

Energy Efficiency On-farm

Andrew Chamberlin, Queensland Farmers' Federation



QFF QUEENSLAND FARMERS' FEDERATION

Energy Savers



The Energy Savers programs are being funded by the Queensland Government and delivered by Ergon Energy in partnership with the Queensland Farmers' Federation and its member bodies.



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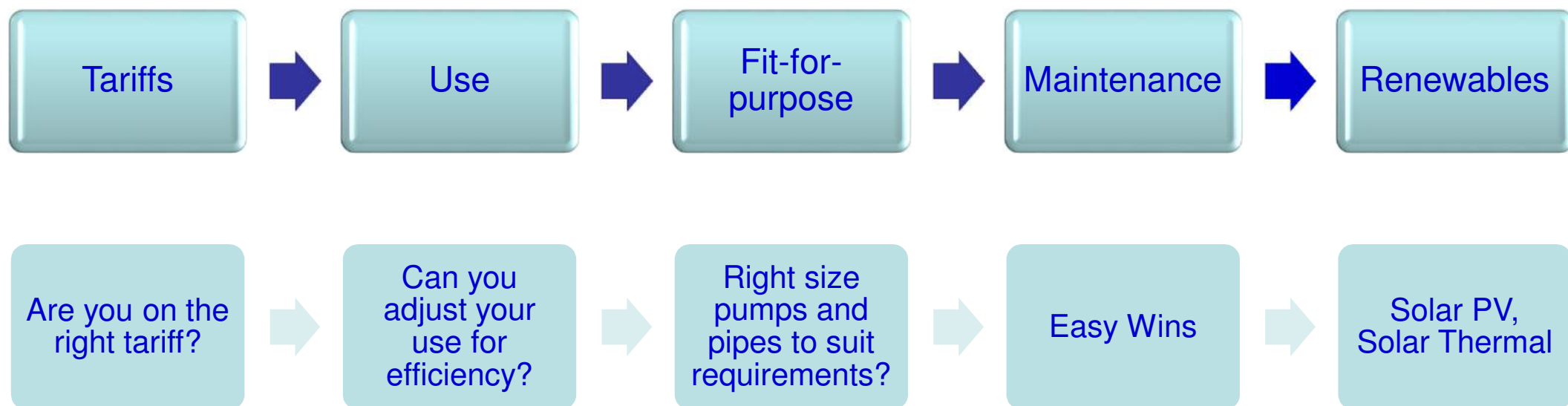
Energy Savers Programs



Irrigators – 34 Level 2 Audits



Plus – up to 100 Level 2 Audits



Tariffs

Are you on
the right
tariff?

Audits finding: Do a Tariff Check!

- Call Ergon's business number (on your bill).
- Savings: \$ 1,000 - \$25,000

Use

Can you
adjust use for
efficiency?

- Switch to off-peak pumping for 15kW transfer pump – saving \$1,200 +
- Lower Speed, Longer Duration for transfer pumping.
- Reduce Pressure?

Fit for
Purpose

Right sized
pipes and
pumps?

Irrigation System Design

- Right sized pump and motor
- Pipe Diameter and alignment
- Variable TDH? Variable Duty?



Fit for Purpose

Suitable Mains, High Efficiency Motors, VSD

Mareeba Horticulture

High efficiency motor \$200 extra, \$700/a savings

Right sized pipes and pumps?

Mundubbera Citrus Farm:

“Before installing our variable speed drives, we had to irrigate all three blocks to get rid of the pressure. Now we can just do one or two as required.”

Aspley Nursery

“Evenness of Water”

Bushgarden Nursery

“I haven’t had to fix a blown pipe”

Fit for
Purpose

Right sized
pipes and
pumps?



Maintenance

Easy Wins

- Clear Trash Grates, Bell Mouths
- Motors, Compressors: clean and well ventilated
- Leaks (irrigation, compressed air)
 - Dairy, underground bore pump leak, payback 0.4 years, energy saving ~30%
- Reduced Pressure
- Hot Water Pipe insulation – Payback 1.1 years
- Monitoring Temperature - \$23 logger!

