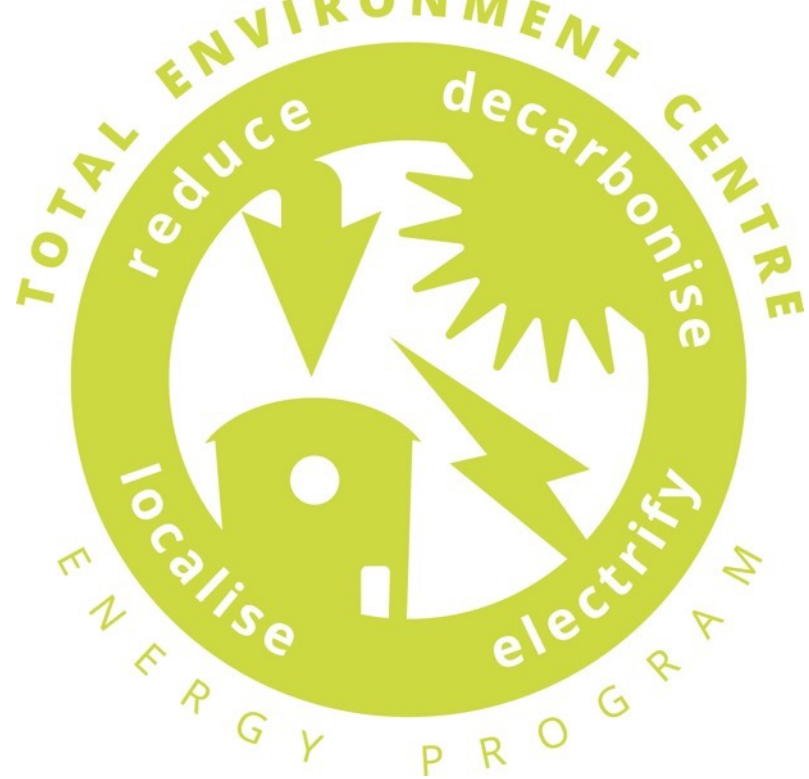
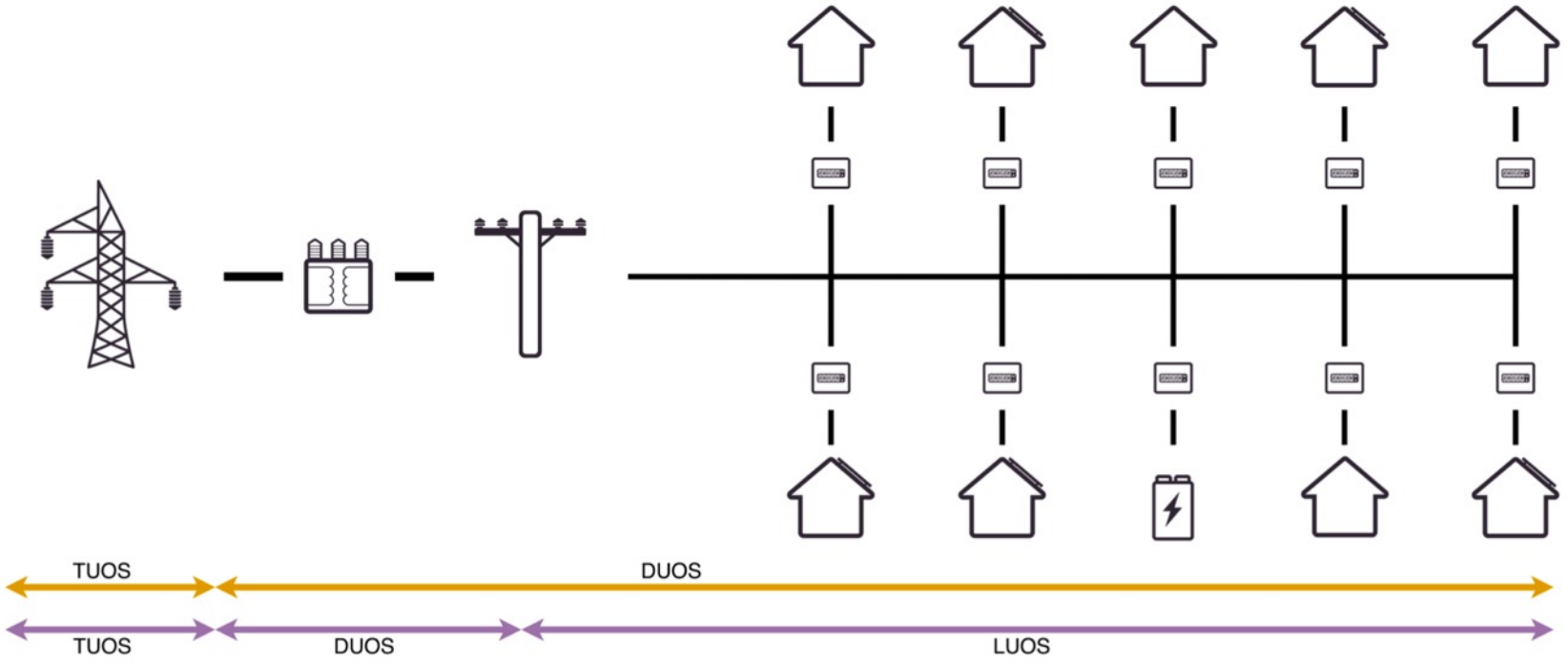
