



RESEARCH, DEVELOPMENT & EXTENSION SERVICES

Incorporating solar into Cotton farms

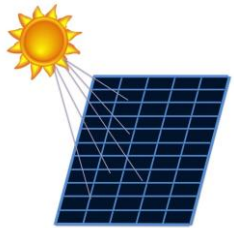
Janine Powell



Farm budget time...



What's changed? And why NOW?



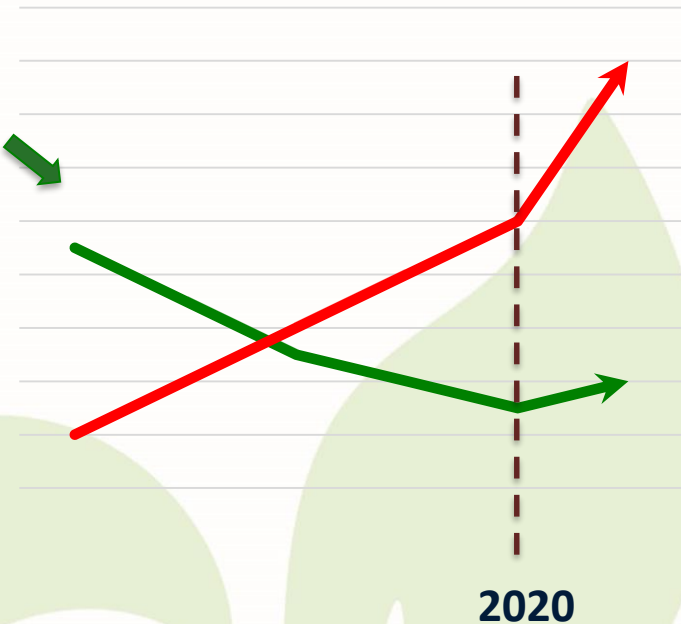
Renewable prices down



Electricity price up



Feed in tariffs mandatory in some cases



The sites

1. River Pump

- Sporadic, but intense seasonal use
- Large site, not eligible for a FIT

2. Pivot pumps

- Uniform seasonal use
- Large site, not eligible for a FIT

3. Grain dryers & augers

- Intense medium term usage
- Small site, eligible for a FIT

Two of the most important factors considered;

- Load profile (how the site uses energy)
- Feed in tariff (FIT) eligibility

The solutions ~ River pump



- 400kW genset
- Capital cost of \$122,700
- Cost of electricity from 46 to 34 c/kWh
- Pay back 5 years

The solutions ~ Pivot pumps

- 225kW PV, 130kW genset
- Capital cost of \$380,000
- Pay back 6.5 years
- Cost of electricity from 44 to 29 c/kWh
- 2,700t of CO₂e emissions abated



The solutions ~ Grain dryers



Photo courtesy of Agridry

- 38kW PV
- Capital cost: \$35,600
- Cost of electricity from 47 c/kWh to 1 c/kWh
- Payback 4.3 years
- 150t of CO₂e emissions abated

Key findings



- Solar remains the most cost effective solution @ 5 - 7 c/kWh
- Microgrids can be 'built on' in a staged process
- Microgrids can keep a site below demand tariff thresholds
- RET subsidies wind up in 2020
- NOW is the time to save \$\$



For more information see

www.cottoninfo.com.au/energy-use-efficiency

Or

www.agecon.com.au

Next energy feasibility study preview:

***Micro-hydro*, coming to a bore near you?**



Photo courtesy of Concept Technologies Ltd 2018