

**BUILDING A LEVEL  
PLAYING FIELD FOR LOCAL  
ENERGY  
WITH LOCAL NETWORK CREDITS  
AND VIRTUAL NET METERING**

Jay Rutovitz, Institute for Sustainable Futures

Local Energy and Microgrids Conference, 28<sup>th</sup> April 2016

# OVERVIEW

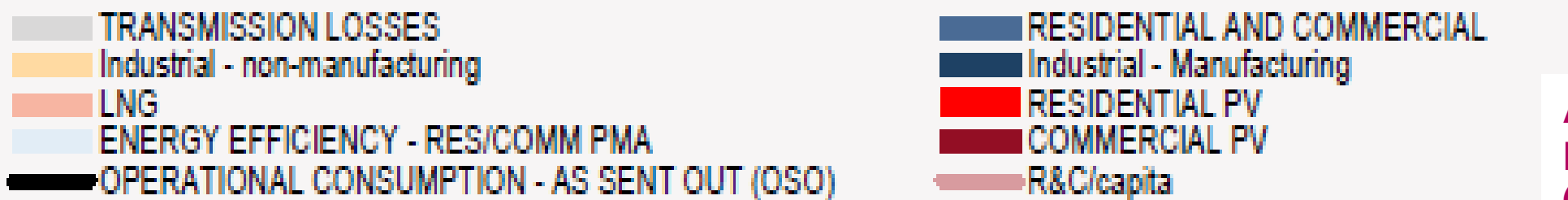
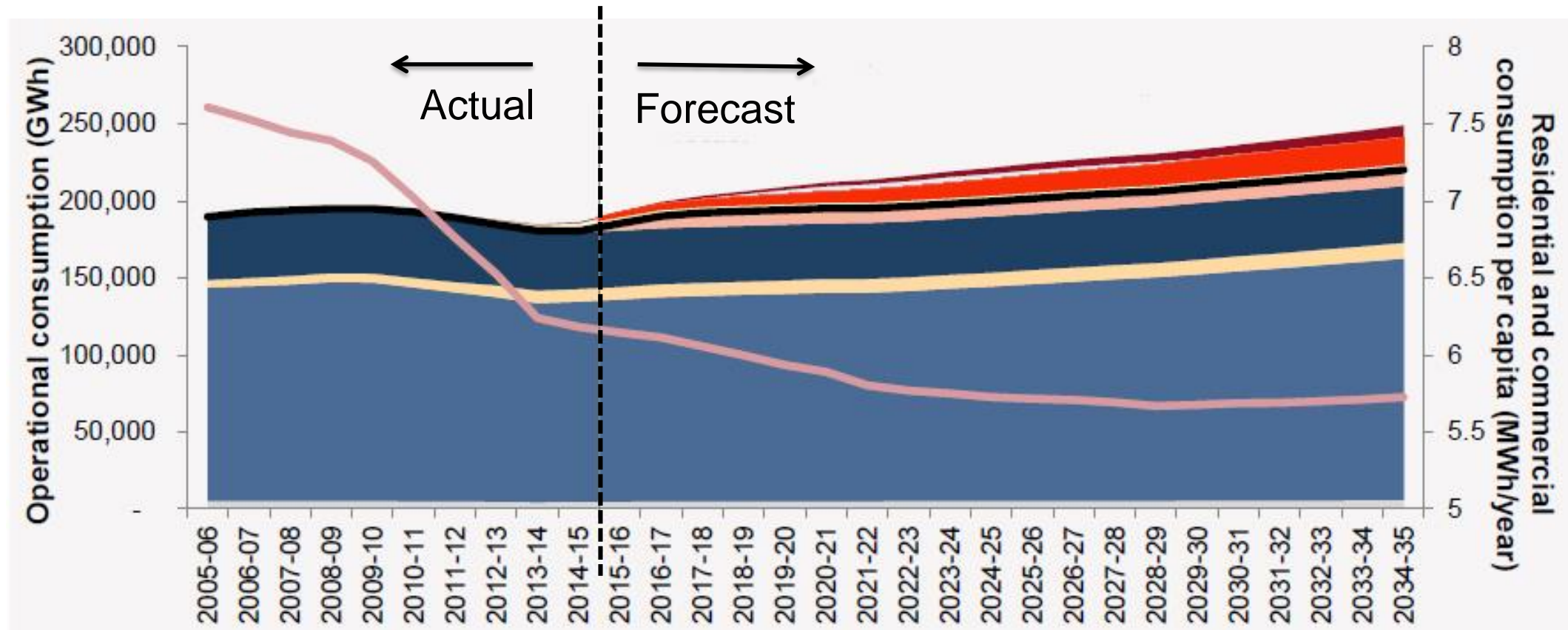
- The context - a transforming market
  - The project (Facilitating local network charges and Local Electricity Trading)\*\*
  - The concepts – what are LNCs and LET?
  - Project results (so far)
  - What next
- \*\*formerly known as Virtual Net Metering*



