websites. Inevitably demand will eventually have to wane.

EU Wheat takes a nosedive, profits will be down

Over the past two months wheat has taken a hammering as prospects for a bin busting harvest look set to kill all hope of farmers getting paid similar prices to last harvest. Nearby contracts have fallen consistently since march from €245 per tonne to €187 per tonne. Last years green prices were around €190-210 per tonne and based on LIFFE futures a green price for harvest '08 looks more likely to be €150-160 per tonne. BRC crop production estimates indicate a crop production costs €120 per tonne compared to last years €90, these prices and costs leave farmers no better off this year than they were two years ago. Also pulling down local prices is significant carry-over from last season at most feed mills as livestock farmers tightened up winter feed rations. On the plus side the weather has been particularly kind with disease pressure much lower than last year.

Oilseed and vegetable oil prices level off

Vegetable oil prices have become somewhat disjointed from crude oil with soybean oil and palm oil gaining little over the past two months and have been consistently priced at around the equivalent of €0.65 and €0.55 per litre respectively on the futures markets (CBOT and JADE).

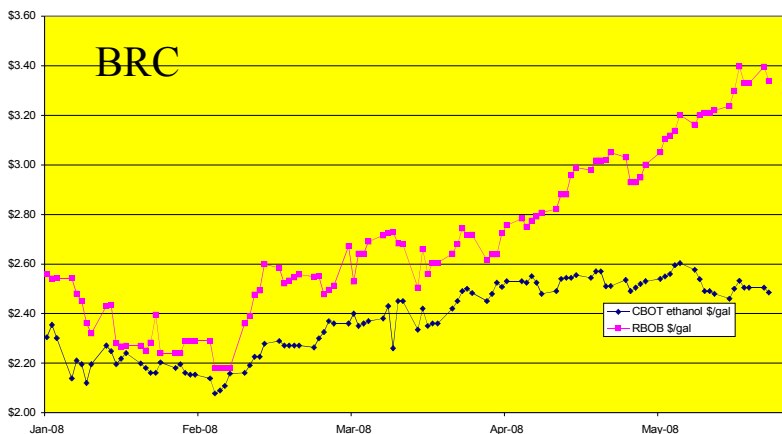
Production and usage up for '08, stocks to remain tight

According to the International grains council world grain stocks will remain tight despite a favourable outlook for overall production. Increased ethanol production in '08 will drive demand for corn and sorghum. Overall trade of grain is expected to be down as freight costs hit hard and exporting countries protect stocks and indigenous demand through export taxes. The IGC estimates that corn usage for ethanol will increase by 31% despite reduced credit availability, increasing construction costs and rising grain prices.

Ethanol - gasoline spread widens

US ethanol producers must be yearning for the bygone days when ethanol commanded a 50cents per gallon premium over RBOB gasoline. These days RBOB gasoline is trading a whopping 85 cent per gallon over its ethanol equivalent. In February they were worth equal money on a volume basis. It appears that supply has finally caught up with demand or at least handling capacity and ethanol prices have barely risen in the last two months. The same cannot be said for inputs such as corn and natural gas. 2008 looks like being a tough year. Sugar prices remain below 12 cents/lb which is stimulating Brazils production of ethanol and also adding extra supply to the market.

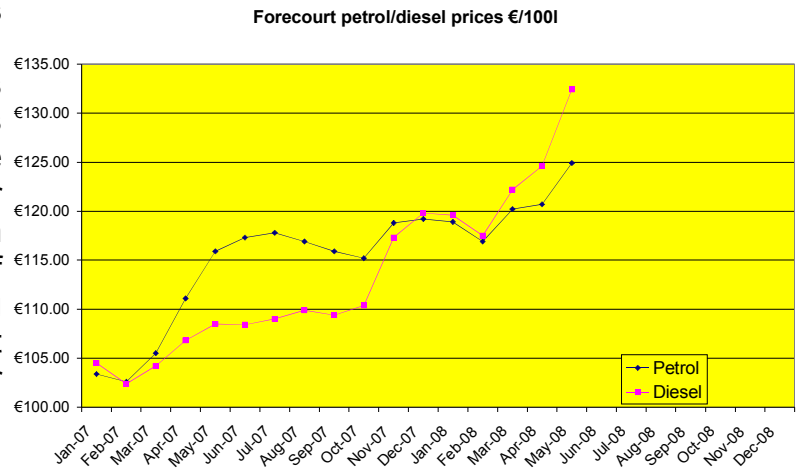
Ethanol versus gasoline futures



National and international news:

