



# **Submission to the Queensland Department of Energy and Water Supply**

## ***The 30-year electricity strategy***

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## **Cotton Australia**

Cotton Australia is the key representative body for the Australian cotton growing industry. It helps the industry to work together to be world competitive and sustainable, and also tell the good news about the industry's achievements. Cotton Australia determines and drives the industry's strategic direction, retaining its strong focus on R&D, promoting the value of the industry, reporting on its environmental credibility, and implementing policy objectives in consultation with its stakeholders.

Cotton Australia works to ensure an environment conducive to efficient and sustainable cotton production. It has a key role in Best Management Practices (myBMP), an environmental management program for growers. This work has seen a significant improvement in the environmental performance of the industry, with huge improvements in water use efficiency, significant reductions in pesticide use, and millions of dollars invested into R&D.

The Australian cotton industry directly employs thousands of Australian's and this year will contribute over \$1 billion to the Queensland economy.

Cotton Australia welcomes the opportunity to provide this submission to the Queensland Government's *30-year electricity strategy Discussion Paper*.

Cotton Australia is a member of the Queensland Farmers Federation (QFF), and the Energy Users Association of Australia (EUAA).

Cotton Australia is aware that QFF and the EUAA have also prepared submissions, and Cotton Australia endorses those submissions, however should there be any divergence in the views expressed by these two other organisations then Cotton Australia's position is the one outlined in this paper.

For further information on this submission please contact Cotton Australia's Queensland Policy Manager Michael Murray – 0427 707 868 or [michaelm@cotton.org.au](mailto:michaelm@cotton.org.au) .



## General Comments

Cotton Australia recognises that the way electricity is produced, delivered and consumed in the 21<sup>st</sup> Century will be fundamentally different to how it was in the 20<sup>th</sup> Century.

Where in the 20<sup>th</sup> Century the goal was to connect virtually all consumers to an integrated network, the reality of the 21<sup>st</sup> Century will be that many consumers will either be entirely “off-the-grid” or far less dependent on the Grid.

This means that in providing electricity and other energy services to consumers, the suppliers and deliverers (be they private or government) will have to be much more flexible in their service models.

The rapid rise in electricity prices over the past decade, and the explosion in “renewable” energy options are already leading to more innovative thinking.

Currently Cotton Australia in conjunction with QFF, Ergon and Lower Balonne irrigators are looking at innovative ways to meet peak load demands in the St George/Dirranbandi region, without the need to duplicate the Roma-St George transmission line. This may lead to the strategic placement of diesel generators to meet peak demand periods.

This represents just one example of how moving away from a complete reliance on the old generator/transmission/distribution model could provide a more efficient, cost effective service.

Currently the Queensland cotton industry faces the following key challenges in relation to electricity provision and consumption:

- The move to Queensland Competition Authority (QCA) Cost Reflective Tariffs, with emphasis on demand based tariffs, will see grid electricity become a completely uneconomic option for river “Flood Harvesters”. While the unit cost of energy may be competitive, the demand based network charges, are completely uncompetitive given the unpredictable, highly episodic use predicated on river flows and licence conditions.

Continued movement to these cost reflective tariffs will result in flood harvesters abandoning grid electricity in favour of independent energy. This will increase a n electricity price “death spiral” where has people abandon the grid, the price escalates further for remaining users, encouraging more to abandon the “grid”.

The solution is the introduction of “Food & Fibre Tariffs”, that remain primarily based on energy consumption, rather that fixed charges.



- Uncertainty around tariffs – When irrigators invest in irrigation technology, they are typically making an investment for approximately 30-years. Just as the Queensland Government wishes to plan to that timetable, irrigators seek certainty that the fundamentals of their investment decision will not change during the investment period. For example, irrigators who 10 years ago invested in electric pumps stations, on the basis that they could utilise tariffs such as 62, are now being transitioned towards Tariffs like 44, and this fundamentally changes the basis of the investment decision.
- To some extent irrigators have the capacity to help manage peak demand by installing and utilising infrastructure that allows for irrigators to target off-peak irrigation, but to make this worthwhile off-peak tariffs have to be attractive compared to peak-tariffs or non-differentiating tariffs.