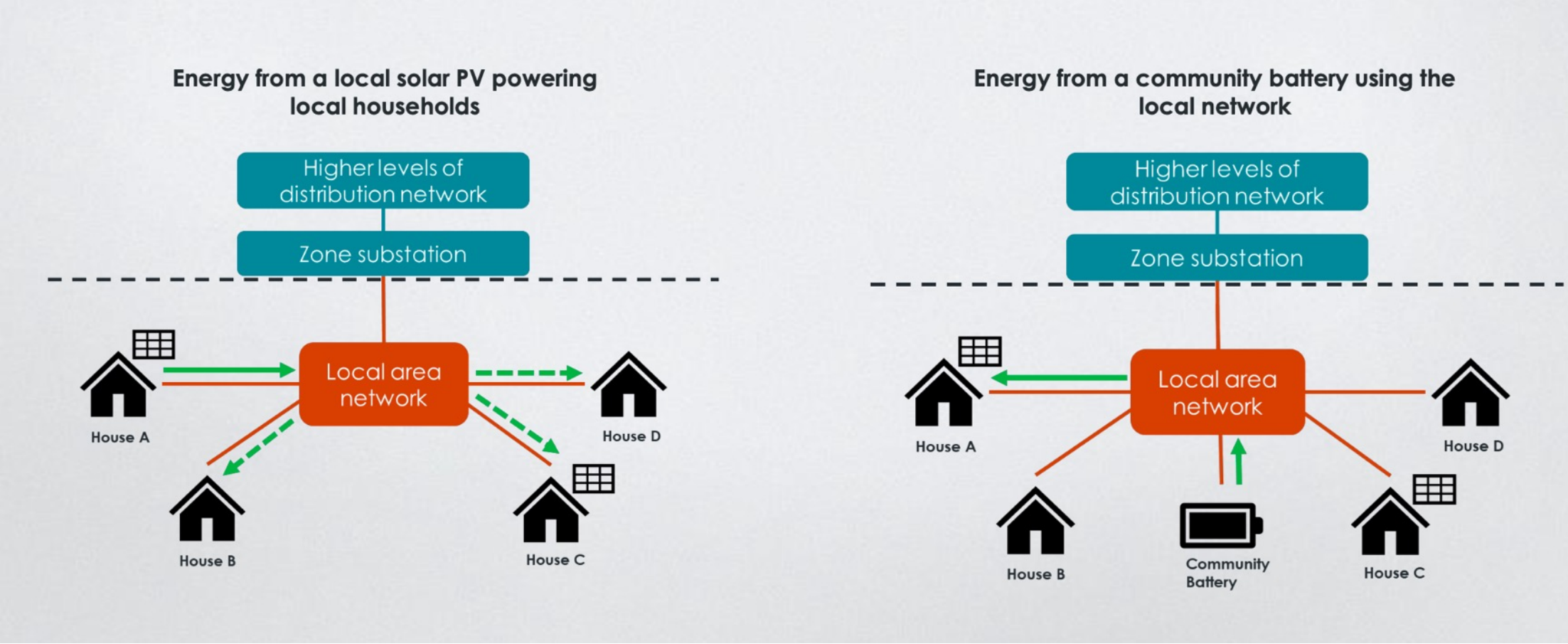

