7 February 2014

Energy White Paper Taskforce
Department of Industry GPO Box 1564
Canberra ACT 2601

BUNDABERG REGIONAL IRRIGATORS GROUP
REPRESENTING MEMBER IRRIGATORS IN THE BUNDABERG IRRIGATION AREA

ABN: 86 137 318 631
Postal Address: PO Box 953,
Bundaberg Qld 4670
07 4151 2555 P
07 4153 1986 F
BRIG@bdbcanegrowers.com.au E

Dear Sir, Madam

Re: Energy White Paper

The Bundaberg Regional Irrigators Group (BRIG) was established to represent irrigators in the Bundaberg district across a range of commodity groups including sugar cane, grain and horticulture.

We welcome the opportunity to contribute to *The Energy White Paper* which has amongst the stated aims "*... setting out a coherent and integrated approach to energy policy to boost domestic market competition and productivity, maintain international competitiveness and grow our export base.* "

We wish to remain involved with the process into the future.

BRIG members farm on approximately 36,000 Ha and use an estimated 1,100 irrigation pumps and associated distribution systems to irrigate a variety of crops in the Bundaberg Regional Council area. A significant percentage of these systems (circa 90%) are powered by electricity.

Our submission is based entirely on electricity as it relates to irrigation. Specifically our comments are focused on

- Policy and regulatory reform to secure reliable, competitively and transparently priced energy for a growing population and productive economy, including the efficiency and effectiveness of regulatory bodies;
- The appropriate role for government in the energy sector;
- Opportunities to drive the more productive and efficient use of energy; and Energy related distribution infrastructure

Please call should you require further information or clarification.

Dale Holliss
Company Secretary

OUTLOOK AND SITUATION ANALYSIS

The food and fibre products that our members produce are export dominated and it is impossible to pass significant price increases to the end consumer.

In terms of gross value added, employment and business numbers, the Bundaberg region has a much greater reliance on agriculture (approx 13%) than Queensland as a whole (approx 3.4%).

This reliance on agribusiness means that any negative impact on our farmers' ability to generate and market the crops and products that they produce has a much greater impact on our community than in other areas.

Electricity is a significant cost to irrigators. This cost can be amplified depending on the actual farm location and source of irrigation water in terms of the amount of head that water is required to be pumped and the volume of water required.

We have listed the types of irrigation used by our members and what determines their choice of tariff in Annex 1.

In the past a number of our members have worked closely with ERGON Energy representatives and irrigation equipment providers to have their pumping system designed and matched to the most suitable, sustainable and efficient tariff available and up until 2012/13 ERGON Tariffs 62, 65 and 66 have been the mainstay of the irrigated farming sector.

Our farms have been designed to operate on the pre N + R tariff build up system commenced in 2012/13 where there was a significant off peak/ peak differential.

This differential no longer exists and will result in some perverse outcomes if it is not rectified.

POLICY AND REGULATORY REFORM TO SECURE RELIABLE, COMPETITIVELY AND TRANSPARENTLY PRICED ENERGY

Both the Federal and State Governments recognise the value that farming has in underpinning much of the regions wealth and also identify agriculture as one of the pillars of the Australian economy.

The current tariff price determination process is very complex, opaque and from an irrigator's perspective illogical, with various state and federal agencies and departments having a range of roles and impacts.

As identified in the case study (annex 2) without access to specific irrigation tariffs our members are faced with the choice of finding viable energy alternatives or not using irrigation.

Both of these actions make the risk of significant asset stranding and reduction in both domestic and export earnings very real.