Other key issues that must be addressed in the 30-Year Strategy include:

- Continuing the core principle of the Uniform Tariff Strategy – electricity consumers should not be disadvantaged price wise just because they do not live in South-East Queensland. However, that is not to say they all consumers should have their electricity delivered in an identical manner no matter where they live. The Government and electricity providers must be encouraged to deliver electricity in innovative, and the most cost-effective, manner.
- Consumers exiting the grid (either partially or fully) should not increase the cost burden on those remaining. The Government should look at the appropriateness of some form of exit fee to apply when there is total disconnection, and those who remain on grid to supplement their electricity requirement, or who may feed back into the grid, must make appropriate contribution to the network cost. Without this issue being address the network cost “death spiral” will accelerate.
- Much has been made of the cost of maintaining a network to meet brief periods of peak demand, and to meet very high reliability standards. Government and suppliers must be able to clearly identify the cost of peak demand, and reliability standards, and provide consumers with a clear pricing choice. For example, if a consumer knew that the cost of ensuring they only suffered six hours of black-outs on average per year as opposed to 48 hours, was equivalent to 25% of their annual bill, they would be likely to accept lower standards. But without clear price signals and choices, they will always be demanding a very high standard of service.
- While there are good argument not to force a roll-out of “smart metering”, consumers should be offered products that would make the adoption of “smart metering” and the consequential options for demand management much more attractive.



- While Cotton Australia does not support a “domestic gas reserve” all efforts should be made to ensure the State’s gas infrastructure is capable of servicing both domestic and export demand.
- Immediate steps should be put in place to ensure electricity infrastructure operators are not rewarded for poor investments. A return should only be allowed on infrastructure that is fully utilised.
- The provision of government incentives for alternative energy sources should be very carefully thought through prior to adoption and implementation. The various alternative energy incentives that have been made available over the past decade, while undoubtedly stimulating investment in these technologies has had very significant third party impacts, and have contributed significantly to the electricity pricing “death spiral”. The cost of such schemes should not be borne by other energy consumers.
- While Cotton Australia has no strong views on whether government should or should not own electricity assets, it is of the view that any disinvestment should not be at the cost of the principles around maintaining a Uniform Tariff Policy.
- Any significant variation in electricity cost between south-east Queensland and the balance of the State will drive investment away from regional Queensland to South-East Queensland. This would be an unacceptable outcome.
- Cotton Australia would welcome the opportunity to be part of any consumer advocacy panel established in Queensland, and indeed any other opportunity to have input into the development of Queensland electricity policy.



## Cotton Industry Case Studies

*The following provides additional information on the importance of electricity to the Queensland Cotton Industry, and the key issues that impact on it.*

The Queensland cotton industry is a large user of electricity, both for irrigation and ginning, and therefore it is essential that the industry has access to cost effective tariffs, that are customised to meet the demands and usage patterns of the industry.

Massive price increases over the past decade, and the move to “demand charge” tariffs has raised electricity pricing and tariff structure to a “high priority” issue for the irrigators.

**Section 1** will highlight section highlights the impact of massive increases in electricity price increases over the past decade on cotton grower costs, and contrasts those increases with the almost “flatline” cotton price.