TOTAL ENVIRONMENT CENTRE
reduce
decarbonise
localise
electrify
ENERGY PROGRAM

Local energy (LUOS) tariffs



Local energy (LUOS) tariffs



Zoom Out

Oakley Greenwood

Local Generation Network Credit Rule Change Proposal

Submission to:
Australian Energy Market Commission

Proposed by:
City of Sydney
Total Environment Centre
Property Council of Australia

Melbourne +613 9016 2550 Sydney +612 8091 3650 Adelaide +618 8331 1358 Brisbane +617 3263 7612

AEMC

RULE CHANGE

Australian Energy Market Commission

FINAL RULE DETERMINATION

National Electricity Amendment (Local Generation Network Credits) Rule 2016

Rule Proponents
City of Sydney
Total Environment Centre
Property Council of Australia

8 December 2016

the basics

- Definition
  - Lower network tariffs which reflect local use of the network
- Need
  - Avoid double counting of DUOS
- Justifications
  - Local use of the network causes lower (future) network costs
    - Already recognised in “avoided TUOS”
  - Loss of network revenue due to installation of home batteries
- Application
  - Community scale batteries
  - Peer to peer (P2P) trading
    - Works with local trading platforms

TOTAL ENVIRONMENT CENTRE

VEPC's POV

"Should neighbourhood batteries pay discounted 'Local Use of System' (LUoS) charges for their use of the electricity grid? This article presents economic arguments. It concludes that a **rationale** exists for such discounted charges, for the same reason that network charge discounts are justified to avoid network by-pass. **Eligibility** needs to be carefully defined to maximise the prospect that neighbourhood batteries are charged from distributed (local) solar. We also conclude that if LUoS is applied to neighbourhood batteries, **fairness** arguments suggest solar sponge tariffs should be offered to residential consumers."

Eligibility (VEPC)

- N-B must be located in an area with high solar penetration (greater than, say, 20% of households within a 5 km radius);
- N-B capacity must be smaller than the actual or expected simultaneous peak local surplus solar production for households within a 5 km radius; and
- N-B must not be connected to networks above 11 kV.

TOTAL ENVIRONMENT CENTRE

Constraints (VEPC)

1. LUOS should apply only to local flows, however they are defined
2. LUOS should apply to battery inflows but not to outflows (back to users)
3. LUOS should only be available from 10 am to 4 pm (at other times, they are likely to be charged from upstream)
4. LUOS should be complemented by solar sponge (ie, low consumption) tariffs during similar hours, to advantage non-solar customers

TOTAL ENVIRONMENT CENTRE

Issues

- Equity
  - If LUOS customers are paying less, others are paying more
  - Access for non-solar owners
- Hard to tell how much energy supply is local
  - Eg overnight recharging from the grid
- Metering and billing
  - AEMO will still meter, and retailers bill, on flows both ways
- Interaction with export tariffs
  - Eg will CSB obviate the need for solar duck curve tariffs?
- Retail tariffs

TOTAL ENVIRONMENT CENTRE

Possible tariffs

- Subscription
  - flat monthly fee for up to fixed symmetrical import and export capacity (eg 10kWh/day)
- Time of use
  - free exports 10 am – 4 pm, high(er) price imports during evening peak (4-8 pm)
- + Peak rebate
  - payment to export after 4 pm, symmetrical high price imports during evening peak (4-8 pm)

TOTAL ENVIRONMENT CENTRE

Anthony Seipolt's POV

- Ideally, same tariffs for CSB as for other consumer devices (eg home batteries, EVs, demand response)
- Reducing solar export or evening consumption peaks should both be incentivised (+ tariffs)
- Other services provided by CSB (eg FCAS) may create different charging/discharging profiles and therefore higher network costs
- Ie, LUOS tariffs are a distraction—or a stepping-stone towards more cost reflective tariffs

TOTAL ENVIRONMENT CENTRE

What now?

- Tariff trials
- LUOS tariffs on 2024-29 network tariff structure statements (TSSs)
- Battery trials + pilots

TOTAL ENVIRONMENT CENTRE

Quantum of discount (LRMC, $/kW)