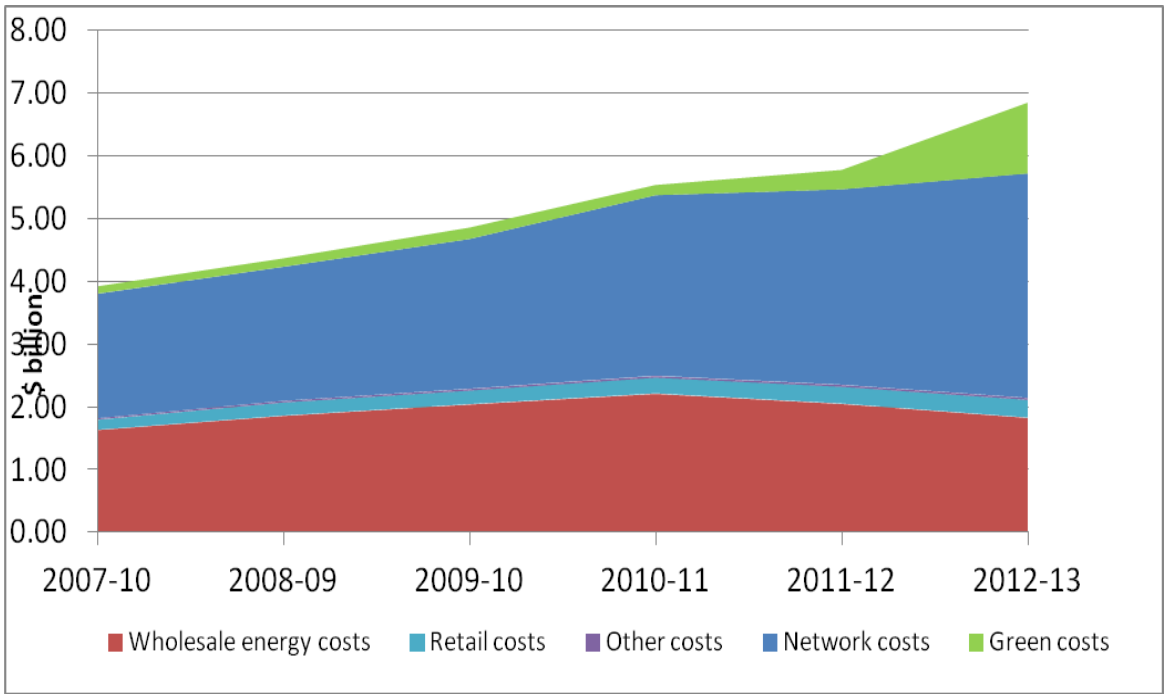
BRIG is of the view that a suite of network specific tariffs designed for the production of Food and Fibre will be imperative and that this is best achieved by not charging the network component to this sector.

Specifically we are suggesting a suite of **volume** based Food and Fibre tariffs. For irrigated agriculture, it is important that electricity tariffs reflect irrigation demands on the network in terms of base load and off-peak use and including worthwhile time-of-use incentives for irrigation during off-peak periods and over the weekend.

- Base Load Irrigation Tariffs – include an N-Component that excludes costs associated with rapidly rising cost structures that are not associated with delivery of electricity to irrigators, estimated to be 20% to 50% of N.
- Off-Peak Irrigation Tariffs – would provide a worthwhile incentive for off-peak use by further reducing the N-component (set N to zero) to encourage use in low network usage periods.
- Weekend Irrigation Tariffs – would be set at an equivalent to Off-Peak Irrigation Tariffs to encourage weekend use.

The graph below lists the components that make up electricity charges.

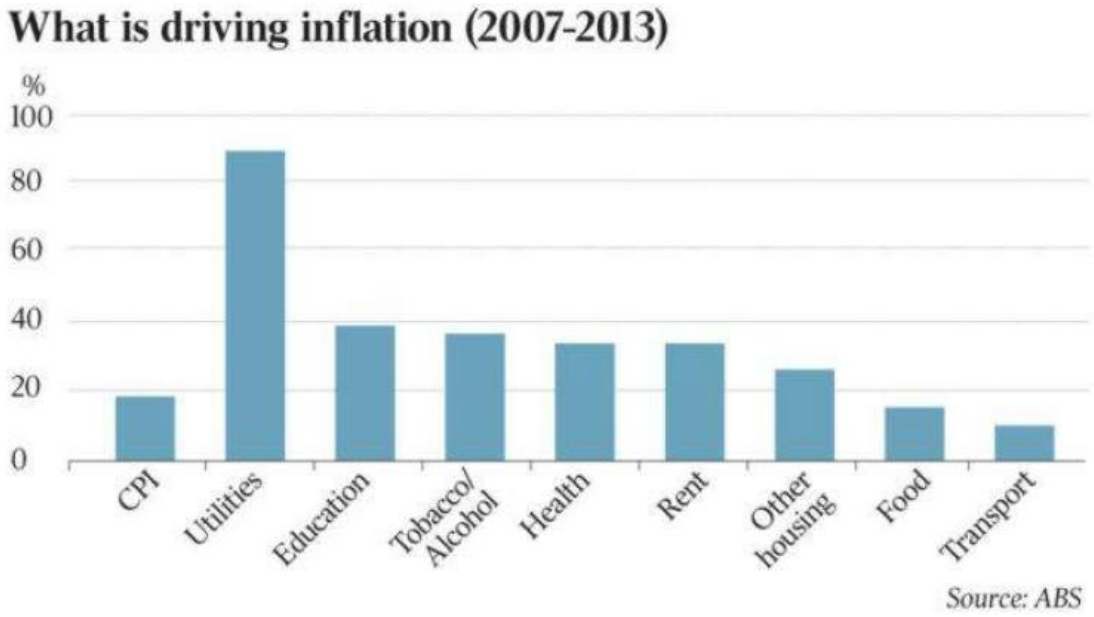
This shows that in 2012/13, the network charges (N) accounts for around 54% of the total charge and the retail charges (R) account 46% of the determined price. The R component can be further broken down to show that 26% is actual energy costs and a significant 20% is due to environmental costs. Half of the environmental cost is due to the carbon tax and the other half is the cost of green initiatives such as the Renewable Energy Target and the photovoltaic subsidy schemes.



