

The Wannon Water trial aims to test the economic impact of Local Network Charges (LNC) and Local Electricity Trading (LET) on local energy projects, and assess the real-world requirements for these two measures to be applied. The trial modeled the installation of a wind turbine, with potential export to Wannon Water’s own sites and Glenelg Shire Council sites.

The trial has been undertaken as part of a one-year research project, Facilitating Local Network Charges and Virtual Net Metering, led by the Institute for Sustainable Futures (ISF) and funded by the Australian Renewable Energy Agency (ARENA) and other partners. It is one of five ‘virtual trials’, in New South Wales, Victoria and Queensland. The trial investigates the potential impact of a local network charge, as well as the effects of netting off energy between the sites.

Local Network Charges

Local network charges are tariffs for electricity generation used within a defined local network area, to recognise that only part of the network is used. These have been applied as a credit to the generator in these trials. In most cases, this would reduce the network portion of the electricity bill.



Local Electricity Trading (LET)

Local electricity trading is an arrangement whereby generation at one site is “netted off” at another site on a time-of-use basis, so that Site 1 can ‘sell’ or assign generation to nearby Site 2. This would reduce the combined energy and retail portion of electricity bills for local generation.



TRIAL KEY FACTS	
Proponent	Wannon Water
Network service provider	Powercor
Electricity retailer	AGL
Generator	800 kW new wind turbine
Location	Wannon Wastewater Treatment Plant (generation site); Wannon Water and Glenelg Shire Council sites (netting off sites)
Generation/customer model	Dual entity, 1-to-2 transfer between 17 Wannon Water sites, and 4 Glenelg Shire Council sites.
Project status at time of trial	Wannon Water is investigating installation of a wind turbine, to supply their own consumption at the generation site and remote sites.

What the trial looked at

The trial compares the business case for the new wind turbine in current conditions, and also with and without a LET arrangement and an LNC. We calculated the impact on the proponent, the network business, and the retailer. We looked at:

BAU: business as usual – current electricity and network charges, without any new generation.

Current market: installation of new generation, with the market as it is now.

LNC only: includes new generation, with payment of a Local Network Credit.

LET only: new generation, with Local Electricity Trading in place for the exported electricity

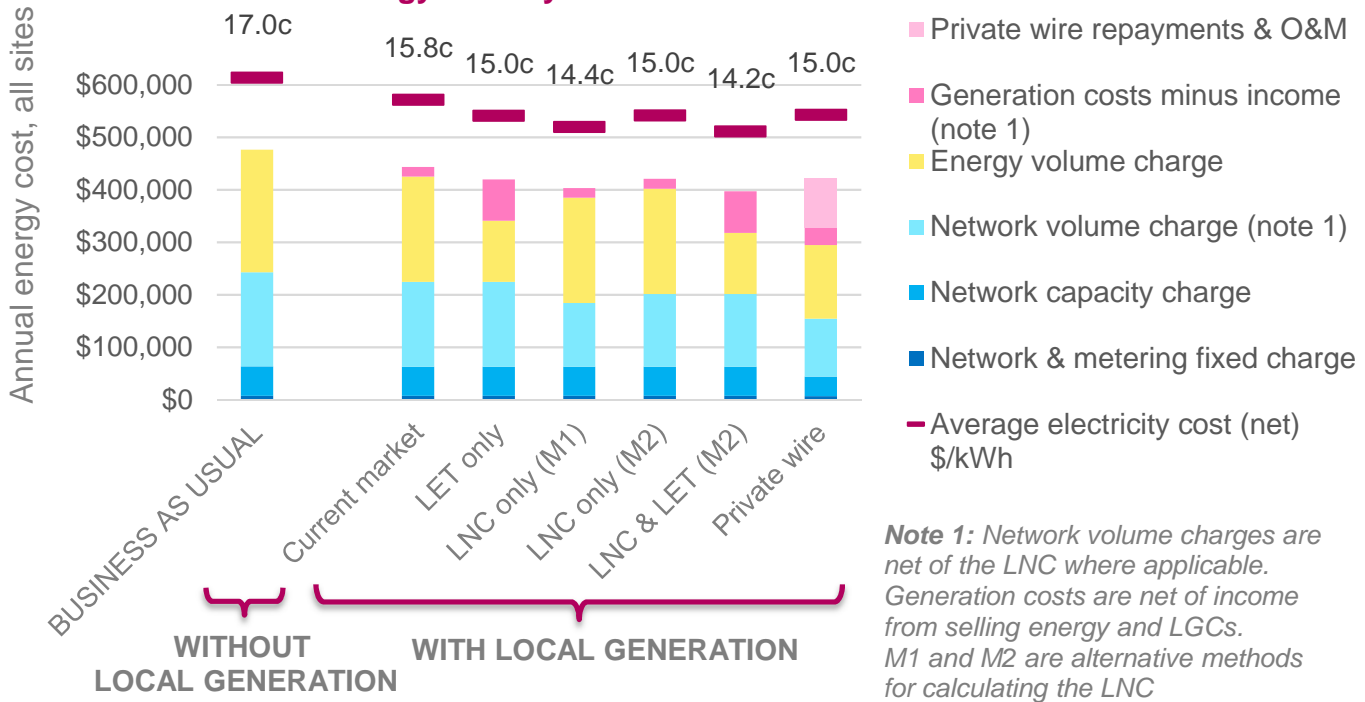
LNC and LET: new generation with both measures in place.

Private wire: three Wannon Water sites are connected with a private wire, and become the same meter point. No LNC or netting off is included.

Trial results

The total cost shown in the graph is the net energy cost for the 17 Wannon Water and 4 Glenelg Shire Council sites, including the energy and network charges, the capital repayments on any new infrastructure in each scenario (the generator and the private wire), and any income the generator may receive, such as renewable energy credits, the new LNC, or buy back income from electricity which is exported and not used at the netting off site.

**Wannon Water and Glenelg Shire Council:
Annual Energy Cost by Scenario**



Wannon Water and GSC	Current market	LET only	LNC only (M2)	LNC & LET (M2)	Private wire
Lifetime benefit	\$814,000	\$1,415,000	\$1,396,000	\$1,997,000	\$2,088,000
IRR	7.8%	9.4%	9.3%	10.8%	9.1%
Effect on network charges (annual)	-\$18,500	-\$18,500	-\$41,500	-\$41,500	-\$88,500
Effect on retailer income (annual)	-\$1,900	-\$1,900	-\$1,900	-\$1,900	-\$5,400
Greenhouse emission reduction (all scenarios with new local generation)	3,411 tons/yr				

Conclusion

All scenarios result in a saving compared to business as usual, so the project has a cost benefit with the set of assumptions used. The scenarios which include both measures have the best outcome for Wannon Water and Glenelg Shire Council, with an estimated lifetime benefit of \$2,088,000.

Network charges are the most significantly affected in the private wire case, with a reduction of \$88,500 in charges paid by the proponents. This is 2.1 times the reduction in the best case for Wannon Water, where both new measures are in place. This reduction in charges is not reflected in additional value for the consumer, as the foregone network charges are instead used to pay for the private wire.

Note that project costs are modelled, and may be different from actual outcomes.