Hauliers feel the pinch as Diesel prices overtake petrol

There is serious concern among hauliers over the cost of diesel which has significantly overtaken that of petrol, one haulier expects to halve his fleet in order to pare down his costs. People often forget that Europe is a deficit producer of diesel and supply and demand is hitting prices hard, the new tax regime will not help matters either. Diesel remains better value for money however (see back page).



Bioenergy 2008 to move to Galway

The Teagasc Bioenergy and farmfest 2008 will move from Teagasc Oak park research centre to the Teagasc Mellows centre in Athenry, Co. Galway. Last years event was excellently run and attended and hopefully the same will be said of this years event. For details go to www.teagasc.ie.

Farming organisation join Yes campaign

At the time of print two major farming organisations the IFA and the ICMSA, had decided to back the Yes campaign following assurances from the Taoiseach Brian Cowen the Ireland would exercise its veto should the EU negotiate an unsatisfactory WTO agreement. The IFA in particular were suggesting that they may be promoting a No vote based on Peter Mandelsons negotiating efforts to date.

BRC news and events

Parson awards

September will see the commencement of up to 7 years of research with 5 new PhD researchers being added to the BRC team. Pictured at the Charles Parsons Award ceremony (l-r): Mr Noel Dempsey, T.D., Minister for Communications, Marine & Natural Resources; award recipient **Prof Shane Ward, Director of UCD Bioresources Research Centre**; Prof Nick Quirke, Principal of UCD College of Engineering, Mathematical and Physical Sciences



BRC Fulbright scholar

The BRC would like to congratulate PhD student Rory Deverell upon receiving a Teagasc/Fulbright scholarship to conduct research in conjunction with the University of Minnesota into the sustainability of the first and second generation biofuels. The research will last for twelve months from September 2008 to September 2009.

Next issue

In the next issue we begin a profile page where a notable member of the scientific or economic world is interviewed and profiled. First off is Michael Walsh of the Irish wind energy association.

\$200 oil, what will it mean for the cost of renewable energy?

This month we look at the changes in energy and commodity prices that have occurred over the last seven years since 2001 and also what the potential impact \$200 dollar oil may have on the competitiveness of renewable energy in the future.

Its fairly widely expected that oil will top \$200 per barrel at some point in the not so distant future. When it does occur it will be due to supply reasons such as a significant middle-east conflict, supply restrictions by OPEC, a sever weather event(s) or alternatively demand reasons such as speculation or continued economic growth in China, India and other developing countries and/or economic recovery in the more developed countries. The possibility of a fall back below \$100 dollars is also real if the expected stability following the US elections adds value back to the dollar, that relative peace arrives to the middle east, a 911 scale terrorist attack occurs or finally that stated objectives relating to energy efficiency and alternative energy are realised by the major energy users.

On the next page we have brought together the price trends for various commodities and energy sources and compared them to crude oil with some interesting comparisons evident. The average price of crude oil in 2001 was \$24/barrel the average for this year so far is \$99/barrel which represents a rise of over 4 times its value. A \$200 barrel of oil will see in excess of an eight fold increase. Looking at the various graphs some observations of note would be the effect that excise has on softening diesel and petrol price rises. Also what is interesting is how long fertiliser

prices, in particular gas intensive nitrogen, managed to stay so flat up until this growing season, obviously supply and demand played an important role. The basic metals also followed oils upward momentum with Iron ores similarity to oil starkly visible. The various biofuel feedstock were also susceptible to the general rise and is severely undermining the feasibility of many planned biofuel operations.