Repeal of the RET and the Carbon Tax will alleviate on farm costs by 20% almost immediately.

The federal government's Australian Energy Regulator (AER) regulates electricity networks. In the past six (6) years we have seen irrigation electricity prices escalate far in excess of CPI and we are now paying almost 90% more than we were in 2009 for exactly the same service and product. The principal driver of this is a regulatory pricing framework that pushes all of the financial risks associated with poor investment decisions on electricity users, not the owners of the assets. This engineering approach to

price setting takes little account of the impact of price decisions on users and on the long term economic viability of the network.



The AER process provides a guaranteed return on ERGONS assets and investments and this in turn has guaranteed revenues to the Queensland State Government. The current regulatory pricing framework provides a guaranteed return on investment and encourages over-investment in network assets.

Network demand is declining in a growing economy, and further price increases will reduce, rather than enhance, network revenue.

The Federal Government has the ability to ensure that overinvestment (Gold Plating) by State owned electricity providers is discontinued. A more challenging need is to revalue the regulated asset base to remove the impact of over investment from the underlying cost base.

As noted the current regulated price framework places the risk of network investment decision on users, not the asset owners. In this pricing environment, BRIG suggests that the maximum allowable return (WACC) on electricity assets be capped at the risk free rate of return. The ten year government bond rate is presently 4.1%.

OPPORTUNITIES TO DRIVE THE MORE PRODUCTIVE AND EFFICIENT USE OF ENERGY

BRIG suggests that there is an opportunity for the Federal Government to assist irrigators to identify and eliminate irrigation energy use inefficiencies.

This opportunity is to provide irrigation system audits to identify pump and distribution system inefficiencies and assist with planning and implementation of system upgrades.

Pump and electric motor technology has improved markedly since the initial installation of irrigation systems at Bundaberg and options to improve energy use efficiency are now available. Where pumps and motors were installed in the 1970's and not updated, replacement may be the appropriate option, however, other options that could be considered include VSD (Variable Speed Drives) where it can be shown that there is a potential to improve the energy use – productivity relationship.

The program could focus on increasing efficiency in the use of energy (electricity)) to improve the productivity, profitability and sustainability of irrigated farming practice by providing Consultancy support

A) A system audit to measure energy efficiency related to pumping and distribution systems;
B) Options for farm irrigation system replacement and/or upgrades:

Electricity tariff options for irrigation systems at Bundaberg 2013/2014

The following evaluation lists the types of irrigation used by our members and what determines their choice of tariff using **current** options and prices.

Estimates of energy usage are based on average annual irrigation usage days each year and operating hours per day for each system is used. Area irrigated by each system is not included as operational constraints and efficiency of systems determine the area of crops irrigated per system each year.

FURROW

Constraints

High labor input – best operated in daylight or early evening hours.

If used over night timely shutdown of water flow may not occur so furrow systems are often linked to a tail water dam to ensure that runoff water is retained on farm. The

downside to this activity is the extra cost incurred with the double pumping required to recycle the runoff water back to the cane fields.

Scenario used to assess tariff options

Irrigation period (1 Oct – 30 April) 212 days, Usage average 60% = 130 days @ 15 hrs/day

Pump 35 kW run efficiency 90% = hourly use 30kWh

Use time - peak

Annual use = 58mWh

Best Tariff calculated

2013/14 Cost	↓↓↓
T20	$ 13,941.53
T21	$ 20,948.78
T22	$ 15,262.77
T44	N/A
T62	$ 19,338.07
T65	$ 16,796.95
T66	$ 12,236.49

WINCH

Constraints

Wind impacts highly on efficiency, best operated in overnight hours.