**Section 2** describe a number of typical user patterns for the Queensland cotton industry.

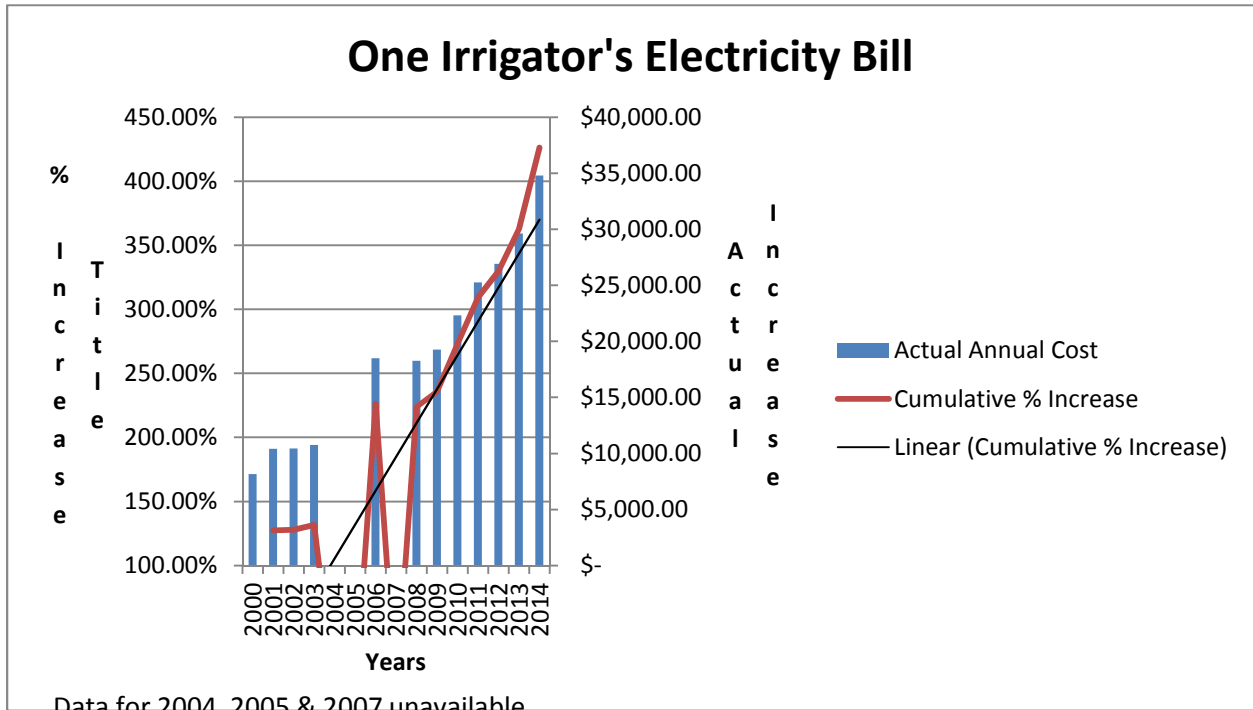
**Section 3** is a case study on the industry at St George, which highlights how any significant move towards “demand charge” based tariffs, will result in the use of electricity by those irrigators being completely uneconomic, forcing them to turn to other energy supplies, effectively “stranding” network assets, and in turn increasing costs for all other users.

### Section 1

For the cotton industry we have seen power bills increased in the order of 350% since 2000. **Graph 1** illustrates the effect of electricity price on one grower in the Emerald district. It should be noted that this graph reflects cost of a particular quarter’s bill in 2000, extrapolated using the Tariff prices for the particular year, multiplied by the usage experienced in that quarter in 2000.

Further examples of price impacts are included in the St George Case Study in **Section 3**.

**Graph 1**



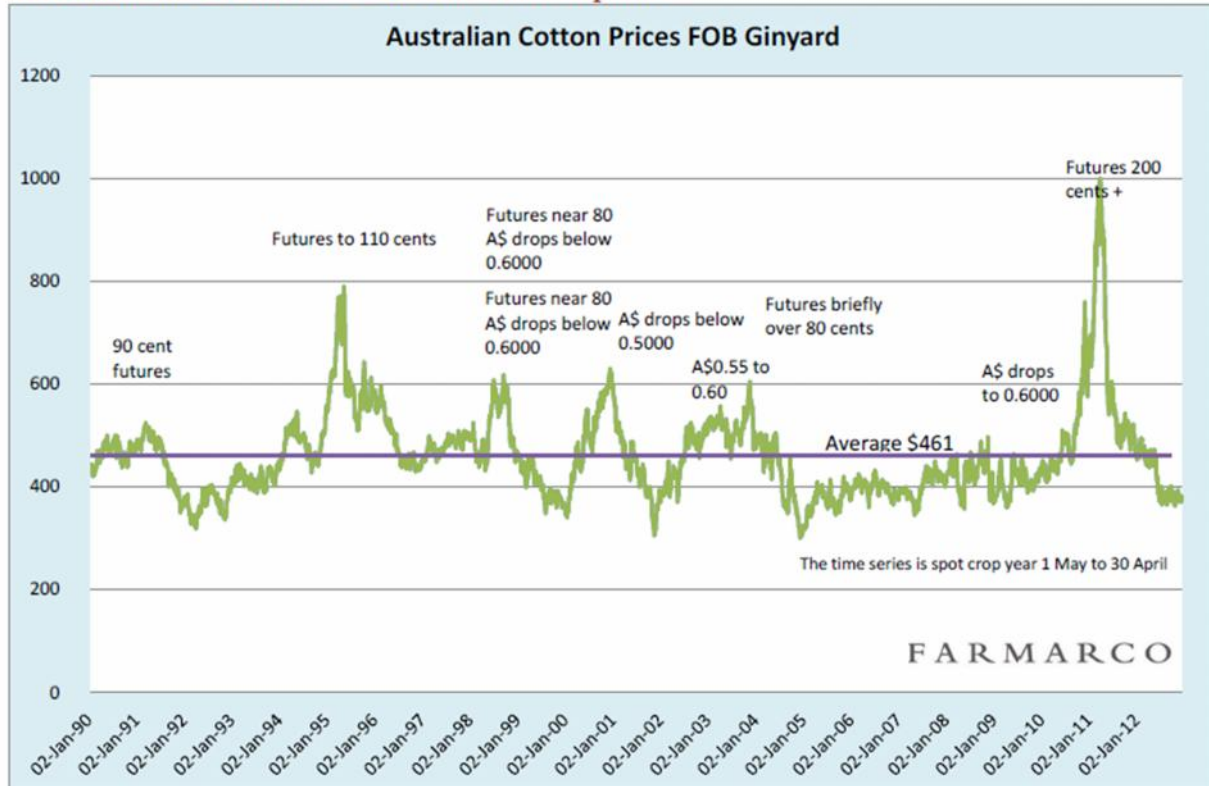
**Graph 2** shows the average price of cotton per bales since 1990, and clearly demonstrates that apart from a couple of significant spikes, cotton values have held within a very narrow band, and there has only been a very slight upward trend in the price.