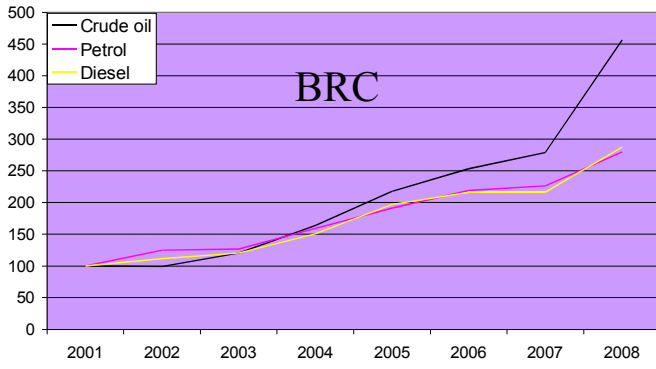


Overall, it appears that crude

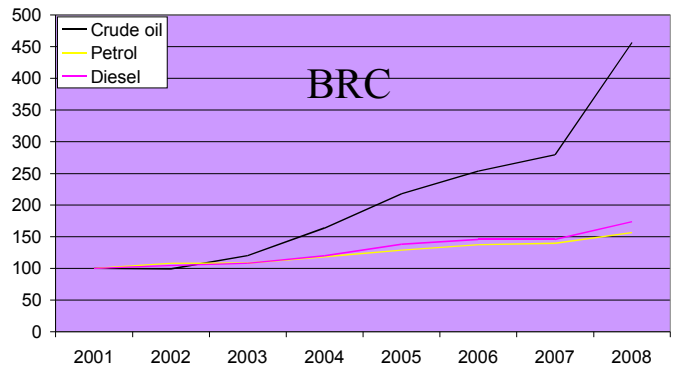
oil is the the sea upon which most commodities and energy float and a rising tide will bring the value of almost everything up with it. It is for this reason that input and energy intensive alternatives such as biofuels never really reap the full benefits of rising oil prices particularly compared to technologies such as wind, hydro and solar.

Next page...