Scenario used to assess tariff options

Irrigation period (1 Oct – 30 April) 212 days, Usage average 60% = 130 days @ 13 hrs/day

Pump 50 kW run efficiency 90% = hourly use 45kWh

Use time – 4 hrs peak – 9 hrs off peak

Annual use:

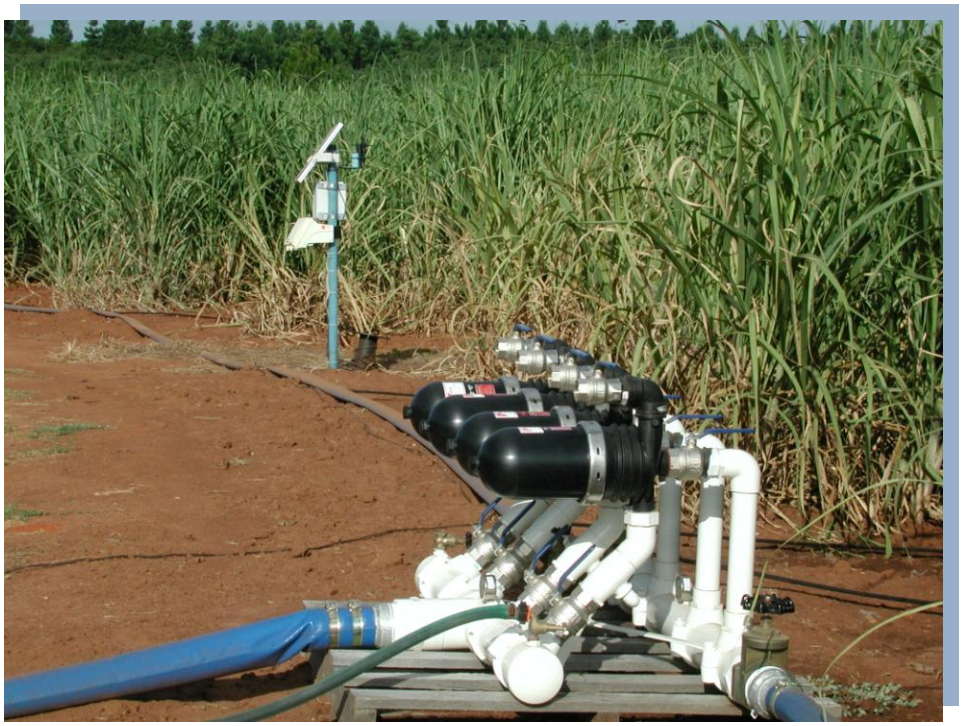
- peak = 23mWh
- off peak = 53mWh

Best Tariff calculated

2013/14 Cost	**↓↓↓**
T20	**$ 18,120.77**
T21	**$ 27,378.20**
T22	**$ 16,233.21**
T44	**N/A**
T62	**$ 14,725.24**
T65	**$ 15,137.21**
T66	**$ 16,380.30**

LATERAL MOVE, CENTRE PIVOT AND DRIP TAPE

DRIP TAPE PLACED ON THE SURFACE BETWEEN CANE ROWS



Constraints

Continuous operation required – best operated 24 hours/day

Scenario used to assess tariff options

Irrigation period (1 Oct – 30 April) 212 days, Usage average 60% = 130 days @ 24 hrs/day

Pump 35 kW run efficiency 90% = hourly use 30kWh

Use time – 15 hrs peak – 9 hrs off peak

Annual use:

- peak = 58mWh
- off peak = 35mWh

Best Tariff calculated

2013/14 Cost	↓↓↓
T20	$ 22,067.83
T21	$ 33,450.43
T22	$ 21,796.57
T44	N/A
T62	$ 23,772.22
T65	$ 22,306.65
T66	$ 17,746.19

ANNEX 2

1. AFFORDABILITY RELATED ISSUES WITH RESPECT TO NETWORK TARIFFS

The network component of our electricity accounts is circa 54% and is unsustainable given currently available tariff options and pricing.

The following case study outlines the affordability related issues faced:

THE NEGATIVE EFFECTS OF ELECTRICITY COST INCREASES ON SUGAR CANE PRODUCTION IN THE BUNDABERG MILL AREA

Rapidly increasing costs of irrigation, mainly energy used on-farm and by the SunWater channel system, will lower farm marginal returns and lead to a reduction in water use by Bundaberg sugarcane growers. This potential loss of production is of serious concern as a 5 to 10% loss of production will increase the possibility of further sugar mill closure/s in the Bundaberg region and loss of jobs throughout the growing, harvesting, transport, milling and associated service sectors of the industry.

Bundaberg has arguably one of the most variable climates on the planet (Professor Rodger Stone, USQ) with rainfall varying from well below to well above the annual crop requirement year on year. In these circumstances, continued rapid rises in energy costs to essential inputs (irrigation) in agricultural industries will jeopardise the future viability of decades of community and private infrastructure development.

Tariff 62 is a common irrigation energy plan for the 60% of sugarcane irrigation users at Bundaberg with big gun travelling irrigators. Based on night off-peak use (65%) and day use (35%) the energy component in on farm irrigation costs has risen by 62% from 2008 to 2012 (4 years).