# CONTEXT

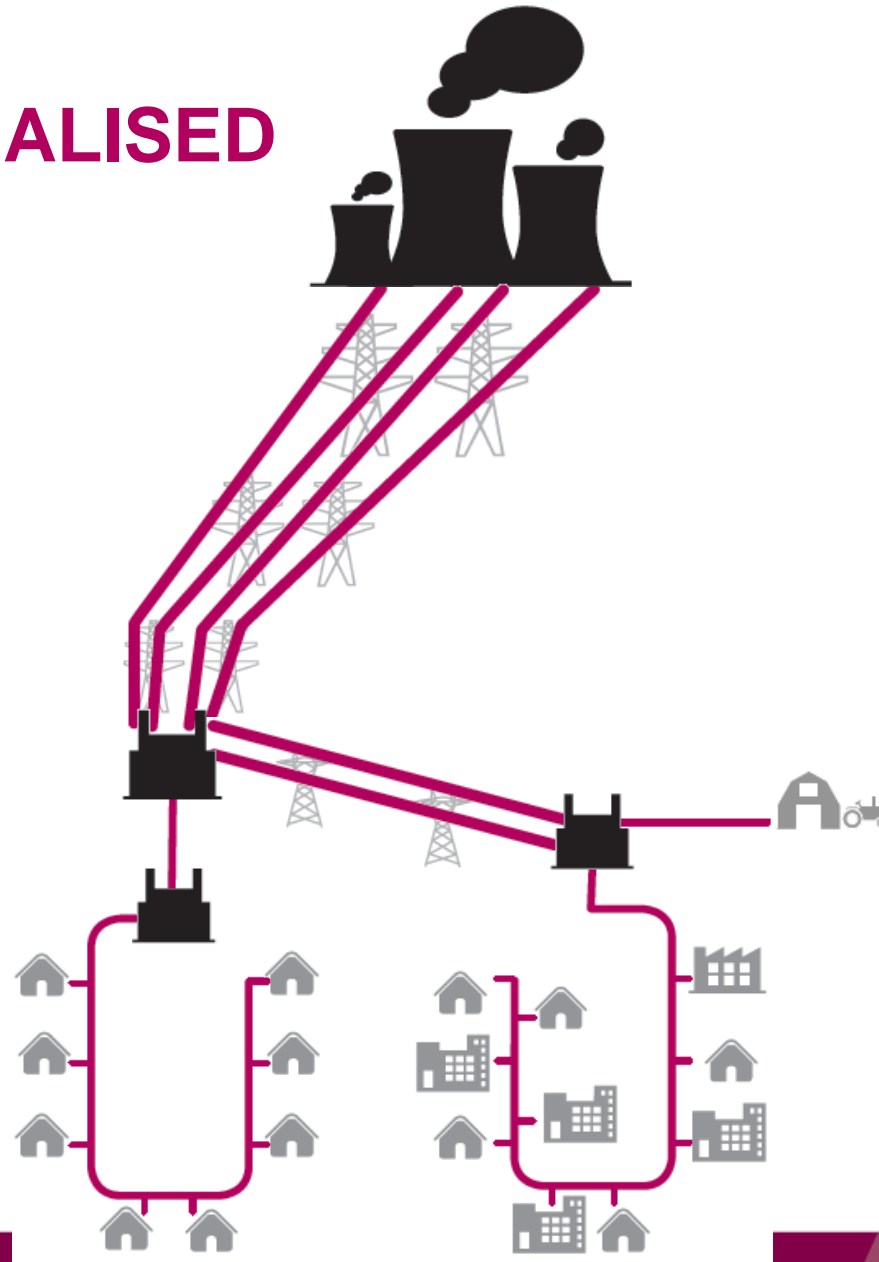


# TIME OF TRANSFORMATION

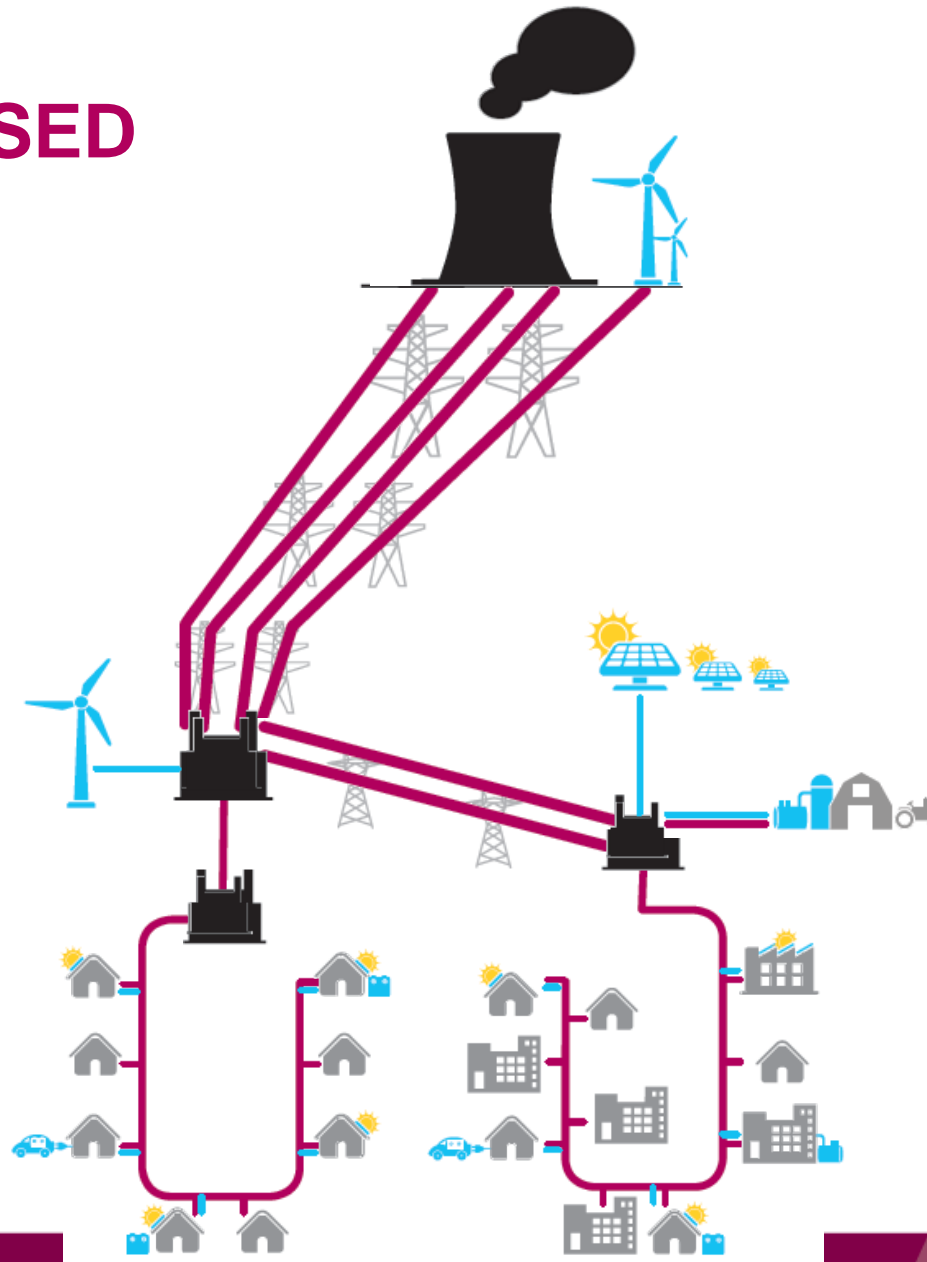


**ANNUAL ENERGY FORECAST FOR THE NEM**  
(June 2015 NEFR)

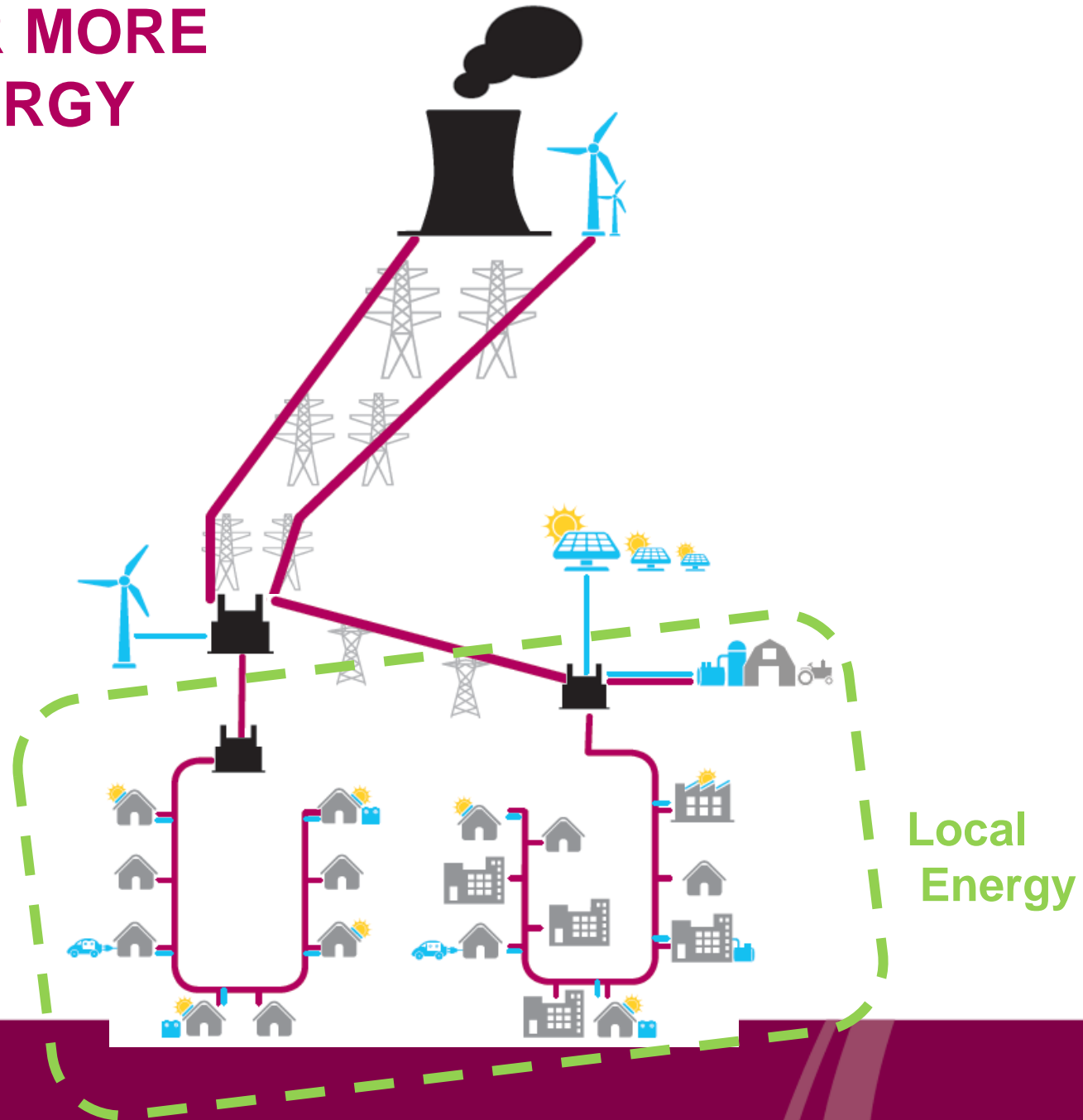
# TODAY: HIGHLY CENTRALISED NETWORK



# THE FUTURE: DECENTRALISED NETWORK



# ...WITH FAR MORE LOCAL ENERGY



# THE PROJECT

## FACILITATING LOCAL NETWORK CHARGES AND LOCAL ELECTRICITY TRADING\*\*

**\*\* *VIRTUAL NET METERING (VNM)***



# WHAT ARE WE DOING?

**Objective: To facilitate the introduction of local network charges & Local Electricity Trading\*\***

- Five case studies, or “virtual trials”
- A recommended methodology for calculating local network charges
- An assessment of technical requirements and indicative costs for Local Electricity Trading
- Economic modelling of benefits & impacts
- Increase stakeholder understanding and support for rule change(s)