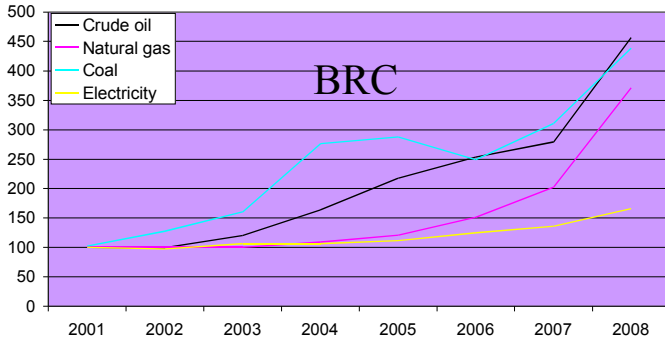
Tax free transport fuels



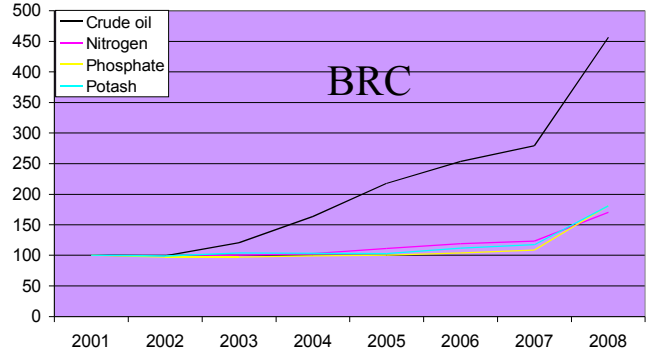
Taxed transport fuels



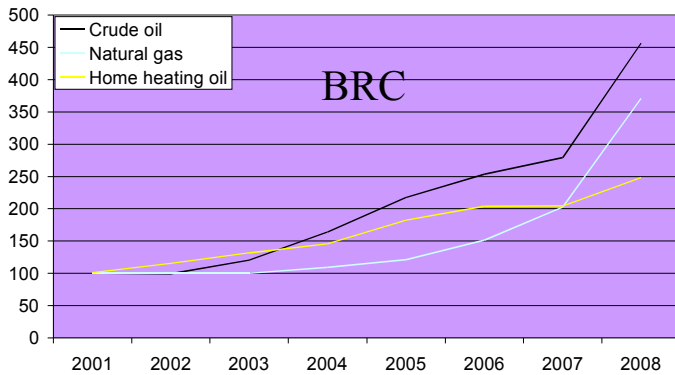
Electricity and related products



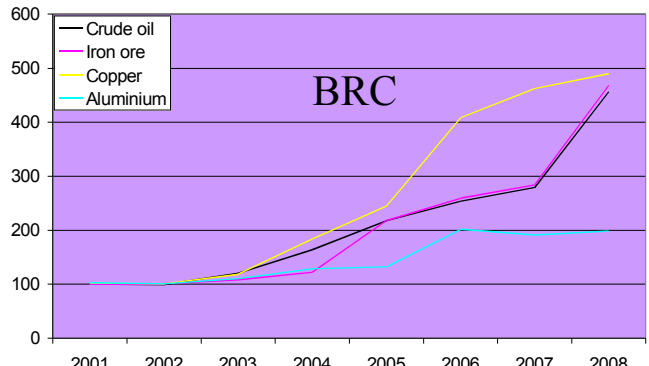
Fertiliser



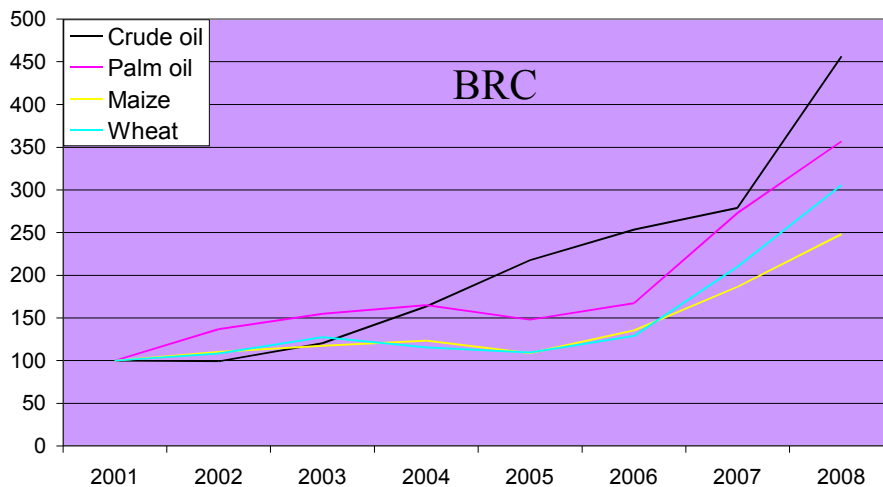
Home heating



Metals



Biofuel feedstock

