

Advisors' Ideation Workshop

11-12.30, 13 Oct 2023

Helping farmers discover and act on
on-farm energy savings



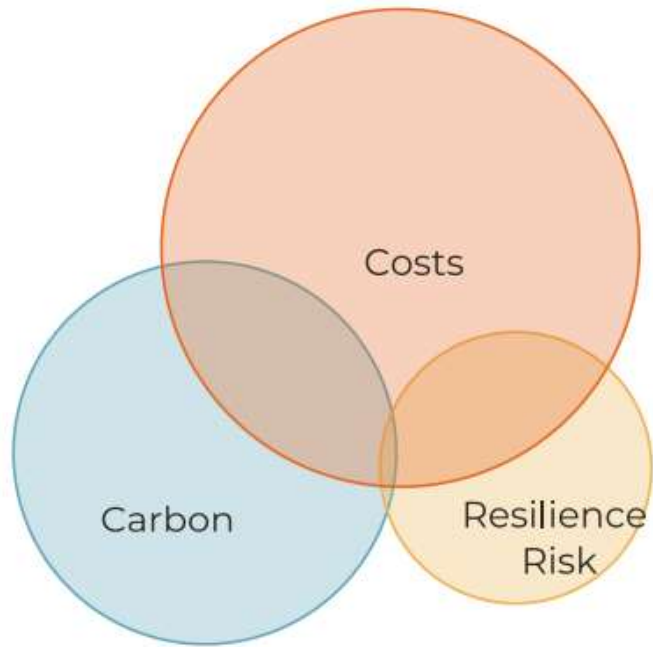
**SAVE ENERGY
ON-FARM**

IT JUST MAKES SENSE

Taranaki Rural Energy

Why

Energy efficiency and renewables



Plummeting milk price 'will cost NZ \$5bn'

Neal Wallace
August 4, 2023



Farmers weekly

CLIMATE CHANGE

Fonterra offers dairy farmers help to meet a new emissions intensity target

The dairy co-op's biggest customer Nestlé says greater efficiency is only a start – Fonterra's farmers must also cut absolute emissions.

Newsroom

Fonterra is getting ready to tackle its biggest source of emissions - farmers

Tina Morrison · 17:20, Aug 14 2023



Stuff

The business case and technology to save \$s and carbon **now** is real, but farmers need:

- help to engage
- easy solutions to implement

Research shows energy support is best delivered through equipping those farmers **trust** and engage with today

Which is why we are starting with **you**



The programme's about

- equipping you – **farmers' trusted advisors** - to help farmers act
- collectively starting to build the solutions to trigger and make action easy

Today we will

- focus on what is needed for farmers to act (channels, resources, funding, supply chain)
- start connecting to co-create/ co-fund the solution

What follows

- 20 farm assessments with follow through by farmers
- resources development
- workshops and rollout





Your input today

- deep dive barriers to discovering and implementing energy opportunities
- identify potential solutions
- envision what success looks like

But first

- a little more on the energy opportunity, and
- some frameworks on helping with change to tease your thinking

Energy Opportunities From 5 Farm Pilot



Energy Efficiency

Reduces energy use
Cuts carbon



Change time of use

Saves money on night rates
or **uses cheaper solar power behind the meter**















Renewables

Solar PV (or micro-hydro),
resilience

Programme KPIs:

- i) 1GWh p.a. of identified **imported** energy reduction opportunities audited;
- ii) 250MWh p.a. of realised **imported** energy savings across the farms audited

Now opportunities

	Energy efficiency	Cost saves
Insulate milk & cold water Vats; lag pipes		
Install VSD control on vacuum pump		
Energy efficient lights & educate staff		
Hot water cylinder time & element		
Cold water plate system to night rate		
Shift effluent pumps (storage permitting)		

Long term plan/ significant investment

	Energy efficiency	Cost saves
Investigate yard washdown changes	○	○
Chiller renewal. Consider heat recovery & timing	○	○
Hot water cylinder renewal. Consider heat pump	○	◐
Review water usage & pumping	○	○
<i>Local generation e.g. solar PV</i>	⊘	◑

Opportunity Range

Indicative values

High CAPEX but Co-op and PPA options

Indicative Average Values	Cost	Savings	Payback
Insulate Vats	/\$/\$	\$0.5-&1.7k	2.5-6 yrs
Vacuum Pump (VSD/scroll type)	\$\$	\$1-3k	2-6 yrs
Lighting	\$	\$.3k	5 yrs
Hot water to night rate	\$	\$1.3k	<0.5 yr
Plate cooler	\$	\$0.5k	<1 yr
Educate staff; turn off kit	\$	Variable	<1 yr
Effluent/ other pump night rate	\$	e.g. \$1.5k	<1 yr
Chiller. Hot water HRV	\$\$\$	\$10k	4.5 yrs
Heat pump hot water	\$\$	\$1k	11 yrs
Solar PV	\$\$\$	\$5-36k	6-12 yrs
Solar water pump	\$\$	\$1k	4 yrs
Irrigation efficiency (VSD/sensors)	\$\$	Variable	Variable

We know the technology is works.

The challenge is uptake

	Example	Impact	Action
Farm platform/ physical differences	Size, topography, type & stock numbers	Limits simple benchmarking; drives time/ cost	Building block approach to screen opportunity
Farm operational set up & practices	Milking schedule; in shed feed; settings	Need to assess profile	As above; time series & multiple source data
Farm "behaviours"	Operating choices/ e.g idling	Choices/ activity drive energy	Understand human actions
Investment cycle	Upgrade only on renewal	Busy time; eqpt does not interoperate	Energy plans available/ accessible
Ownership, cost & revenue share	Farmer & share-milker interests	Can complicate efficiency decisions	Long term energy plan can align interests
Influencers	Failed plant replacement key trust is with supplier	Supplier insights drive choices	Energy plan that aligns supplier to farm vision
Competing compliance investments	New effluent management rules	Competes for farm time and \$s	Align energy plan with these investments

Opportunities for integrators, suppliers and funders to develop solutions & advisors to deliver.

The workshop aims to kick start addressing these.

The 20 farms provides an opportunity to market test, learn and iterate.

What next

Spread the word and referrals for farm assessments and recommendations

Keep solutions thinking and dialogue going

Reference group

Resource/ solutions development

Sharing workshops

saveenergyonfarm@taranakicc.nz

Aaron 027 436 1335

Jamie 027 641 6540

Lookout for the BBQ series at the local Farmsource before Xmas

Nga mihi



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