**\*\* also called *Virtual Net Metering or VNM***

# PARTNERS: A BROAD COALITION

PROJECT  
LEAD



MAIN  
SPONSOR

ARENA



Australian Government  
Australian Renewable  
Energy Agency



CITY OF  
SYDNEY



Energy Australia

Origin Energy

Ausgrid

Essential Energy

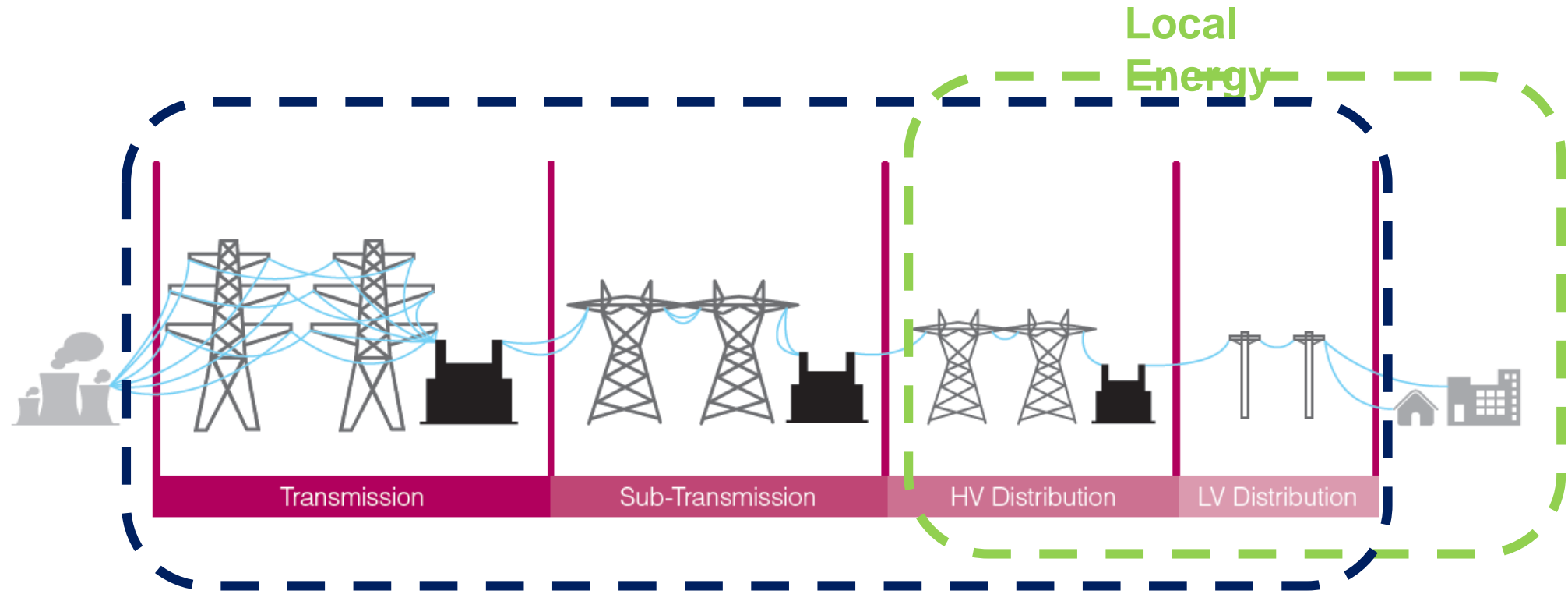
Australian Energy Council

Electricity Networks Association

Clean Energy Council

# THE CONCEPTS: LOCAL NETWORK CHARGES LOCAL ELECTRICITY TRADING

# NETWORK CHARGES - WHAT HAPPENS NOW



Current network charges for local energy

# THE PROBLEM

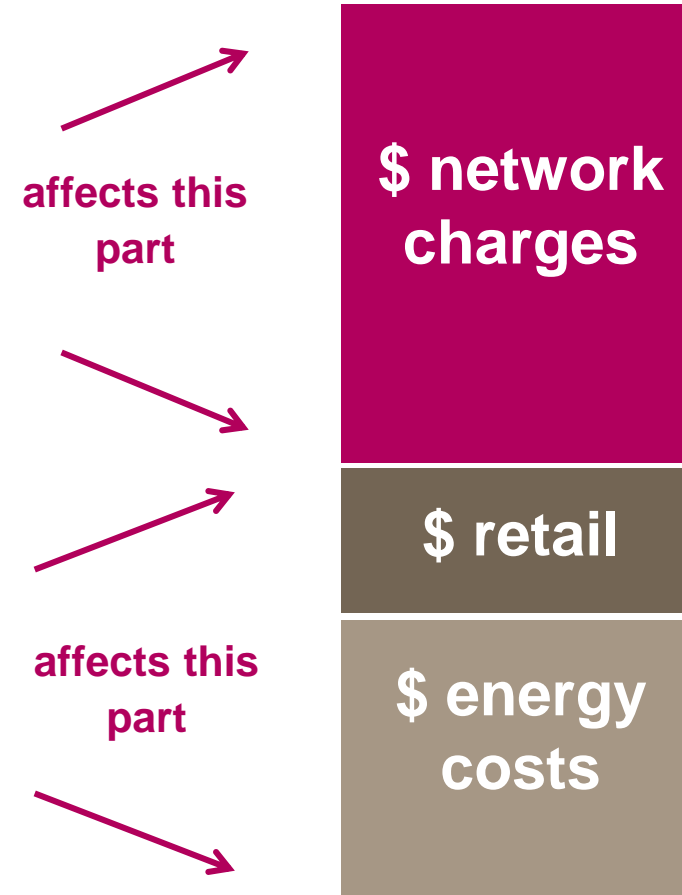
- 1. Perverse incentive to duplicate infrastructure** (build embedded networks/private wires)
- 2. Little financial incentive to export energy**
  - Constrains potential cost effective DG, sizing is sub-optimal.
- 3. Strong incentive for customers/product developers to keep generation “behind the meter”**
  - Underutilised network → remaining grid consumption costs more

