QFF QUEENSLAND FARMERS' FEDERATION

18 August 2009

Rob Hansen
Research Director
Environment and Resources Committee
Parliament House
George Street
Brisbane QLD 4000

Dear Mr Hansen,

Please find attached a submission from the Queensland Farmers' Federation (QFF) in response to the Queensland Parliaments Environment and Resources Committee inquiry into Energy Efficiency Improvements.

Through our membership the QFF represents the interests of 14,000 farmers in the intensive agriculture industry in Queensland. Agriculture contributes over $13 billion to the Queensland economy and employs over 60,000 people.

QFF appreciates the opportunity to provide input into this inquiry and our organisation would be willing to provide further information to the Committee if required.

Yours sincerely

Dan Galligan
Chief Executive Officer

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Queensland Farmers Federation (QFF) submission to:

The Queensland Parliament Environment and Resources Committee - Inquiry into Energy Efficiency Improvements

Background

The Queensland Farmers' Federation represents the interests of over 14,000 primary producers in Queensland's intensive agriculture sector. Agriculture is one of the two largest industries in regional Queensland, contributing over $13 billion to the Queensland economy and employing over 60,000 people state wide. Over 70% of agricultural produce from Australia is exported, with Australia feeding millions of people across he globe.

The QFF and our members have been strategically engaged in the discussion surrounding the policy response to climate change for many years. It is obvious that a goal for achieving greater energy efficiency is an important mitigation mechanism for any industry. No sector is as exposed to risks of an increase in climate variability as much as agriculture. Estimates by ABARE suggest that Queensland agriculture faces reductions in production due to climate change effects greater than other states. On a business as usual basis, ABARE estimates that beef production in Queensland could fall by 9.6% by 2030 and 19% by 2050, and sugar production by 12% by 2030 and 17% by 2050. These changes, which would be reflected in massive reductions in Queensland's farm exports, would contribute to a reduction in State GVP of over 8% by 2050.[1]

On-farm energy efficiency is becoming increasingly important in the context of rising energy costs and greenhouse gas (GHG) emissions. Energy inputs represent a major cost to the producer within any production system. The term "energy efficiency" refers to gaining the same, or a higher level of useful output, using fewer inputs.

In the context of an agricultural production system energy efficiency means using less energy to produce more food or fibre. Energy is a major input (10-20% of costs) and highly susceptible to cost increases as well as adding to the carbon liability of the business. There is strong interest from farmers in energy efficiency initiatives. QFF recently engaged the National Centre for Engineering in Agriculture (NCEA) to conduct a number of farm energy audits. The Centre concluded that there are substantial energy efficiency savings that could be made, and recommended the rollout of a larger program. QFF is very keen to see a program of **extension, equipment performance benchmarking and on-farm energy audits** progress. This could help substantially reduce farm costs as well as contributing to mitigation effort.

[1] ABARE Australian Commodities Dec 2007

Inquiry Terms of Reference

In the following pages QFF will respond to the Terms of Reference of the Inquiry and will outline recommendations for the Inquiry to take on board when considering the improvements the could be made in energy efficiency in the agriculture sector.

1. **The economic and environmental costs and benefits arising from energy efficiency improvements.**

Queensland's intensive agricultural sector is characterised by a high reliance on mechanisation to move water, distribute nutrients and modify the growing medium such as soil for crops and pasture, ponds for aquaculture, potting substrate for nursery production, litter for poultry, cooling products, water and air for livestock. There are opportunities to improve this operational energy usage and relative GHG emissions. For example, a preliminary assessment of pressurised irrigation systems has indicated 30 -40 % savings in energy can be achieved by improving the pump and system hydraulic performance. In many cases reduced energy costs for existing irrigation systems can be made through relatively minor adjustments such as engine rpm or drive train setup. Another direct example includes scanning heating and cooling infrastructure for heat and cold loss from facilities using thermal scanning technology, which can derive significant energy and cost savings.

The most significant economic benefit of investing in energy efficiency improvements in agriculture is the reduction of on farm energy costs particularly in the context of high energy prices. Farmers require assistance to identify alternative practices (low energy cost) or opportunities to fine tune current practices through improved energy use efficiency. The opportunity for conserving energy and costs vary between industries. However, differences within an industry can vary by a significant order of magnitude.

