The Byron Shire Council 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 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 Network Charges

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.

Local Electricity Trading

TRIAL KEY FACTS	
Proponent	Byron Shire Council
Network service provider	Essential Energy
Electricity retailer	Origin Energy
Generator	150kW new Solar PV
Location	Cavanbah sports centre (generation site) and the West Byron Sewage Treatment Plant (netting off site)
Generation/customer model	Single entity, 1-to-1 transfer between two Byron Shire Council sites. The Cavanbah sports centre with low consumption and good roof space transfers energy to the nearby sewage treatment works which has high consumption but little space.
Project status at time of trial	25 kW installed, with very small amount of export. Council is investigating adding 150kW at the Sports Centre, with a significant proportion of the generation exported to supply the West Byron Sewage Treatment Plant.

What the trial looked at

The trial compares the business case for new solar generation in current conditions, as well as with and without a Local Elecricity Trading arrangement and a Local Network Credit. The trial scenarios look at the impact on the proponent, the network business, and the retailer. The different scenarios are:

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.

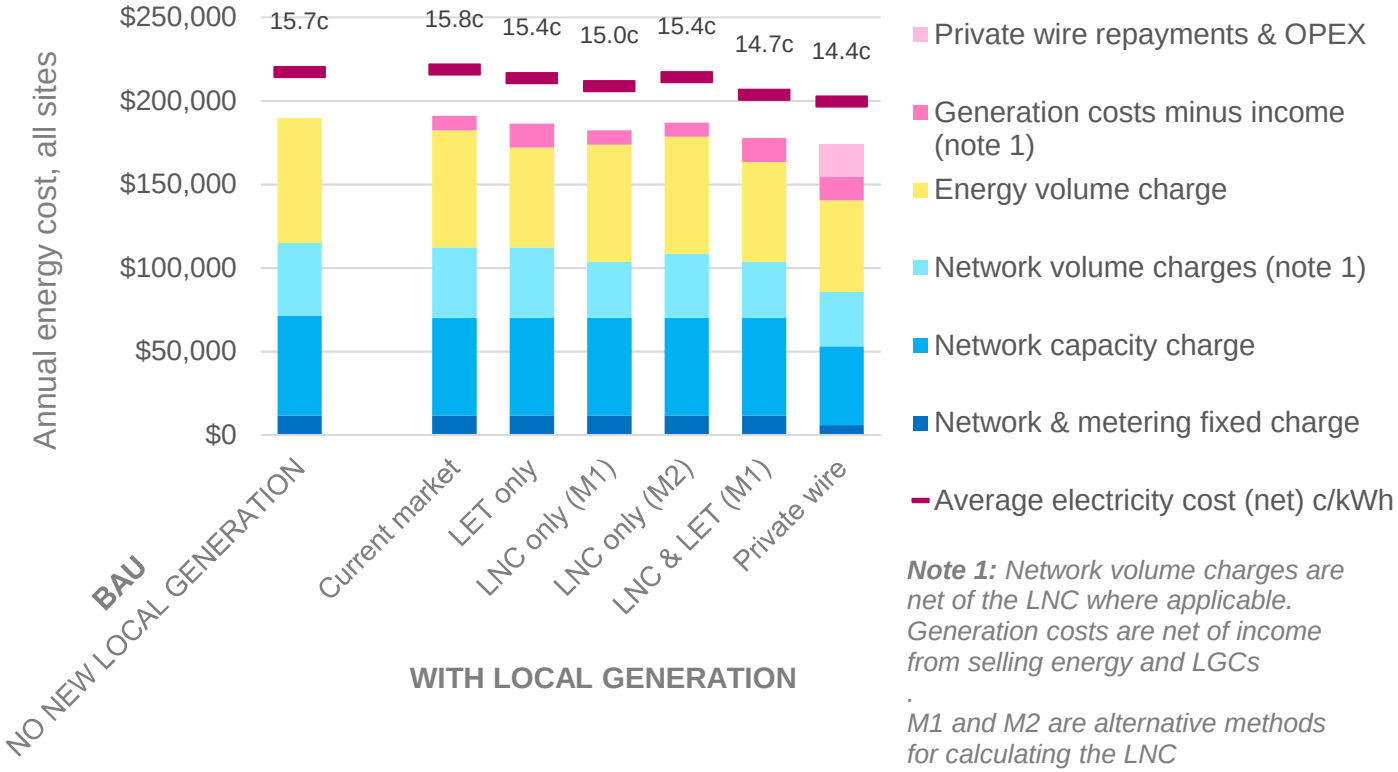
LNC and LET: new generation with both measures in place.

Private wire: new generation, with the two sites are connected together with a private wire so they become the same meter point.

Trial results

The total cost shown in the graph is the net energy cost for the two Byron Shire Council sites. This includes the energy and network charges, capital repayments on any new infrastructure, such as the solar panels and the private wire, and any income the generator may receive. Income includes renewable energy credits, the new LNC, and any buy back income from electricity which is exported and not used at the netting off site.

Byron Shire Council: Cavanbah Sports Centre & West Byron STP Annual Energy Cost by Scenario



Note 1: *Network volume charges are net of the LNC where applicable. Generation costs are net of income from selling energy and LGCs*

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M1 and M2 are alternative methods for calculating the LNC

BYRON SHIRE COUNCIL	Current market	LET only	LNC only (M1)	LNC & LET (M1)	Private wire
Annual savings compared to BAU	-$1,200	$3,300	$7,400	$11,900	$15,400
Simple payback	11 yrs	10 yrs	9 yrs	8 yrs	8 yrs
Net effect on network charges	-$2,700	-$2,700	-$11,300	-$11,300	-$29,400
Effect on retailer income	-$2,800	-$6,100	-$2,800	-$6,100	-$6,900
Greenhouse emission reduction (all scenarios with new local generation)					229 tons/yr

Conclusion

All scenarios except the current market conditions result in a saving compared to business as usual, so the project has a cost benefit with the assumptions used if either LET or LNC is available, or with a private wire. The private wire scenario results in the greatest benefit, with estimated annual saving of $15,400. The next most advantageous is the scenario with both the new measures, the Local Network Credit and Local Electricity Trading.

Network charges are the most signficantly affected in the private wire case, with a loss of $29,400. This is 2.6 times worse than the next best scenario from the network's point of view. Depsite this the outcomes are similar for Byron Shire Council.

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