# THE CONCEPTS

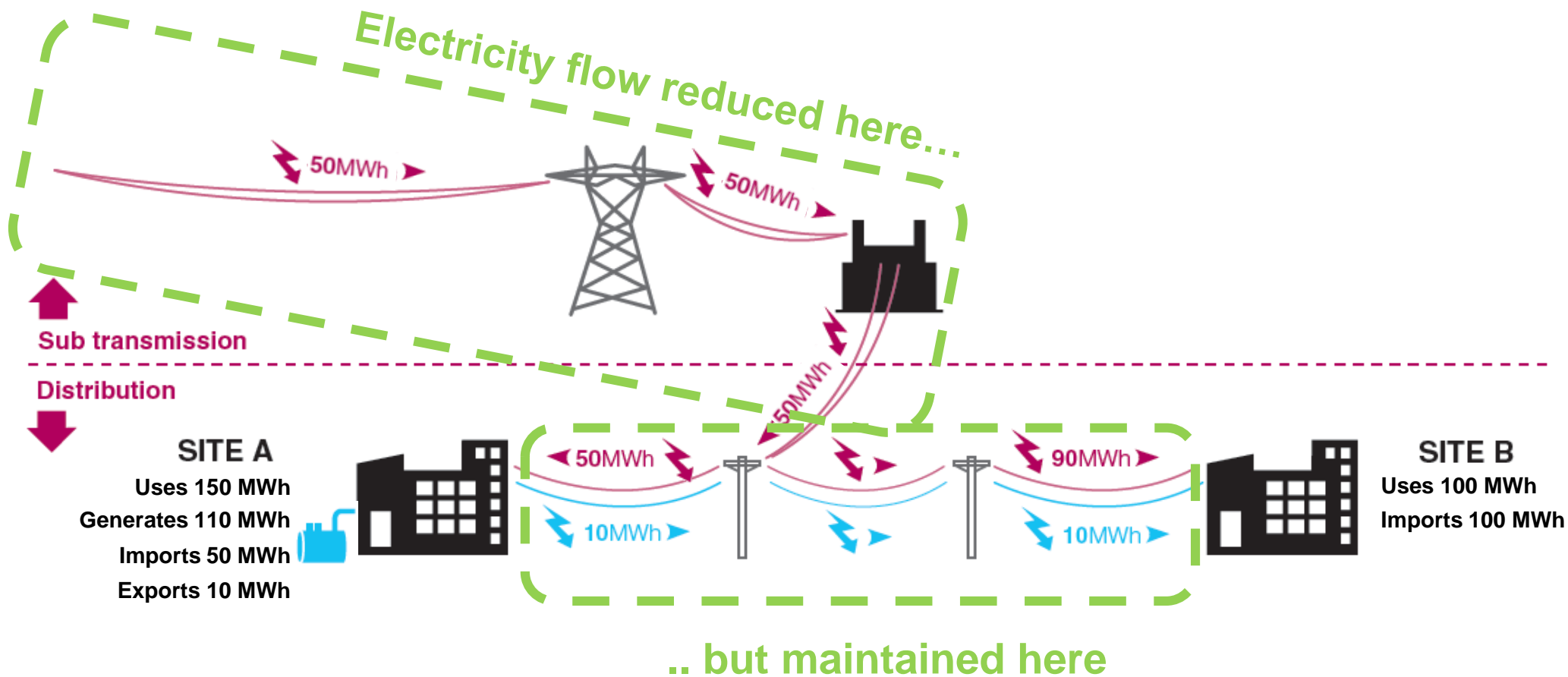
- Local network charges: reduced tariffs for electricity generation used within a defined local network area
- Local Electricity Trading\*\* requires *netting off* generation from one site at another site on a time-of-use basis, so that Site 1 can ‘sell’ or assign generation to nearby Site 2

