

On Farm Power Generation – Assessment of viability calculator

Project: On farm power generation options for Australian vegetable growers (VG13051)

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This exercise will give you the opportunity to start assessing the viability of your farming operation for solar PV power generation. The same principles apply to the other forms of generation, and you can use the graphs in the economic analysis document, or the factsheets to guide you.

To complete this activity, you should first fill in the boxes below with some information from your farm. I.e:

1. What is the average price you are currently paying for electricity?	\$/MWh
2. What size system do you need?	kW
3. What is your STC zone?	
4. What is your STC rebate?	\$/kW



5. How much of the power generated can I use on farm?	%
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Calculations

Question 1. What is the maximum you should be willing to pay (*before subsidies*) for a viable solar PV system given the price you currently pay for your electricity? You can assume a 10% feed in rate if you don't have a better estimate.

\$/kW

Question 2. What would be the maximum capital cost you should be willing to pay after subsidies are deducted, in your STC zone?

\$/kW

Question 3: What would be the cost of the electricity you could generate on farm assuming your quoted capital cost is \$2500/kWh before subsidies (ie medium TCR before subsidies) and a 10% feed in rate?

c /kWh



Question 4. For the same \$2500 per kW system, how much would the electricity cost if you have to feed in 50% of the power to the grid?

c /kWh

(Note: Questions 1-4 use Figure 1)

Question 5. For the same \$2500 per kW system (before subsidies), what would the payback period be for your proposed solar system if you were producing power at about 14c/kWh? (use Figure 2)

Years

Question 6. What would be the effect on the cost of power you can produce, of removing the STC subsidies on a medium capital cost (TCR) of \$2500 per kWh (before subsidies) in your STC zone? (use Figure 3)

c /kWh



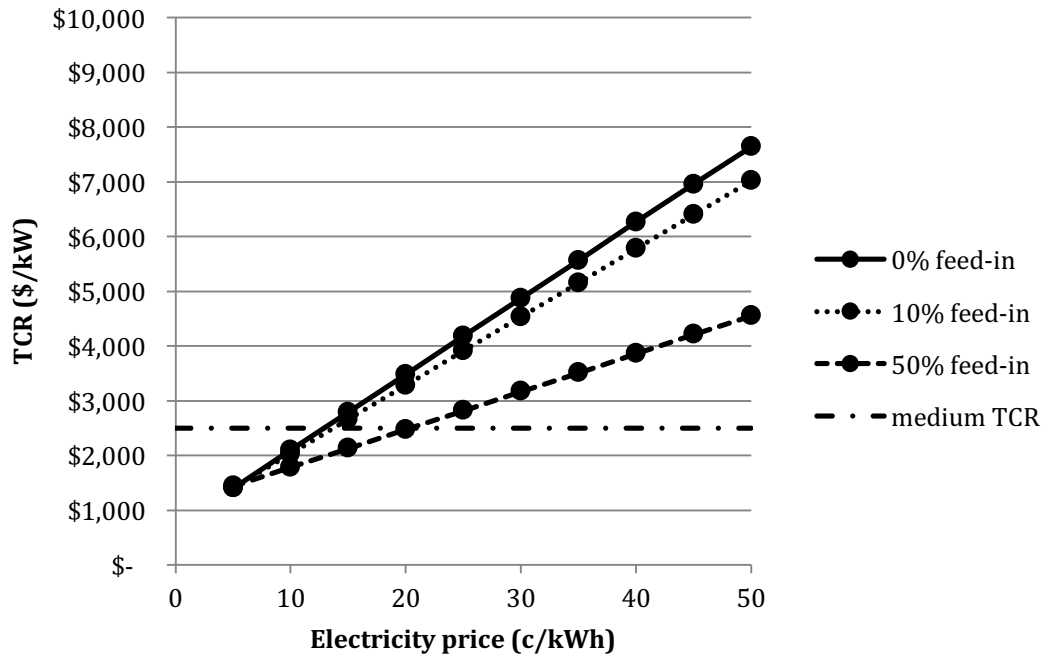


Figure 1: Capital cost (\$/kW) excluding STC subsidies, versus displaced electricity price for IRR=10% nominal and 0%, 10% and 50% of annual, on-site energy being fed into the network at 6c/kWh (w/ GST). Also shown is a medium TCR of 2500 \$/kW.