LRMC by Voltage Level	
ST	6
HV	30
LV	20

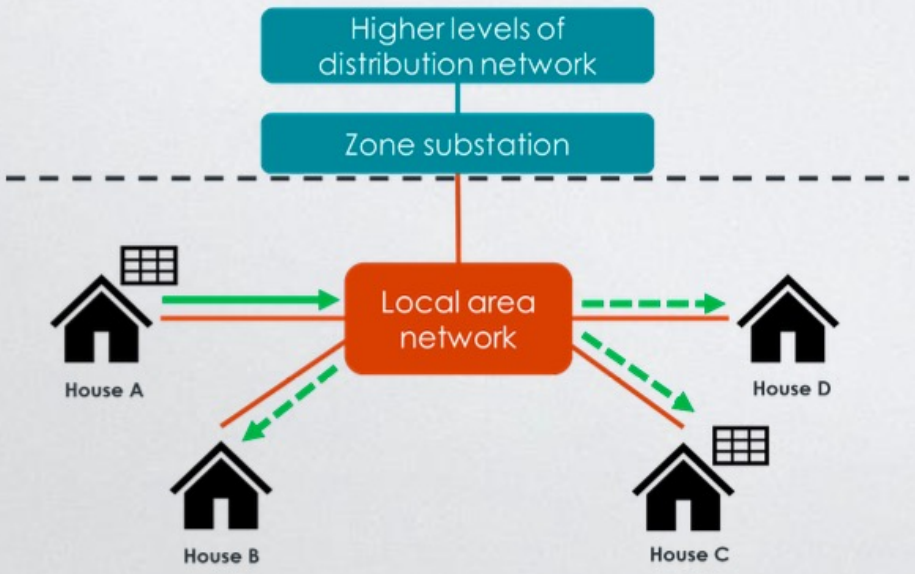
LRMC by Tariff Class		
ST	$	6
HV	$	36
LV	$	56

TOTAL ENVIRONMENT CENTRE

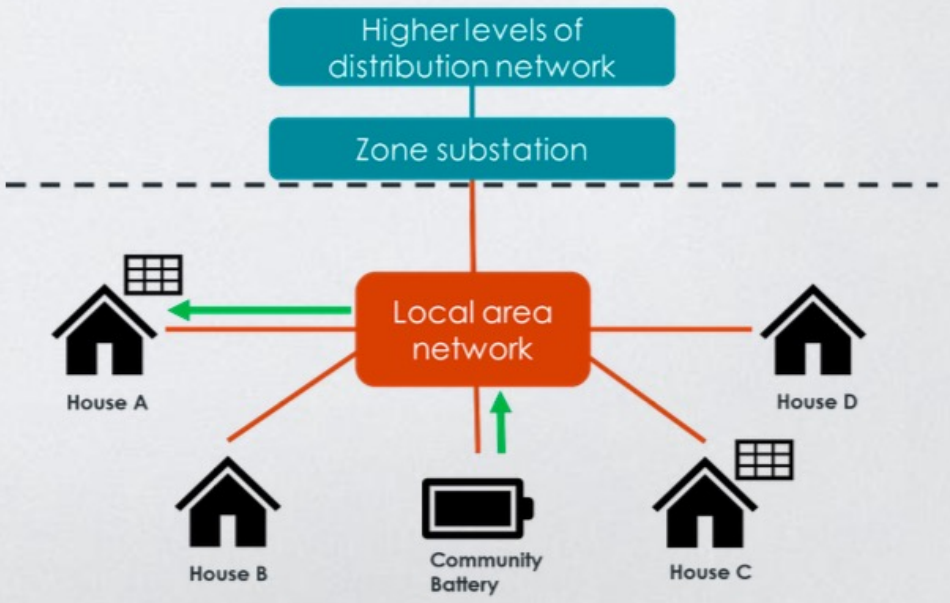
Increasing local flows mean that customers are increasingly using only the local distribution network to source energy

As the energy transition continues, we expect there will be less reliance on networks facilitating energy flowing from large centralised generators to consumers

Energy from a local solar PV powering local households



Energy from a community battery using the local network



Local use of system (LUOS) tariff trial examines how standard network tariffs can be discounted for customers that source energy locally

Ausgrid

Key questions for PWG

- Should customers that source local power avoid completely contributing to the costs of the remainder of the network?
- What are the practical challenges with implementing alternative LUOS designs?
- Where discounts are applied for local network users, how does this affect tariffs for those customers that make use of rest of the network?