\*\* *also known as VNM*

## TYPICAL MAKEUP OF ELECTRICITY BILL

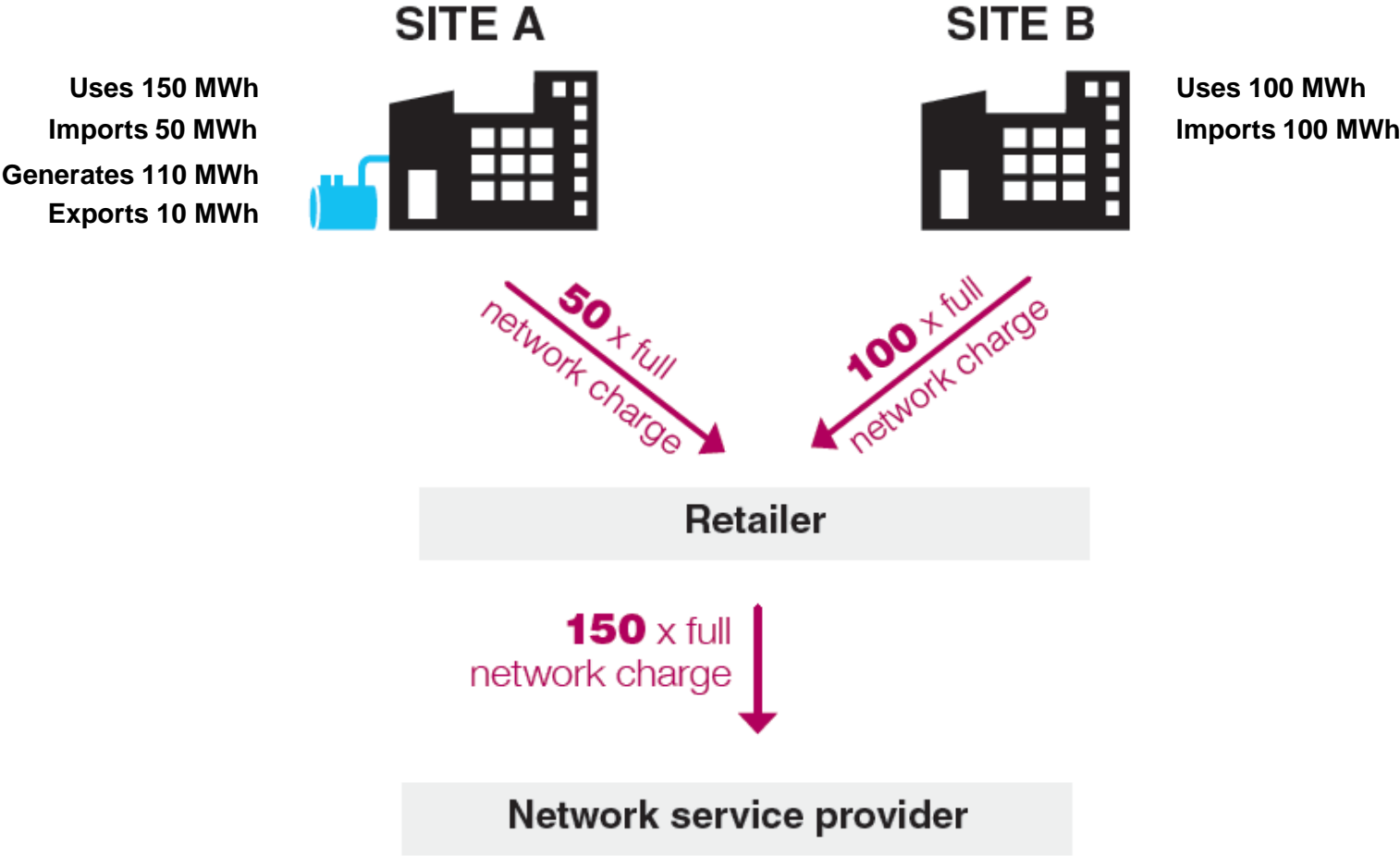


# PHYSICAL ELECTRICITY FLOWS



# MONETARY