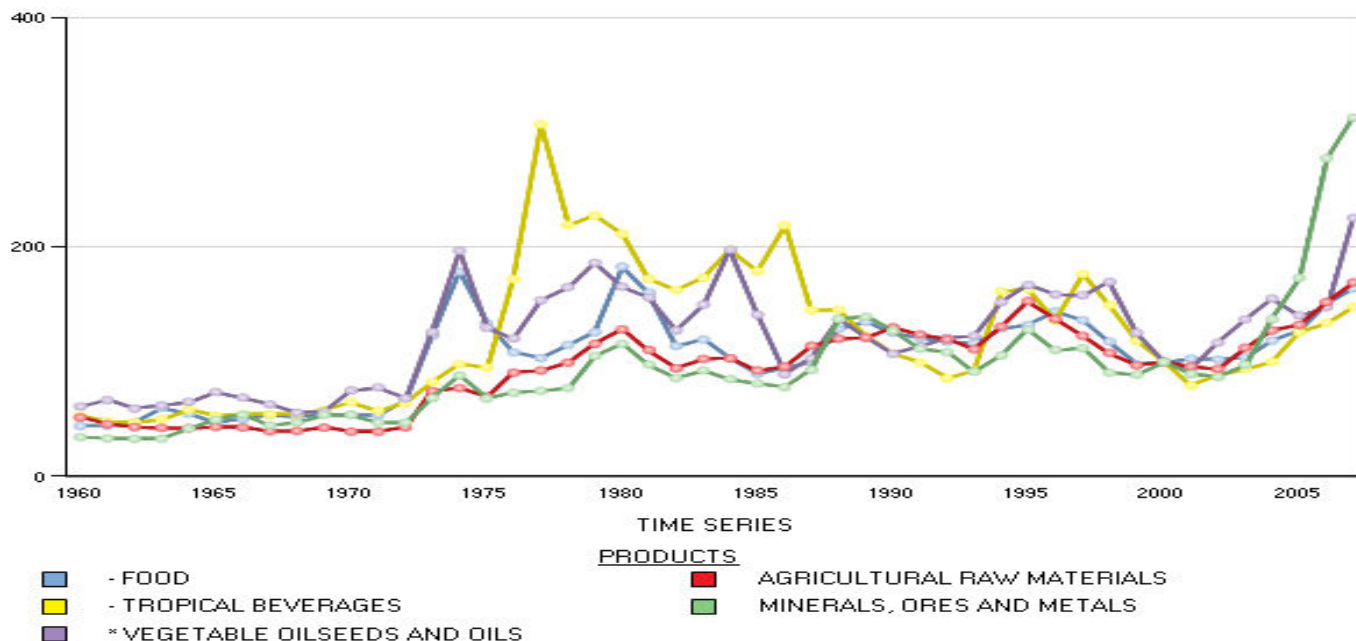
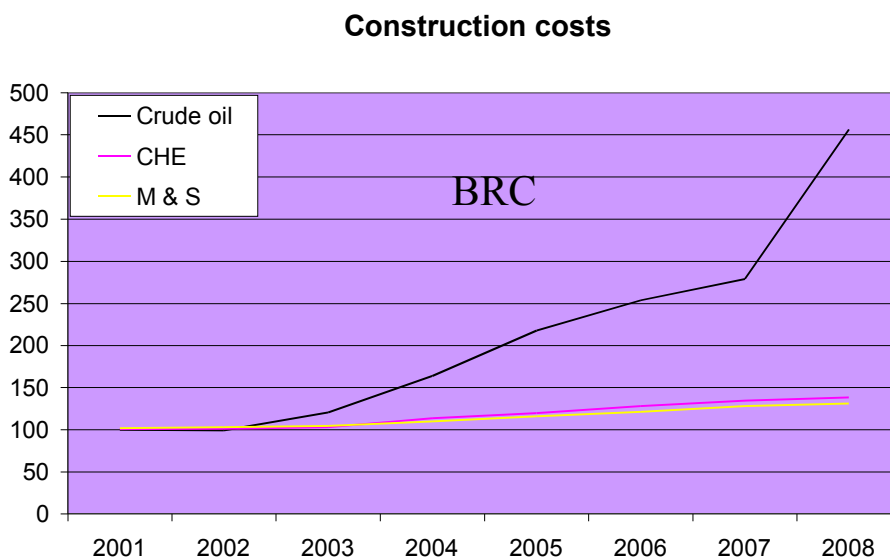


Graphs explained:

The above graphs index various commodities and energy sources from 2001 levels and compares them to the change in oil prices. All prices were the annual average. The data was sourced from the UNCTAD (www.unctad.org), SEI, the CSO and BRCs own commodity price database.