Although not representing the most significant proportion of the total GHG emissions from agriculture the consumption of energy from fossil fuels i.e. diesel or electricity and their associated high input costs is a driver to look for low energy input farming practices. As a result environmental benefits such as a reduction in fossil fuels leading to reduced GHG emissions will occur as result of further investment into energy efficiency improvements.

Social benefits would also arise from investment in energy efficiency improvements in agriculture which would include a better understanding and appreciation of energy use and costs on farm. This would assist farmers to choose alternative technologies of farming systems in the context of energy which hasn't been considered previously. Opportunities may also arise from developing technologies through conducting on farm energy auditing and assessment.

In summary:

- Significant but highly variable opportunities exist to improve energy efficiency in food fibre and fibre foliage agricultural production systems
- These opportunities almost always result in economic and environmental benefits
- Efficiency gains can be achieved through the investment in technology but just as likely from energy audits and manipulation of the existing farming system

2. Potential barriers and impediments to improved energy efficiency.

Some of the potential barriers and impediments to improved energy efficiency in agriculture occurring include:

- The lack of tools/services for the easy assessment of energy consumption and auditing of farming systems at the individual enterprise scale.
- Limited financial incentives farmers to invest upfront in the adoption of energy efficient methods, technology and equipment.
- Lack of financial incentives for the upfront investment in on-farm renewable energy generation. Existing residential schemes are a good comparison but they need to be scaled up for commercial applications. Some potentially useful schemes have been discontinued, and agricultural businesses seem to fall through the cracks in eligibility criteria for the remaining ones.
- A lack of commercial scale R&D into renewable energy generation options for farm businesses i.e. specific options that are suitable for particular operations and regions.
- There is no one-stop-shop for information on energy efficiency and renewable energy for agriculture (and other industries), including detailed options, cost-benefit analyses, incentive programmes, tools, suppliers etc. At the moment, the information is thinly dispersed across too many different levels of government and other organisations.
- There has been no emphasise place on the links between energy efficiency, renewables and reducing carbon footprints.

3. Potential policy options for energy efficiency improvements, with an emphasis on initiatives that are cost effective for individual producers and consumers.

With energy prices likely to stay high for the foreseeable future, Australia has no alternative but to get more serious about improving energy efficiency. Government to date have paid only lip service to this issue, with a range of small scale incentive and demonstration programs designed to encourage energy efficiency.

However, with modern technology now becoming increasingly available, it is possible for Governments with foresight to make a quantum leap in terms of promoting energy efficiency within industry. That is not to say that some measures aren't being undertaken. Rather, the measures to encourage energy efficiency are not likely to achieve the acceleration in uptake that could provide Australia with a competitive advantage in a resource hungry world.

QFF notes the positive work undertaken by the Sustainable Industries division of Department of Environment and Resource Management (DERM) in terms of assisting industry to improve energy efficiency. Existing Measures include:

- Energy Advisory Service on energy efficiency and renewable energy'
- Energy audits for business, such as the EcoBiz program;
- Queensland Sustainable Energy Innovation Fund to provide small grants for projects that promote innovation in energy efficiency and renewable energy technologies and practices.

Rural industries have previously been key partners of the Sustainable Industries division in terms of identifying opportunities for eco-efficiency. Some examples of successful projects include:

- Eco-efficiency audit of the chicken meat industry performed in conjunction with the Australian Chicken Growers Council.
- Eco-efficiency audit of the dairy industry with the Queensland Dairyfarmers Organisation.
- Eco-efficiency audit of the Rocky Point prawn farm.
- Eco-efficiency audit of the Harvest Fresh Cuts food processing industry identify.
- Development of more energy efficient condensers for sugar mills, reducing the energy needs for a mill by around 450MWh a year.

To date, the emphasis of energy efficiency programs have focused on electricity issues rather than fuel consumption. Given the increasing cost of fuel, this emphasis may need to change in the future.

Similarly, the Sustainable Energy Innovation Fund needs to be increased and provide some substantial start-up funding to get fuel efficiency programs off the ground. Primary industries, as heavy users of fuel, should be an early priority for a program to encourage fuel efficiency.

QFF recommends the Queensland Government provide additional funding to DERM and DEEDI for research and promotion into energy efficiency projects, in close partnership with industry.

4. The role of the Carbon Pollution Reduction Scheme (CPRS) and Other Commonwealth Government initiatives in encouraging energy efficiency.

QFF will comment primarily on the CPRS in this section. Primary production faces major challenges adapting to the effects of climate change. Coping with the policy effects of mitigation should not make this difficult task even harder.