FLOWS

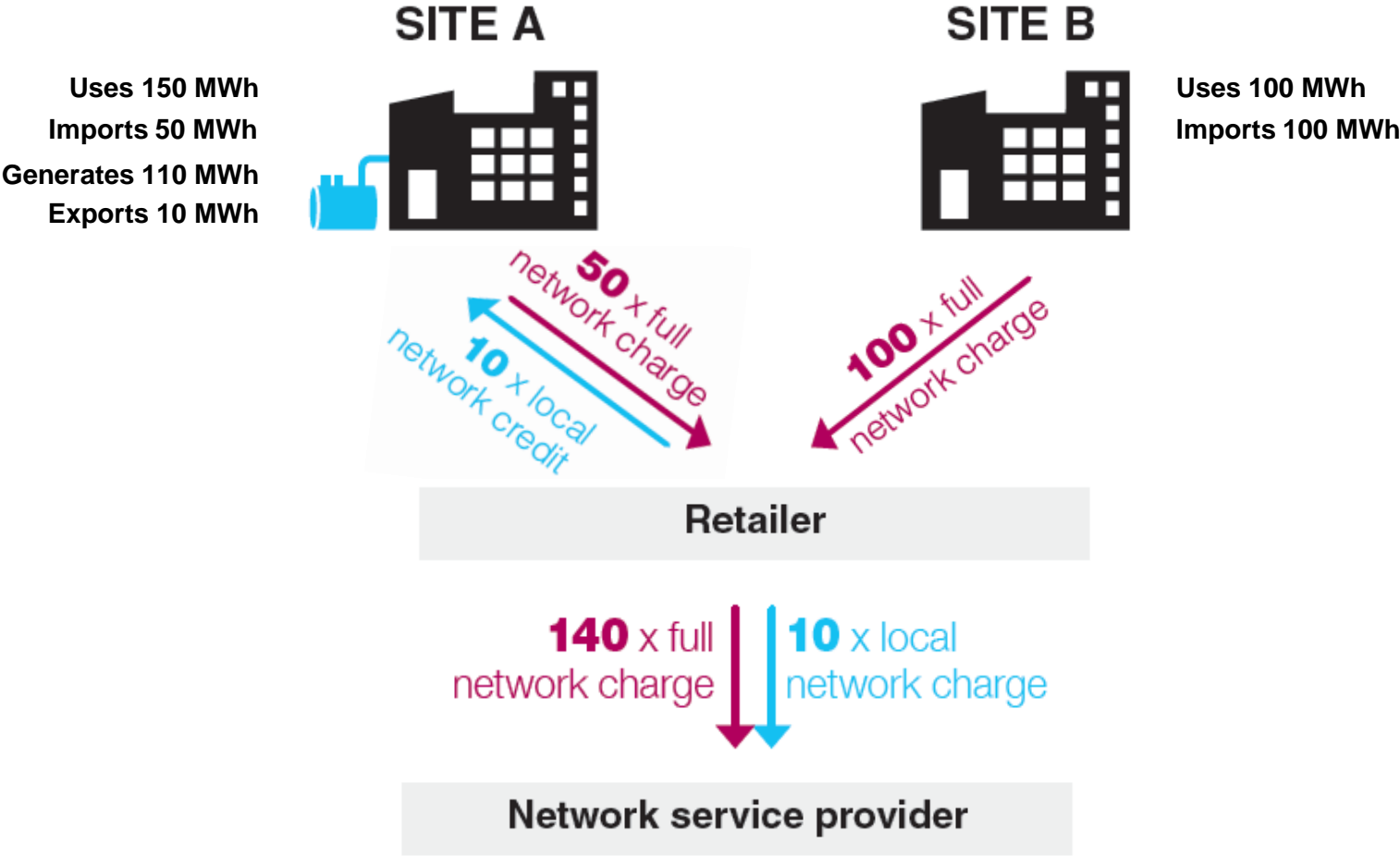
## CURRENT NETWORK CHARGES





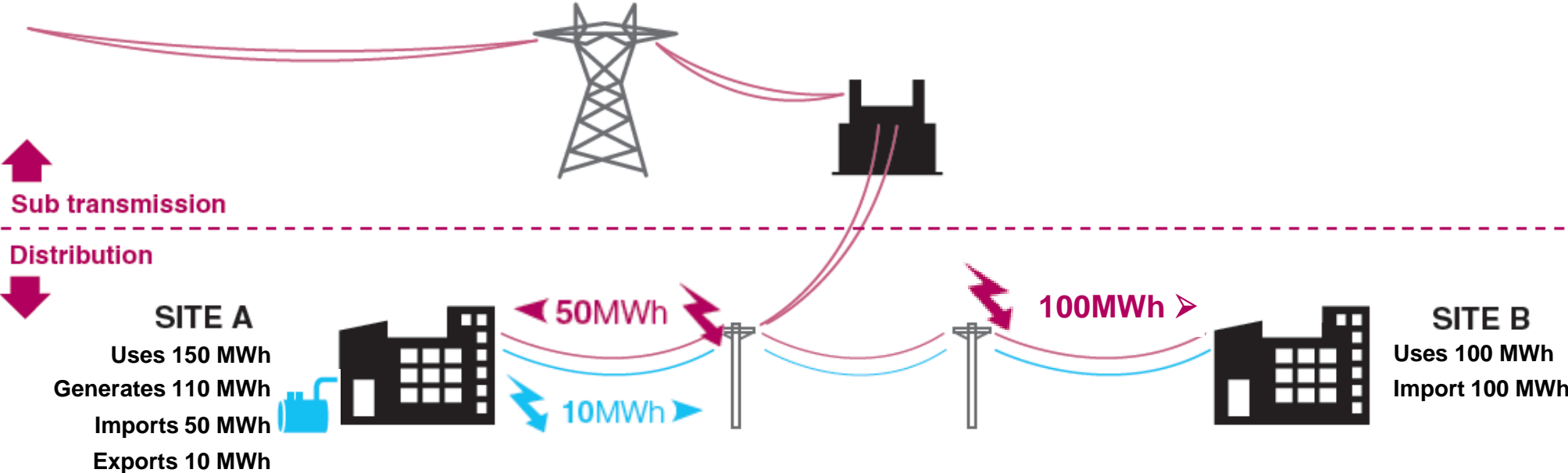
# MONETARY FLOWS

## LOCAL NETWORK