Renewables

Solar PV, Solar Thermal

Solar Photovoltaic (PV):

Paybacks between 3 and 7 years, depending on:

- Tariff
- Consistent use of power (ie packing sheds)
- Right-sized system

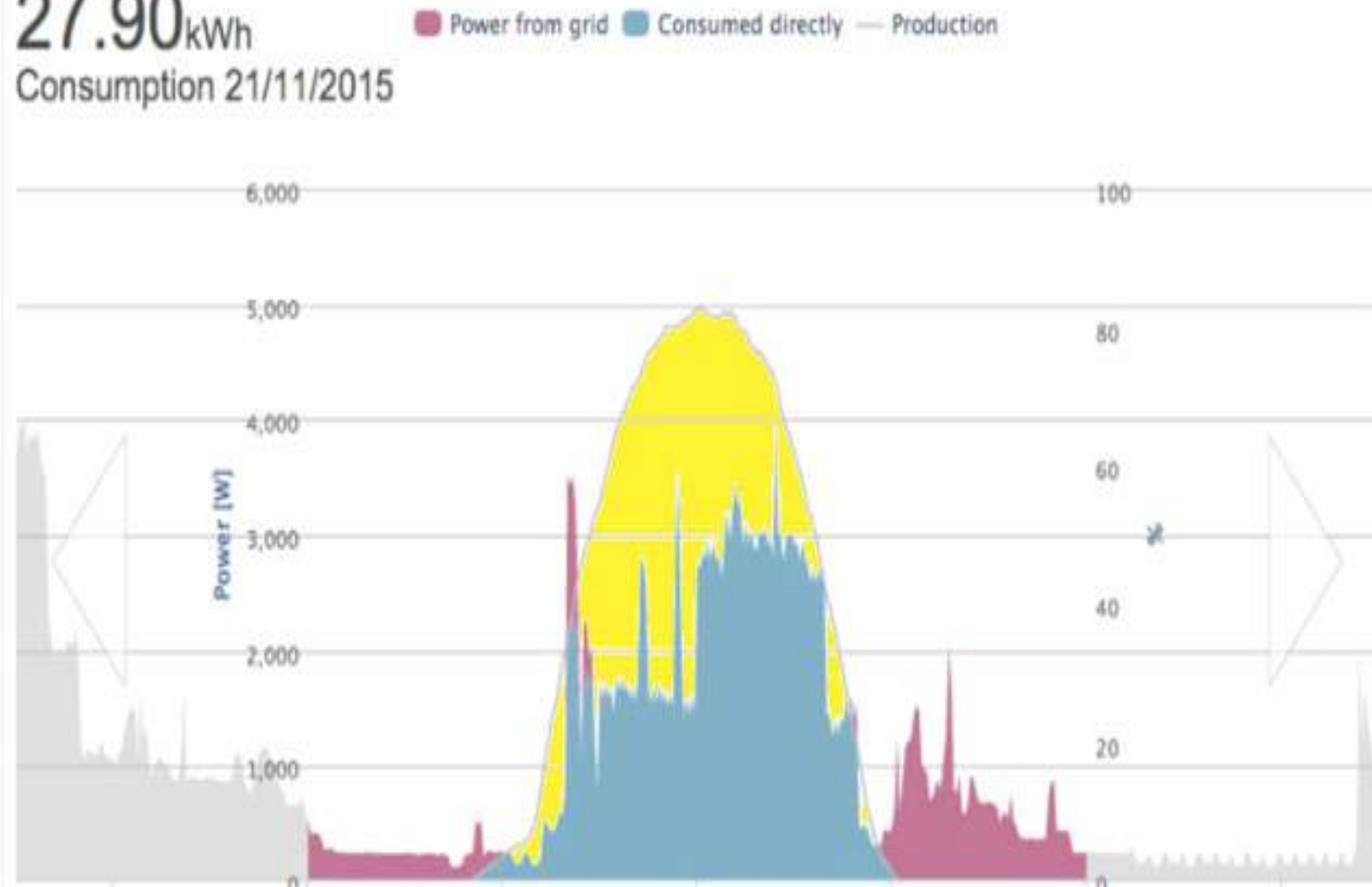
Solar Hot Water

- High-efficiency solar tubes
- Heat pump off solar panels

Renewables

Solar PV, Solar Thermal

27.90kWh
Consumption 21/11/2015



BEAUDESERT

BEAUDESERT TURF ENERGY



PROPOSED

24%
proposed energy savings



INDUSTRY
Turf



PRODUCT
Turf farming



LOCATION
Beaunesert



IRRIGATION
Centre pivot



PUMPS
Centrifugal



SOLUTION
Variable speed control
and pipeline upgrade

Recommended Variable
Speed Drives and Pipe
Upgrades

Cost \$63K
Annual Saving \$41K
Payback: 1.4 years

Mareeba Banana Farm:
Steinhart Pump
90kW WEG Motor
5,000 hours per year.
10 banana blocks