Energy used for pumping is also a major part of SunWater operational costs and water charges will be similarly impacted.

From 2006-07 to 2011-12 the average annual energy component of SunWater's total operating cost for the Bundaberg Irrigation Distribution System was 28.49% (QCA SunWater Irrigation price Review 2012-17). It is true that there were water availability and seasonal issues that impacted on the quantity of water used over this period, however, the same report indicates and expectation that from 2012-13 to 2016-17 the average energy cost will increase to 39.71% of the total annual operating cost.
Cost increases of this magnitude will have a significant impact of future sugar industry gross margins and threaten the longer term future of agriculture in the Bundaberg region.

Historically, enterprises reduce and even cease commercial sugarcane operations when commodity prices and/or input costs impact adversely on economic viability. This is an outcome that the Bundaberg sugar industry cannot afford.

VALUE OF IRRIGATION

The value of irrigation to the Bundaberg region was realised in the 1960's when industry lobbied State and Federal Governments for an irrigation scheme to drought proof the region.

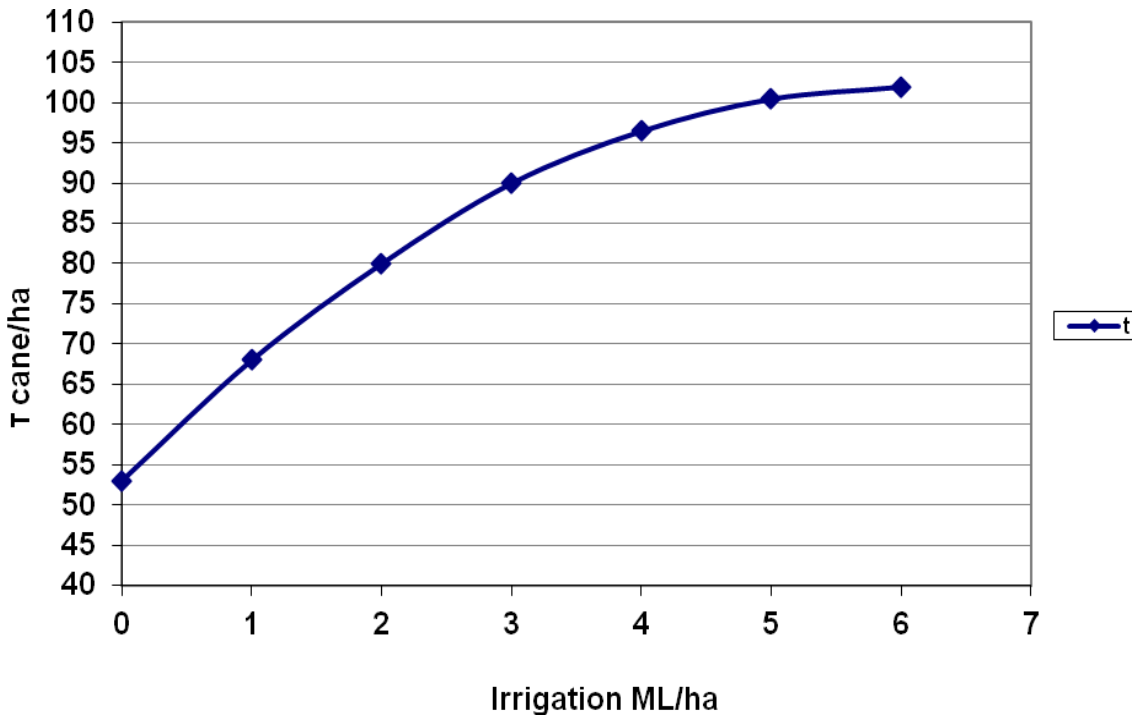
The Bundaberg surface water irrigation scheme commenced in the 1970's and the immediate effect was a progressive increase in the area of land under production. This has supported the economy of the region for many decades.

Figure 1 shows that on average Bundaberg sugarcane crops produce an uneconomic 53 tonnes cane per hectare (TCHA) if no irrigation is applied. This increases by about 15 tonnes TCHA for the first megalitre per hectare (ML/Ha) of irrigation applied, 12 TCHA for the next ML/Ha and 10 TCHA for the third ML/Ha. Average sugarcane yield at Bundaberg since the inception of full irrigation is between 80 to 90 TCHA which equates to an average irrigation water use of about 3ML/Ha.

Figure 1 also clearly shows that on average the application of one ML/Ha of extra water (3 - 4 ML/Ha) produces an extra 6 TCHA while moving from 4 to 5 ML/Ha only generates an extra 4 TCHA of cane. The use of one extra ML/Ha (3-4 ML/Ha) raises productivity and profitability but escalating input costs are likely to limit water use at the higher end of the production curve thus restricting and/or lowering industry profitability.