Proposed tariff trial design

- Network tariff pricing principles remain relevant for LUOS tariff design, and so:
  - LUOS tariffs should reflect the costs arising from use of the local system, which implies that the discount should reflect the network costs avoided by sourcing energy locally
  - Important to retain price signals when local imports or exports contribute to network costs
- The proportion of locally sourced energy changes throughout the day and year, and so it is difficult to practically measure for billing purposes
- Current intention is to base the LUOS tariff trial on the two-way flow tariff trial for low voltage customers
- Consideration needs to be given to how best to estimate the appropriate discount:
  - historical average quantum of locally sourced energy;
  - allocation of costs between local and rest of network; or
  - measurement of actual local flows (likely impractical in the near term).
- Where there are no local network constraints, in principle local network charge should be low or zero.

Summary of proposed tariff trials

Component	Low voltage two-way flow tariff trial	Controlled load tariff trial	LUOS tariff trial
Fixed charge	✓ *c/day*	✓ *c/kW/day*	✓ *c/day*
Import charges			
LUOS charges	✗	✗	✓ *c/kWh*
Peak	✓ *c/kWh*	✗	✗
Shoulder	✓ *c/kWh*	✗	✗
Off-peak	✓ *c/kWh*	✗	✗
Solar soak	✓ *c/kWh*	✗	✗
Export charges			
LUOS charges	✗	✗	✓ *c/kWh*
Peak	✓ *c/kWh*	✗	✗
Off-peak	✓ *c/kWh*	✗	✗
Solar soak	✓ *c/kWh*	✗	✗

example export tariffs

Network tariffs	Offpeak (overnight)	Midday solar peak	Evening demand peak
Export	No charge or reward	Low charge	High reward
Import	No charge or reward	Low reward	Low charge

Time of day	10pm to 10am	10am to 3pm	3pm to 10pm
Export $	0.00	0.02	-0.10
Import $	0.00	-0.02	0.10
Standing charge	$X/day		

TOTAL ENVIRONMENT CENTRE

Example

		reflecting the relatively low costs of off-peak supply, and thereby providing incentives for customers to switch their utilisation of the network to off-peak periods.
Large scale battery – residential area (123)	• Net energy (c/kWh) • Maximum demand (in billing period) (c/kVA/day) • Capacity (maximum demand in past year) (c/kVA/day) • Critical peak export rebate (c/kVAh) • Critical peak export charge (c/kVAh)	This tariff is being trialled in 2021/22. This tariff is available to commercial customers who meet the eligibility requirements set by Evoenergy.*** The **net energy charge** is levied on the electricity imported minus electricity exported (measured in kWh) by the large scale battery. The **maximum demand charge** will be based on the highest demand (measured in kVA) calculated over a 30-minute clocked interval, starting on the full or half hour, during the specified residential area peak demand period (i.e. 5:00pm, 5:30pm, 6:00pm, 6:30pm, 7:00pm, 7:30pm, 8:00pm), within the billing period (generally a calendar month). The **capacity charge** is based on a customer's maximum half hourly demand over the previous 13 months inclusive of the current billing month. The **critical peak export rebate** provides customers who respond to a critical peak event with a credit on their network electricity bill. Customers on this tariff will be notified (by Evoenergy) of up to six critical peak rebate events (per financial year) up to 48 hours before the event commences. The maximum duration of each critical peak event is three hours. Customers who export during the critical peak event will receive a rebate based on the level of electricity exported (measured in kVAh) within the critical peak period. The **critical peak export charge** will apply when customers export during a critical peak event. Customers on this tariff will be notified (by Evoenergy) of up to six critical peak charge events (per financial year) up to 48 hours before the event commences. The maximum duration of each critical peak event is three hours. Customers who export during the critical peak event will pay the critical peak export charge based on

LUOS and export tariffs

How does the installation of a community battery change the case for export tariffs?

- Where CSB relieve network constraints, no justification for export tariffs (?)… OR…
- Where CSB relieve network constraints, export tariff required to pay capital cost
- Where CSB do not relieve network constraints, no impact on justification for export tariffs (?)

Next time (7 December)

“The Battery Storage and Grid Integration Program (BSGIP), based at the Australian National University are developing a set of guidelines for the Victorian Department of Environment Land Water and Planning (DELWP) to guide people in making decisions about neighbourhood batteries. As part of structuring and developing these guidelines, we’d like input from the NB working group on what people (including the various different groups who may be involved) might need guidance on, and how to structure the guidelines to make them maximally (or optimally!) useful. We would like to get this input in an interactive way by facilitating working group members to explore their experiences with neighbourhood batteries and to map their decision-making journeys. It should be fun and interesting!”

Note: While the guidelines will be Victoria specific, a majority of the questions and issues we cover will be relevant across all jurisdictions.