- ☒ Add VSD
- ☐ Dynamic Head Control
- ☒ Tarrif 44 → 66
- \$40,000 Savings
- Even Water

QUICK REFERENCE TABLE

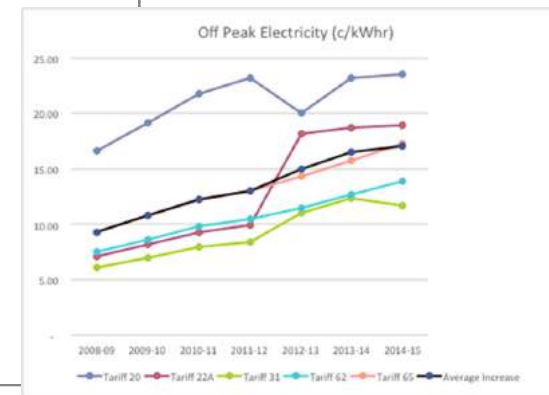
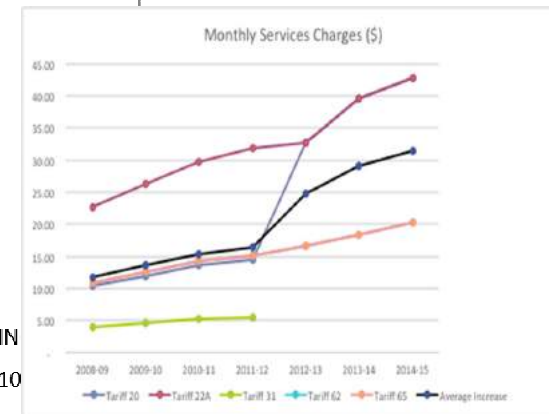
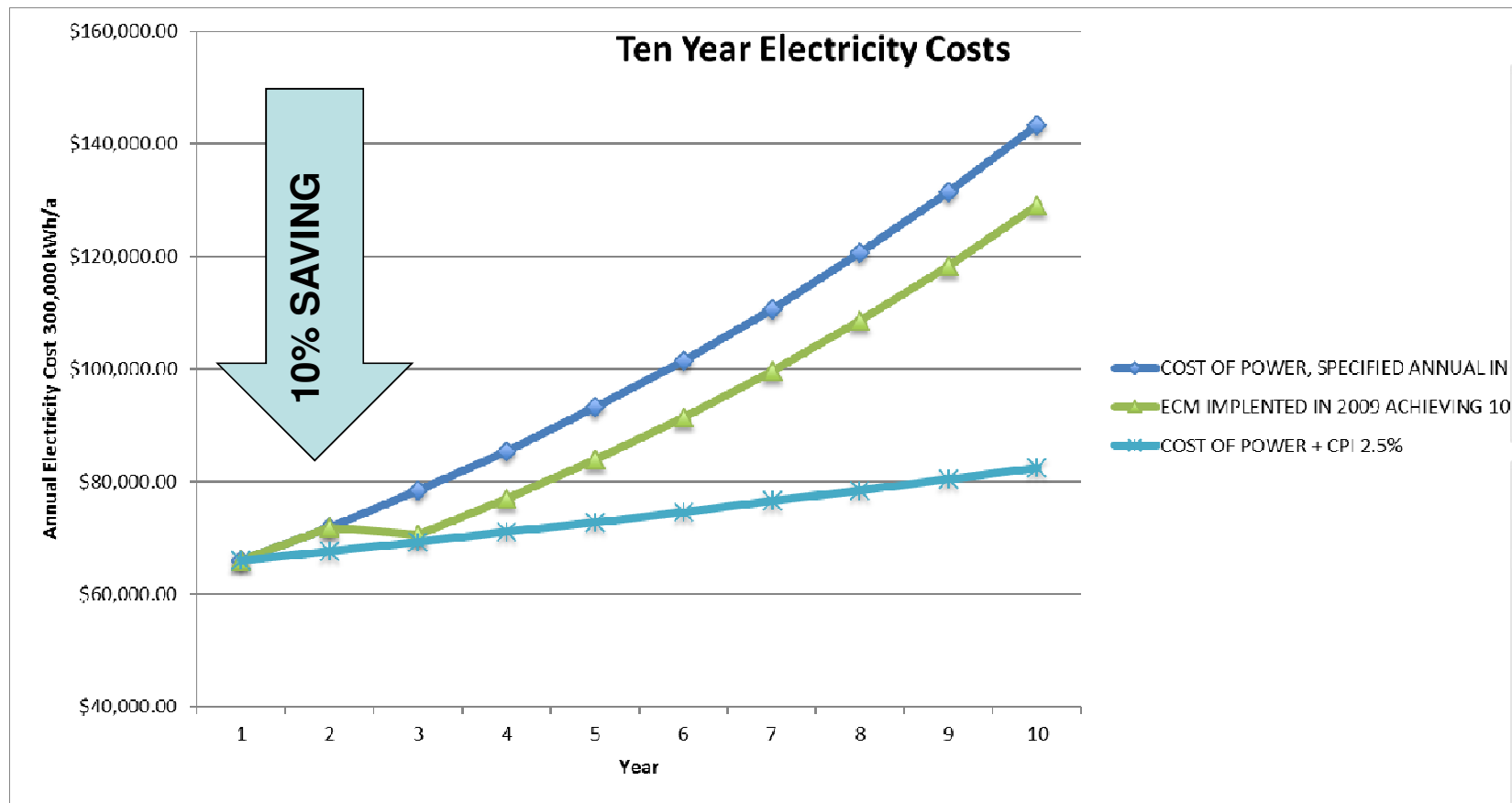