The previous graphs tell individual stories over the last seven years while figure 1 below indicates the general trends of the various commodity groups over the much longer period since 1960. In figure 1 it is interesting to see that the last significant peak in commodity prices occurred around the time of the 1970/80 oil crisis giving further evidence that crude oil does impact commodity prices generally and significantly and also adds weight to the argument that biofuels may not be impacting food prices to the extent claimed by some. So, all these general price rises are occurring and compared to oil the various commodities and energy sources rise at different rates but tend to follow crude oils trend whether it be up or down. This much appears clear. But what about renewable energy producers, what can be expected when \$200 oil comes around.

Construction costs. The graph below indicates best what may be expected as it compares the change in crude oil prices to the change in the chemical engineering and Marshal and Swift economic indices. Both of these indices describe the general change in chemical plant components, construction and operating costs. While it appears at first that the recent spike in oil prices has not effected general construction costs too much closer analysis reveals that the 20 year average annual increase was 2% , while in the last five years the average has been a little over 4%. As the cost share of energy and raw commodities is limited compared to all the other costs associated with construction it is not surprising that the impact is not as keenly felt but it does appear higher oil and commodity prices are having an impact on the rate of increase in construction costs and \$200 oil will inevitably exacerbate this.



Running costs. For traditional biofuel plants using biomass such as wheat, sugarbeet and rapeseed whose variable costs are generally lead by the feedstock costs they will feel the impact of rising commodity prices the greatest as these feedstock are traded internationally, are subject to speculation by traders, have high levels of inputs, are in high demand and are reliant on increasingly more expensive shipping mechanisms to move traded material. If the recent past is anything to go by then \$200 oil should do these industries few favours.

For other so-called 2nd generation biofuels using other types of biomass such as straw, miscanthus, woodchip, municipal waste etc. their feedstock costs will probably remain lower compared to traditional feedstock due to the fact that competition is less (at least international competition) and the level of inputs are less. However, they will be competing with traditional uses of the material panel board mills (woodchip), livestock farmers (straw) and other bioenergy industries such as CHP (woodchip, straw), pellets (straw, sawdust) and anaerobic digestion. Transport of these feedstock will be an issue as they all suffer from low bulk densities and are therefore particularly susceptible to rising diesel prices. Indirectly, labour costs will increase for all bioenergy industries as the cost of living rises (inflation) so too do wage expectations. Finally, as construction costs rise so too does the cost of capital (loan repayments and interest) and also if crude oil and commodities are heading north then most shrewd investors will be placing their capital there as apposed to riskier bioenergy projects, so, in order to get investment capital higher returns will need to be offered, again undermining the viability of bioenergy projects.

Stepping away from biomass, heat and electricity production from wind, tidal, solar and wave energy have running costs that are almost completely immune to further rises in energy costs and will only benefit from rising crude oil prices. Now would be the time to develop these industries as one could only imagine the rush that will occur for these technologies when oil does hit \$200 and the knock on effect that will have on purchase and construction costs. If biomass is to be used to supply energy only those technologies that have the least

inputs of energy for the maximum return of **useful** energy should be promoted, which is where the logic of using biomass for the production of biofuels and combustion in power stations falter. No matter how efficient the production process only about 50% of the energy available in a litre of fuel will be used to move a car forward and only about 35% of the energy entering a power station will be used by electricity consumers compared to this localised CHP appears to make more sense as a means of utilising biomass where much higher efficiencies can be achieved.

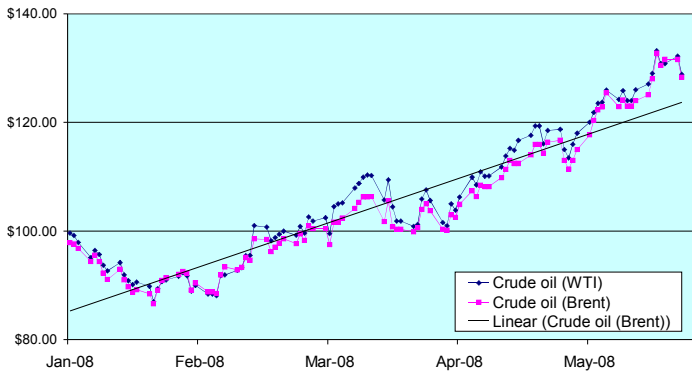
As we stand \$200 would hit us harder than most on the competitiveness