The Government has indicated that agriculture will not be included in the CPRS in the first instance, but there is an intention to include it when 'practical'. This broad approach is not supported in principle by QFF. However, regardless of whether agriculture is in or out of the CPRS, farmers will be impacted by increased input costs across a range of critical resources that farmers rely upon. ABARE estimates that emissions intensive inputs make up around 39% of the costs of cropping and 17% of the costs of extensive grazing operations. Even if agriculture is excluded, it faces a cost increases from the scheme of around 3% for livestock and 4.5% for cropping. If, however, it is included, the cost increases would be 18% for livestock and 6% for crops.

Under either scenario, the costs would be significant.[2]

It is also worth noting that the most emissions intensive inputs to agriculture (fuel, chemicals and fertiliser) have risen sharply in price over the last decade and are likely to continue to do so.

The inclusion of the stationary energy and transport sectors into the CPRS will have a significant cost impact on agriculture. This will be particularly felt in the intensive agriculture sector, the majority of which is irrigated. Farms and irrigation schemes are heavy users of

[2] ABARE presentation to QFF forum 22/4/08

electricity, and a major increase in electricity costs will have significant consequences for farming, particularly for sugar and cotton. Intensive animal production systems are also heavy users of electricity for water cycling (e.g. prawn farming and aquaculture), cooling(poultry meat), milking (dairy) and greenhouses (nursery production). Energy efficiency is a key challenge for the farming sector. According to ABARE, fuel costs this year will be double what they were eight years ago, while farm revenues have risen by just a quarter.5

Energy efficiency modules have been included in industry Farm Management System (FMS) programs, but will need to be ramped up. Access to energy auditing information and advice for particular types of equipment and processes is also essential, and will need to be constantly updated.

In or out, the CPRS will significantly add to farm costs and poses a challenge to the sector to offset that impost by accelerating productivity growth. The catch 22 will be that many of the improvements that have driven much of the sector's impressive productivity improvement in the past (e.g. nitrous fertilisers, mechanisation, expanded acreage) are emissions intensive and thus costly under an emissions trading scheme.

Recommendations

An On-farm energy efficiency program for Intensive Agriculture

There is a strong interest from farmers in energy efficiency initiatives. QFF previously engaged the National Centre for Engineering and Agriculture (NCEA) to conduct a number of farm scale energy audits. The Centre concluded that there are substantial energy efficiency savings that could be made, and recommended the rollout of a larger program. QFF endorses these findings and is very keen to see a program of extension, performance benchmarking and on-farm energy audits progress. This could substantially reduce farm costs as well as contribute to the mitigation effort against Climate Change.

It is envisaged such a program would involve:

- **Standardised Energy Assessment and Reporting for** assessing direct energy inputs and costs (on farm) for different agricultural commodity groups. Based in current knowledge from recent initiatives investigating on-farm energy efficiency a generic model needs to be developed for undertaking operational energy assessments. This would deliver a Standardised Methodology for Energy Assessments

- **Case Studies Identifying Energy Improvement** to address lack of systematic research of energy use in agriculture. Previous work has identified that one of the major limitations is the heavy reliance on published data from various sources. Significant work and case studies are therefore required to establish benchmarking energy use data and to compare and evaluate energy use for alternative production systems and their impact on greenhouse gas emissions.

- **Benchmarking Energy Use Efficiency and Emissions** through a 3 year program of engagement with industries by measuring machinery performance, utilising web enabled software tools and methodologies.

- **Energy Efficiency Industry Training workshops** to assist farmers to identify alternative practices (low energy and cost) or opportunities to fine tune current practices through improved energy efficiency.

Conclusion:

Farmers rely on the utilisation of energy to produce food, fibre and foliage for consumers. Energy is a significant cost in the agricultural production system. There is significant potential to improve the efficiency of energy use on farms. Efficiency gains could be achieved through a range of methods across a continuum of investment. The starting point for any approach is in obtaining accurate usage data at the industry and enterprise scale. This data can then be applied to investment across a broad scale from optimising the existing farming system through to significant structural modification that develops and deploys alternative energy sources and green house gas mitigation technology. Specific agricultural based programs are required if the next great step in energy efficiency are to be made. Efficiency gains will have an economic benefit for the primary producer which will in turn insure a continuous supply of primary products to the consumer as well as providing for significant direct environmental outcomes.