QUEENSLAND FARMERS' FEDERATION

Energy Savers

	Energy Efficiency Loans				Energy Services Model
	Clean Energy Finance Corporation Co-Financing Partnerships			QRAA	Private Financiers
Program name	 Equipment Finance Energy Efficient Bonus	 Energy Efficient Equipment Finance	 Energy Efficient Finance	QRAA Sustainability Loan – Primary Producer	Energy Services Agreement or “Turnkey Solutions”
Description	...Simply apply for an Equipment Loan, Hire Purchase or Finance Lease from NAB – if the equipment meets CEFC criteria for energy efficiency, 0.70% will be deducted from the finance rate...	...Partnering with the Clean Energy Finance Corporation, the CBA provides discounted financing to help businesses fund energy efficient vehicles, equipment and projects...	...Westpac is helping Australian businesses reduce their energy costs and environmental footprint by providing financial solutions for energy efficient equipment...	Sustainability Loans provide you with up to \$1.3M to cover capital costs to achieve a more productive and sustainable primary production enterprise.	An Energy Services Company may design, install, commission, finance and maintain new energy efficient or renewable energy equipment, with service charges designed to be less than energy savings.
Benefit	Bonus 0.70% p.a. off your equipment finance rate, on qualifying assets for the life of the financing.	0.70% discount off standard asset finance rates.	You may be entitled to 0.70% p.a. discount on the interest rate when you purchase certain	Low interest rate fixed for 1, 3 or 5 years (Interest rates are subject to change in January and July each	Generally no up-front costs (Some providers prefer a partnership where the site makes a small up-front

To Implement or not to Implement



Annual % Price Increase	10 YR TOTAL COST WITH NO ECM	10 YR TOTAL COST WITH ECM YR 3	SAVING
0	\$660,000.00	\$607,200.00	\$52,800.00
CPI of 2.5%	\$739,423.20	\$670,229.90	\$69,193.29
9	\$1,002,733.36	\$916,254.03	\$86,479.34

Energy Monitoring



www.cciqecobiz.com.au



Real time monitoring

Website & e-news



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EVENTS

FARMING IN QLD

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FILTER CASE STUDIES BY SECTOR



LOCATION



PUMP TYPE



IRRIGATION TYPE



TECHNOLOGY



MUNDUBBERA
MUNDUBBERA
CITRUS FARM

IMPLEMENTED

54%
actual energy savings



CAIRNS
CAIRNS
COLD STORE

IMPLEMENTED

30%
actual energy savings



BURDEKIN
LOWER BURDEKIN
WATER

IMPLEMENTED

40%
actual energy savings

www.qff.org.au/energysavers

Summary



- Check Tariffs Regularly
- Cut costs with energy efficiency
- Not just Energy Cost savings – productivity improvements (time), reduced maintenance costs, product quality.
- Efficiency and renewables technologies are improving and becoming cheaper.
- Innovative Financing models are available.
- www.qff.org.au/energysavers for case studies and technology information and the Energy Savers e-news



Thank you

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