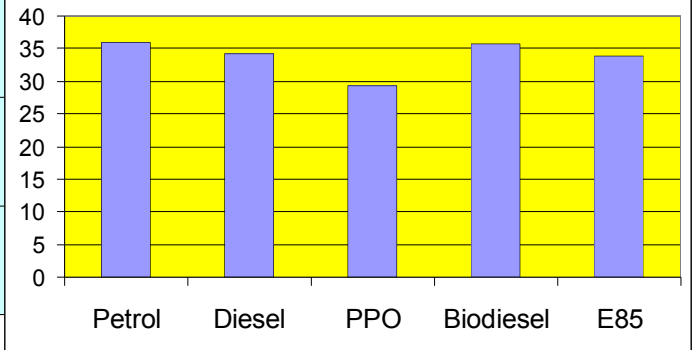
Wind, offers much and will ask little of our resources. Running costs are also relatively immune to rising energy costs.

front due to our reliance on fossil fuels, prudent choices now will make \$200 more palatable and may even give us a competitive advantage in the future.

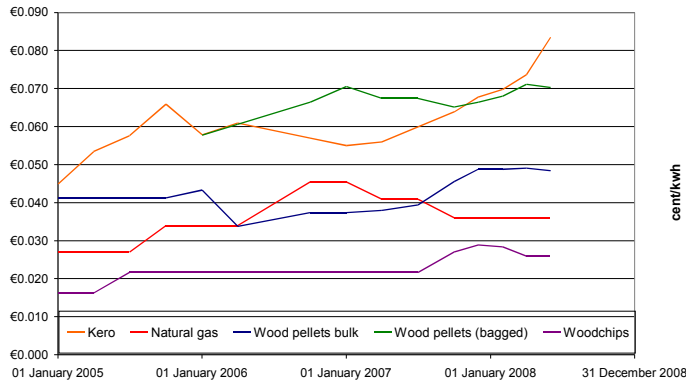
Crude oil prices US\$/barrel



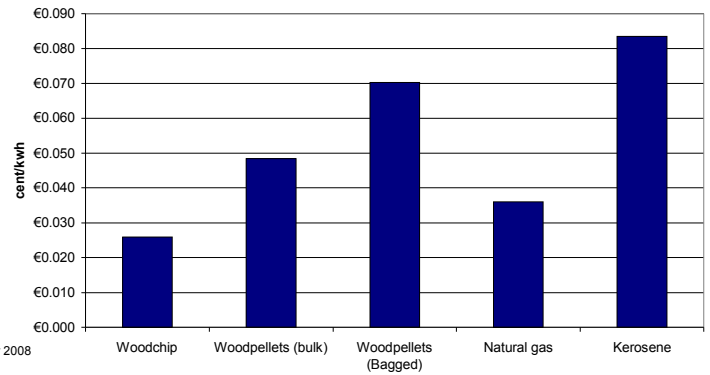
€/GJ



Space heating costs (€/kWh)



Heating fuel costs



About the Bio-resources Research Centre and the Energy and Commodities Bulletin

The Biosystems Engineering department is a department within the Agriculture faculty of UCD. The main areas of research include but are not limited to renewable energy research, food science and environmental engineering. Within the biosystems department is the Bioresources Research Centre (BRC). The BRC has long built up a core understanding of the mechanisms through which agriculture can contribute to Ireland's energy security and the factors that act upon that potential. The goal therefore of this publication is to convey that information and understanding to those within and outside of academic circles.

The BRC Energy and Commodities Bulletin will initially run on a bi-monthly basis giving you up to date information in relation energy and commodity market trends and actors. The bulletin will also consist of the latest research ongoing both within the BRC and the wider academic community. So, if you have a relevant piece of research and would like to contribute to the publication please contact the editor, Rory Deverell. We hope you find this publication informative and useful and all suggestions regarding its enhancement would be much appreciated.



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