The production curve shown *in Figure 1* is based on indicative information formulated from more than 10 years of actual district irrigation water use and yield data.

Figure1: Impact of Irrigation on Sugar Cane Yield in the Bundaberg Mill Area



ENERGY USE PER ML OF IRRIGATION APPLIED

The impact of increased electricity cost is felt most severely by irrigators operating big gun travelling irrigators. Approximately 60% of the most productive sugarcane enterprises in Bundaberg operate these systems. Low pressure systems do offer a lower operating cost alternative but the size and layout of many landholdings in conjunction with district topography and conversion cost inhibits the uptake of this equipment. The average cost of energy to pump a megalitre (ML) of water is shown in Tables No 1 and 2 below. Data collected during government funded water use efficiency projects and recent irrigation pump performance audits are compared to past, current and potential future electricity tariffs.

Table 1: Travelling irrigator electricity cost per megalitre (ML) based on tariff 62 - 65% night off-peak and 35% day use

Pump	Motor capacity	Energy Use	2008-09	2012-13	Draft 2013-14	Assumed 2014-15	Assumed 2015-16
	kW	kWh/Ml	@12.83 c/kWh	@20.77 c/kWh	@24.41 c/kWh	@28.67 c/kWh	@33.69 c/kWh
1	37	273	$35.01	$56.71	$66.64	$78.29	$92.00
2	37	333	$42.71	$69.18	$81.28	$95.50	$112.22
3	45	360	$46.17	$74.79	$87.87	$103.24	$121.32
4	45	390	$50.02	$81.02	$95.20	$111.84	$131.43
5	45	255	$32.70	$52.97	$62.24	$73.13	$85.93

6	35	369	$47.32	$76.66	$90.07	$105.82	$124.35
7	30	197	$25.27	$40.92	$48.09	$56.50	$66.39
8	22	224	$28.73	$46.53	$54.68	$64.24	$75.49
9	32	346	$44.37	$71.88	$84.46	$99.23	$116.60
10	45	402	$51.56	$83.51	$98.12	$115.29	$135.47
Average	**37**	**315**	**$40.39**	**$65.42**	**$76.86**	**$90.31**	**$106.12**

Table 2: Low pressure centre pivot irrigator electricity cost per megalitre (ML) based on tariff 62 - 65% night off-peak and 35% day use

Pump	Motor capacity	Energy Use	2008-09	2012-13	Draft 2013-14	Assumed 2014-15	Assumed 2015-16
	kW	kWh/Ml	@12.83 c/kWh	@20.77 c/kWh	@24.41 c/kWh	@28.67 c/kWh	@33.69 c/kWh
1	18	102.51	$13.15	$21.29	$25.02	$29.39	$34.54
2	22	233.69	$29.98	$48.54	$57.04	$67.00	$78.73
3	22	204.83	$26.28	$42.54	$50.00	$58.72	$69.01
4	30	196.67	$25.23	$40.85	$48.01	$56.39	$66.26
5	55	221	$28.35	$45.90	$53.95	$63.36	$74.45
Average	**29.4**	**191.74**	**$24.60**	**$39.82**	**$46.80**	**$54.97**	**$64.60**

A MORE DETAILED EXPLANATION

A more detailed explanation of the calculations used to generate Tables 1 and 2 follows.

This review of electricity price impact is based on the indicative information formulated from more than 10 years of Bundaberg district actual irrigation water use and yield data, Queensland Government Rural Water Use Efficiency project data and recent irrigation pump performance audits.

Energy cost applied is based on: ERGON Tariff 62 - actual rate - 2008/09: ERGON Tariff 62 - actual rate - 2012/13; ERGON Tariff 62 - proposed transition period draft rate - 2013/14; and ERGON Tariff 62 - proposed transition period potential rate increase - 2014/15 and 2015/16.