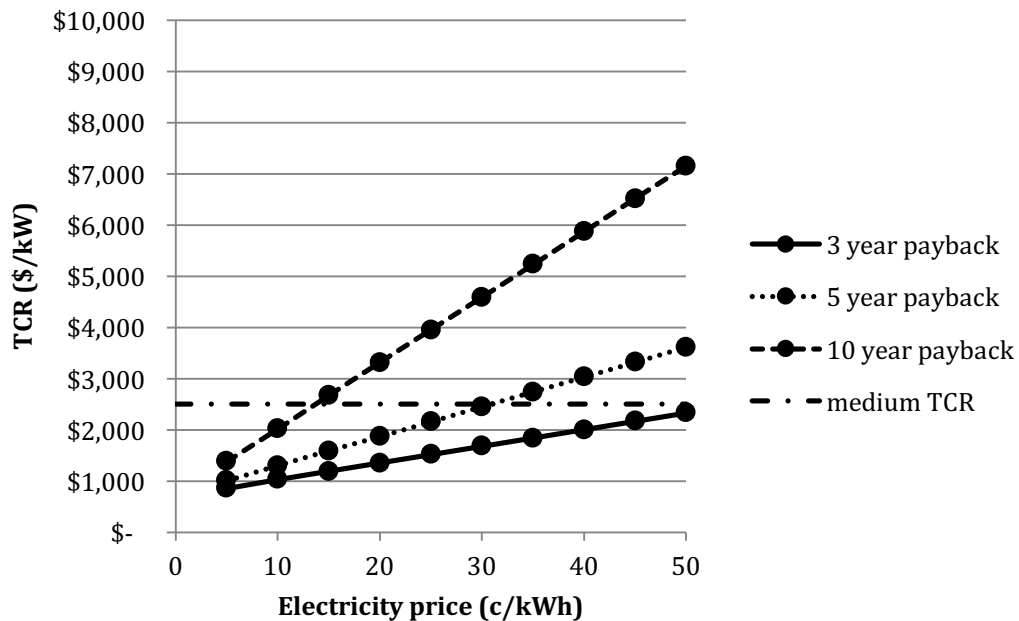
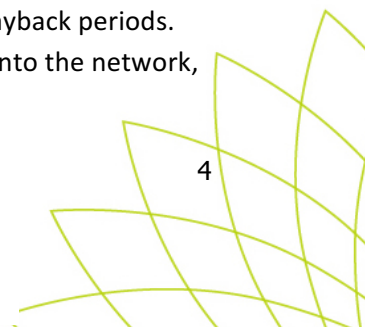


Figure 2: Marginal TCR (\$/kW) versus displaced electricity price for 3, 5 and 10 year payback periods. Also shown is the medium TCR of 2500 \$/kW. Analysis assumes no energy lost or fed into the network, a Zone 3 STC region



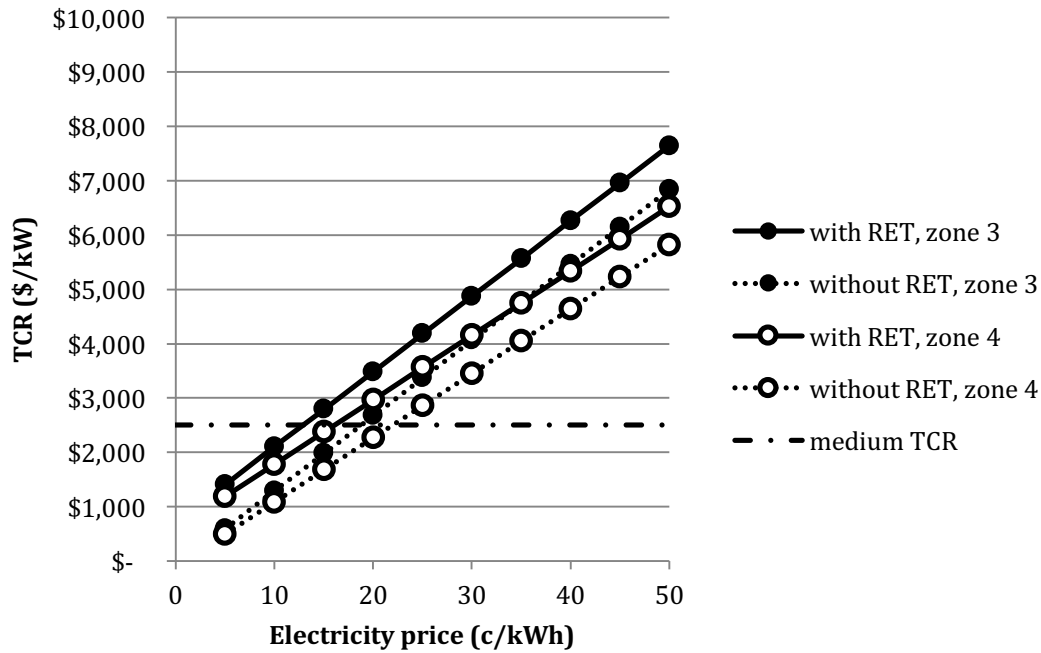


Figure 3: Marginal TCR (\$/kW) versus displaced electricity price for STC Zones 3 and 4 with IRR=10% nominal, with and without the RET. Also shown is the medium TCR of 2500 \$/kW.

Assumptions (except for when each item is a variable in estimates)

- Feed in tariff = 6c/kWh
- IRR = 10% (think of this as the value of money in your business)
- Funded by borrowing over 10 years at 6.5% interest

Disclaimer:

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