It will be impossible for the cotton industry to continue to electricity price increases at rates that both far exceed inflation and increase in product price.

Cotton producers will have little choice but to either cease production or source cheaper forms of energy, which will only exacerbate the problem for remaining electricity users as costs will have to be recovered from fewer users.

**Graph 2**

**Australian Cash Cotton Prices – Historical for Perspective**



**Section 2**

Broadly speaking, cotton grower irrigation electricity-use profiles fall into three categories and the new tariffs structures will impact on these categories differently. In addition the cotton gins have their own distinctive usage pattern.

**Large Users:** Typically, these are larger users with a high reliance on supplemented, unsupplemented and overland flows. When water is available in the river at levels that satisfy their licence requirements, they activate their pumps, and will pump 24hrs a day, seven days per week while the water is available.

However, the reality is that months, and sometimes years, may pass with no pumping, and when pumping is activated it may be for as little as day, could extend to several days or even weeks, but would very rarely extend to a month of continuous pumping.





Typically they use large capacity pumps, which do have relatively high electricity requirements.

Their usage profile can be summarised as relatively high demand requirement, highly climate dependant, and episodic usage. The St George Case Study in Section 3 covers Large Users.

**24hr Users:** Typically these are users with smaller water licences than the larger users described above, who use electricity not only to draw water from their primary source be it river, bore or overland flow, but may also use electricity to power irrigation systems such as drip irrigation, centre pivot irrigators or recycling pumps.

When they pump, they tend to pump for 24hr periods, and their usage is a little more predictable than the large users describe above, but still with significant variability, primarily related to season conditions.

Their usage profile can be summarised as medium demand requirement, broadly predictable, but still subject to significant climate induced variability.

**Off-Peak:** Usage is similar to the 24 Hour users described above, except these users have invested in higher capacity infrastructure, allowing them to operate primarily during off-peak/shoulder periods, such as nights and weekends.

Their usage profile can be summarised as having a higher peak demand per hectare irrigated (when compared with 24hr users), broadly predictable, but subject to significant climate induced variability and a high preference for off-peak/shoulder use.

Off-peak usage is also favoured by many growers for their recycling pumps.

It is imperative that suitable tariffs that reflect the above usage patterns are available to irrigators.

## **Cotton Gins**

Cotton gins tend to run reasonably consistently through the ginning season (March/April through to August/September), often, but not always 24 hours per day, seven days per week. As such “demand charge” based tariffs do not have the severe negative impacts that they have on larger irrigator users.

However, Table 1 demonstrates the massive impact that “site specific demand charges” that are being discussed, would have on their costs. There is no doubt that if these charges were imposed onto ginners, they would pass them directly back to growers by way of higher ginning charges, adding further impacting to their profitability, over and above the increase in electricity charges applied to irrigation.

**Table 1**

<b>Gins</b>	<b>Current Retail Tariff</b>	<b>Forecast 2012-13 Bill (Current Tariff)</b>	<b>Forecast 2012-13 Bill (Site Specific Tariff)</b>	<b>Change in Bill</b>	<b>% Increase</b>
1	48	\$600,411	\$1,202,162	\$601,750	110
2	48	\$588,864	\$1,445,070	\$856,206	145
3	48	\$271,882	\$819,422	\$547,540	201
4	48	\$554,198	\$1,387,192	\$832,994	150

### **Section 3**

#### ***Case Study – St George***

Approximately 10 years ago a number of irrigators in the St George region were encouraged by the Queensland Government to develop their irrigation infrastructure based on access to electricity for pumping water.