On farm energy cost is an average cost per kWh based on a travelling gun scenario operating 65% of time between 9 pm and 7 am (night time off-peak) and 35% of time between 7 am and 9 pm (day time peak)

- 2008-09 – average use @ 12.83c/kWh: plus service charges of $ 130.56 per metering point per annum (Tariff 62)
- 2012-2013 – average use @ 20.77c/kWh: plus service charges of $ 200.50 per metering point per annum. (Tariff 62 obsolescent)
- 2013-2014 – average use proposed rate @ 24.41c/kWh: plus service charges of $ 235.57 per metering point per annum

- 2014-2015 - assumed average use increase (2013-14 + 17.5%) @ 28.67c/kWh: plus service charges of $ 276.79 per metering point per annum
- 2015-2016 - assumed average use increase (2014-15 + 17.5%) @ 33.69/kWh: plus service charges of $ 325.23 per metering point per annum

Gross margin analysis utilises a constant cane price based on estimated 2012 season harvest pool value of $450 at 14.5 CCS. Water use charge is based on actual and recommended charges and energy component of SunWater operational cost as outlined in the *Final Report, SunWater, Irrigation Price Review: 2012-17, Volume 2, Bundaberg Distribution System, April 2012 (QCA)*

SUNWATER PRICE IMPACT

Electricity cost not only directly impacts on the viability on farm irrigation pumping systems but also the cost of the farm irrigation water supply.

The extent that electricity impacts on the cost per hectare of irrigation water from SunWater is illustrated by the SunWater forecast electricity cost for 2011 -12 which was $29.12/Ml (page 99 of the QCA Irrigation Price Review: 2012-17). Total channel water charges for 2011-12 calculated on the basis of access and usage cost per hectare including fixed charges (Part A & C) $ 46.40/Ml and usage charges (Part B & D) $ 31.72/Ml were $78.12/Ml. This indicates that the forecast electricity component of the 2011-12 channel water charge was 37.27% of the total $/Ml cost to farm. It is shown in Table 3 that the recommended (A & C + B & D) 2012-13 bundled charge is 49.2% higher than the comparable charge in 2006-7 and the proposed price path increases the bundled charge by a further 19.1%.

When data presented in the QCA final report Irrigation Water Price Review 2012-17 is analysed it indicates that the average electricity component of total SunWater operating costs from 2006-07 to 2011-12 was 28.49% and average electricity cost as a component of the recommended price path (2012-13 to 2016-17) is 39.71%.

Table 3: Actual and recommended water price (QCA report)

	Actual prices $/ML						Recommended prices $/ML				
	2006-7	2007-8	2008-9	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
(Part A)	34.4	36.96	40.32	41.6	42.88	46.4	37.3	40.29	43.39	46.63	48.87
(Part B)	24.57	26.4	28.81	29.72	30.62	31.72	50.68	51.95	53.25	54.58	55.94
	58.97	63.36	69.13	71.32	73.5	78.12	87.98	92.24	96.64	101.21	104.81

It is shown in Table 4 that the direct cost in $/Ml of irrigation water applied arising from the electricity contribution to total operating costs of the Bundaberg Irrigation Distribution Scheme is a substantial constraint to the productivity and profitability of the Bundaberg sugar industry.

Table 4: Electricity component of SunWater bundled price ($/ML)

2006-07 to 2011-12 Actual prices $/ML	2012-13 to 2016-17 Recommended prices $/ML
Average cost = $69.07	Average cost = $96.57
Electricity % of operational cost = 28.49%	Electricity % of operational cost = 39.71%
Average electricity cost $/ML=$19.67	Average electricity cost $/ML=$38.34

IMPACT ON GROSS MARGIN

Since 2008-9 Bundaberg cane farmers have had their potential gross margins eroded by up to 20% as a direct result of energy driven pricing. Current proposals have the potential to further reduce their disposable income by an additional 12% over the next three years.

The following detailed marginal analysis reviewed five scenarios based on Bundaberg sugarcane farming practice. Variable cost including harvesting, planting, fertiliser and chemicals were based on 2012 expenditure values and remained constant for each scenario.

Variable irrigation costs ($/Ml) included the following:

- Specific yearly access and usage charge for the channel water supply;
- Electricity used for pumping based on average district audit data;
- Labour and infrastructure maintenance $/Ml of water pumped.