A dedicated 33KVA line was constructed, which supplies 22 26 inch pumps with electrical power.

In making their investment decision these irrigators based their calculations on being able to access Tariffs 62-66.

These irrigators have all been classified as Large Users, and will under the current arrangements, have to migrate to Tariffs 44-46 as part of the recently announced seven year transition process..

In the lead up to this year’s Queensland Competition Authority electricity pricing determination a number of the irrigators have had tariff comparisons done by Ergon and a sample of results appear below.

These irrigators are typical of irrigators in this region. They primarily pump to harvest river flows, where access is determined by their licence conditions, and access is episodic, and there are often extended periods between pumping opportunities and pumping opportunities are more often measured in days rather than weeks.



The table below shows the pumping opportunities that have been experienced by these users since 2004.

Water Year	Quarter	Number of Days	Total
2003/04	1	0	
	2	1	
	3	36	
	4	0	<b>37</b>
2004/05	1	0	
	2	5	
	3	0	
	4	0	<b>5</b>
2005/06	1	4	
	2	8	
	3	0	
	4	0	<b>12</b>
2006/07	1	0	
	2	0	
	3	0	
	4	0	<b>0</b>
2007/08	1	0	
	2	22	
	3	30	
	4	0	<b>51</b>
2008/09	1	0	
	2	0	
	3	0	
	4	0	<b>0</b>
2009/10	1	0	
	2	0	
	3	44	
	4	0	<b>44</b>
2010/11	1	10	
	2	75	
	3	61	
	4	13	<b>159</b>
2011/12	1	0	
	2	34	
	3	47	
	4	2	<b>83</b>



The episodic nature of this pumping makes Tariffs 44-46 totally unsuitable.

For example, the first comparison below shows that the total electricity cost under Tariff 62 of approximately \$25,000 would have risen to in excess of \$103,000 if the irrigators were on Tariff 44.

Other examples document rises from \$138,000 to \$382,000.

Price increases of this order are clearly unjustifiable and unsustainable.

It is clear that if faced with these tariff structures and associated electricity price increases, the growers will have no option to switch to alternative energy sources such as diesel, which will not only lead to a requirement for massive investment on the behalves, but will also see the 33KVA line completely un-utilised, and Ergon receiving no return from its installed infrastructure. 1

Date	kWh	44	45	46	65	% Night	kWh/day	Days	Current Tariff	65	
27/09/2011	17494	\$ 21,711.19	\$ 20,854.60	\$ 40,554.26	\$ 3,979.56	48%	182.23	96			
23/06/2011	27495	\$ 21,859.45	\$ 21,065.42	\$ 40,116.67	\$ 6,371.22	44%	298.86	92			
23/03/2011	51623	\$ 23,486.88	\$ 22,834.38	\$ 42,531.21	\$ 11,655.01	48%	567.29	91			
22/12/2010	9642	\$ 18,493.32	\$ 17,834.84	\$ 37,230.90	\$ 1,713.33	89%	107.13	90			
23/09/2010	3891	\$ 18,208.14	\$ 17,535.03	\$ 37,362.11	\$ 1,000.75	33%	42.29	92			
23/06/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
23/06/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
23/06/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
23/06/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
23/06/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
23/06/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
23/06/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
23/06/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
<b>Low Voltage</b>	<b>110145</b>	<b>\$ 103,758.90</b>	<b>\$ 100,124.27</b>	<b>\$ 197,795.16</b>	<b>\$ 24,719.86</b>	<b>Average</b>	<b>238.93</b>	<b>461</b>			

Possible Savings		%
44	\$ 79,039.12	-76.2%
45	\$ 75,404.41	-75.3%
46	\$ 173,075.30	-87.5%
-	-	0.0%
-	-	0.0%

\* Please check the tariff conditions to ensure that you understand, accept and agree to those conditions.

**Demand kWh**  
**181.00 Maximum**  
**173.80 Average**

Date	kWh	44	45	46	62	% Night	kWh/day	Days	Current Tariff	62	
21/12/2011	160423	\$ 95,422.25	\$ 86,669.56	\$ 85,340.82	\$ 33,315.29	60%	1887.33	85			
27/09/2011	2452	\$ 24,842.45	\$ 23,326.92	\$ 38,798.88	\$ 593.29	60%	25.54	96			
23/06/2011	249871	\$ 114,668.27	\$ 104,858.88	\$ 103,336.10	\$ 51,875.60	58%	2715.99	92			
23/03/2011	620620	\$ 159,173.10	\$ 149,177.96	\$ 147,598.07	\$ 124,545.00	60%	6820.00	91			
22/12/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
22/12/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
22/12/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
22/12/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
22/12/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
22/12/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
22/12/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
22/12/2010	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
<b>Low Voltage</b>	<b>1033366</b>	<b>\$ 394,106.06</b>	<b>\$ 364,033.32</b>	<b>\$ 375,073.86</b>	<b>\$ 210,329.18</b>	<b>Average</b>	<b>2838.92</b>	<b>364</b>			

Possible Savings		%
44	\$ 183,776.88	-46.6%
45	\$ 153,704.14	-42.2%
46	\$ 164,744.69	-43.9%
-	-	0.0%
-	-	0.0%

\* Please check the tariff conditions to ensure that you understand, accept and agree to those conditions.

**Demand kWh**  
**872.00 Maximum**  
**693.75 Average**

Date	kWh	20	22	41	62	% Night	kWh/day	Days	Current Tariff	62	
19/07/2012	585	\$ 236.31	\$ 227.25	\$ 15,695.57	\$ 160.60	77%	6.43	91	<b>Possible Savings</b>		%
19/04/2012	30627	\$ 6,857.12	\$ 6,552.16	\$ 20,184.11	\$ 7,301.08	53%	312.52	98	<b>20</b>	\$ 107.43	0.5%
12/01/2012	65570	\$ 14,547.24	\$ 13,775.53	\$ 23,834.54	\$ 14,361.45	61%	675.98	97	<b>22</b>	\$ 1,201.53	5.8%
7/10/2011	487	\$ 204.10	\$ 195.73	\$ 14,138.87	\$ 129.08	84%	5.94	82	<b>41</b>	-\$ 51,900.88	-70.3%
17/07/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0	-	-	0.0%
17/07/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0	-	-	0.0%
17/07/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0	* Please check the tariff conditions to		
17/07/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0	ensure that you understand, accept		
17/07/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0	and agree to those conditions.		
17/07/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0	<b>Demand kWh</b>		
17/07/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0	<b>216.00 Maximum</b>		
17/07/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
17/07/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
<b>Low Voltage</b>	<b>97269</b>	<b>\$ 21,844.77</b>	<b>\$ 20,750.66</b>	<b>\$ 73,853.08</b>	<b>\$ 21,952.20</b>						

Date	kWh	44	45	46	62	% Night	kWh/day	Days	Current Tariff	62	
21/09/2012	3251	\$ 56,280.99	\$ 50,351.69	\$ 49,744.51	\$ 564.34	87%	37.80	86	<b>Possible Savings</b>		%
							434.15	92			
27/06/2012	39942	\$ 99,336.55	\$ 88,291.08	\$ 86,456.90	\$ 11,055.18	36%	4494.37	97		<b>44-\$ 283,617.57</b>	<b>-67.2%</b>
27/03/2012	435954	\$ 150,065.83	\$ 138,505.06	\$ 136,592.61	\$ 97,041.59	48%	1448.02	96		<b>45-\$ 243,416.11</b>	<b>-63.8%</b>
21/12/2011	139010	\$ 116,053.72	\$ 104,387.81	\$ 102,438.57	\$ 29,458.42	59%	0.00	0		<b>46-\$ 237,113.06</b>	<b>-63.2%</b>
							0.00	0			
16/09/2011	0	\$ -	\$ -	\$ -	\$ -	0%				-	0.0%
16/09/2011	0	\$ -	\$ -	\$ -	\$ -	0%				-	0.0%
16/09/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
16/09/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
16/09/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
16/09/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
16/09/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
16/09/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
16/09/2011	0	\$ -	\$ -	\$ -	\$ -	0%	0.00	0			
<b>Low Voltage</b>	<b>618157</b>	<b>\$ 421,737.09</b>	<b>\$ 381,535.63</b>	<b>\$ 375,232.59</b>	<b>\$ 138,119.53</b>						

\* Please check the tariff conditions to ensure that you understand, accept and agree to those conditions.

**Demand kWh**  
**952.00 Maximum**



**COTTON  
AUSTRALIA**

*Advancing Australian Cotton*

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