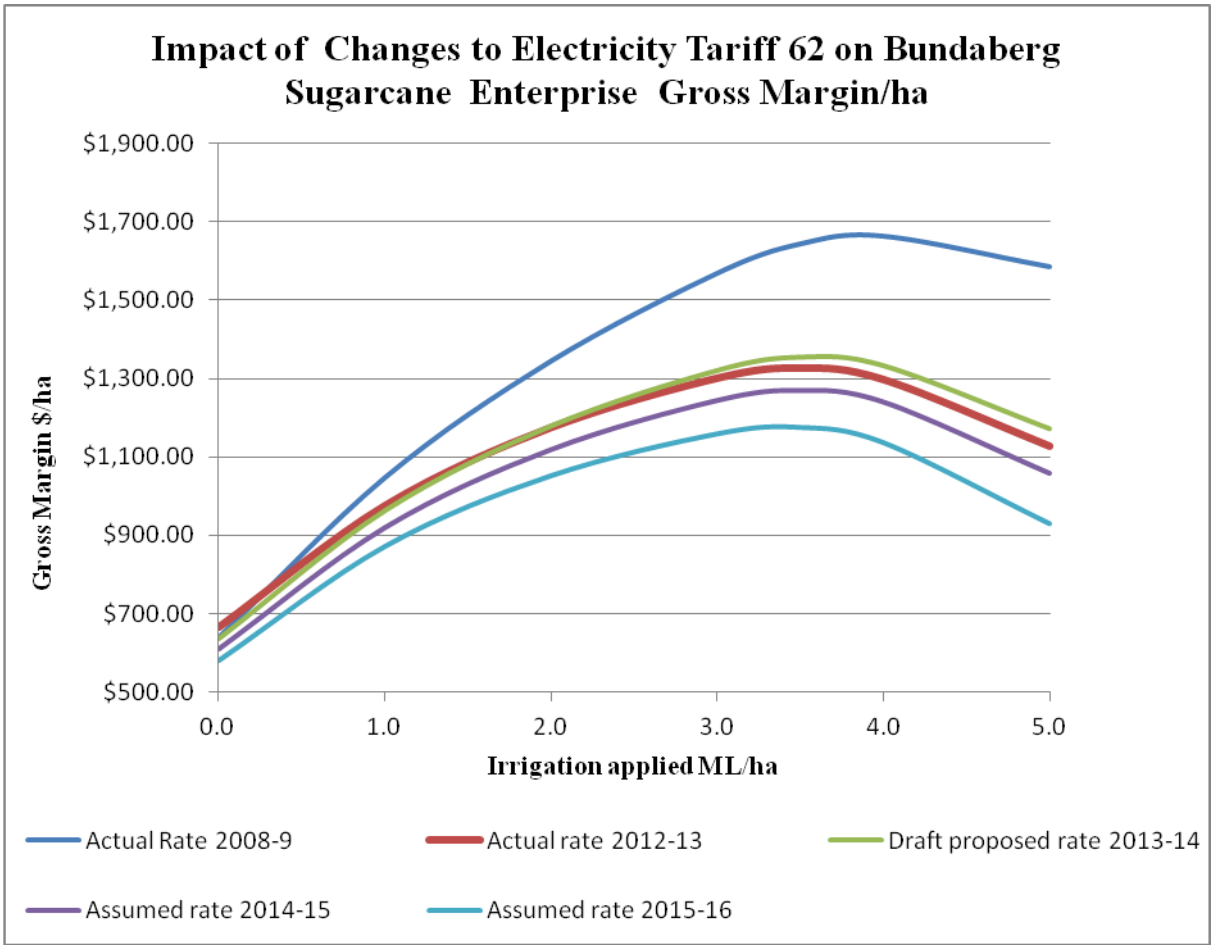
Water pricing and pumping costs for each period were taken from data already shown in this paper (QCA report in to water pricing and pumping cost from on farm system audits)

The gross margin analysis shown in Table 5 and Figure 2 illustrates the dramatic impact that the recent and proposed energy dominated price path is imposing on the Australian Sugar Industry.

Table 5: Detailed analysis of potential Bundaberg cane farm gross margin ($/ha) based on actual and assumed electricity tariff rates

Irrigation Ml/ha	Actual Tariff 2008-9	Actual Tariff 2012-13	Draft Tariff 2013-14	Assumed Increased tariff 2014-15	Assumed Increased Tariff 2015-16
0.0	$637.82	$664.70	$637.30	$610.20	$580.70
1.0	$1,046.31	$974.96	$963.04	$919.89	$871.92
2.0	$1,344.10	$1,174.52	$1,178.08	$1,118.88	$1,052.44
3.0	$1,568.09	$1,300.28	$1,319.32	$1,244.07	$1,159.16
3.5	$1,643.19	$1,326.26	$1,353.04	$1,269.77	$1,175.62
4.0	$1,662.93	$1,296.89	$1,331.41	$1,240.11	$1,136.73
5.0	$1,584.90	$1,126.95	$1,171.15	$1,058.40	$930.05

Figure 5 Impact of electricity tariff on Bundaberg sugar industry gross margin


Impact of Changes to Electricity Tariff 62 on Bundaberg Sugarcane Enterprise Gross Margin/ha
$1,900.00
$1,700.00
$1,500.00
$1,300.00
$1,100.00
$900.00
$700.00
$500.00
Gross Margin $/ha
0.0
1.0
2.0
3.0
4.0
5.0
Irrigation applied ML/ha
Actual Rate 2008-9
Actual rate 2012-13
Draft proposed rate 2013-14
Assumed rate 2014-15
Assumed rate 2015-16