CREDIT



# MONETARY FLOWS

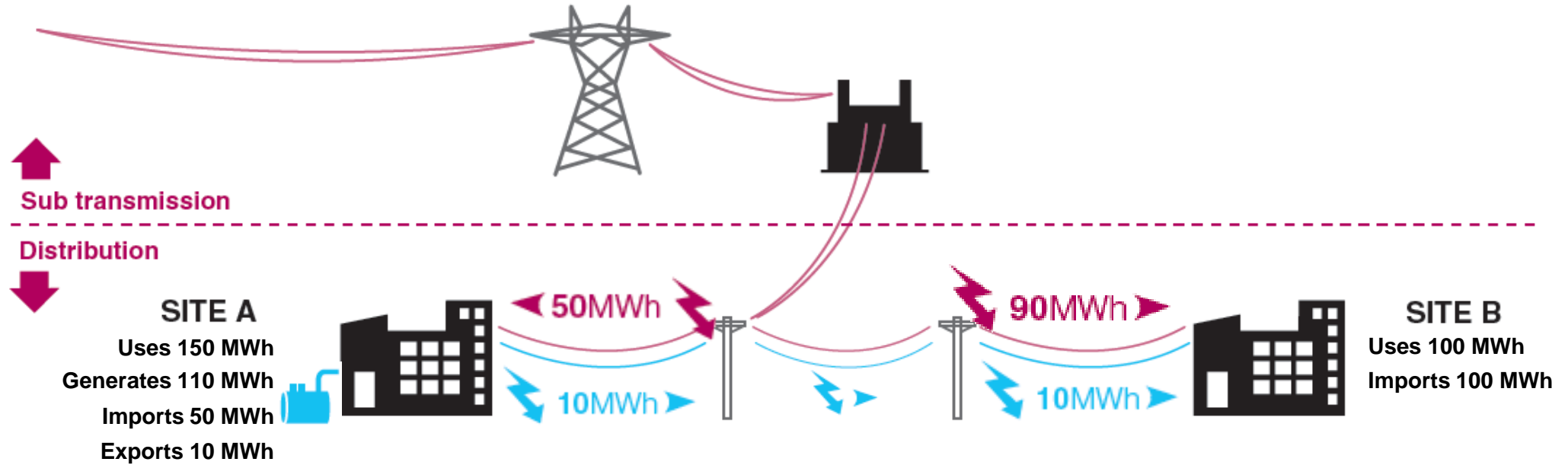
## CURRENT ELECTRICITY PURCHASE



**SITE B purchases 100MWh of electricity from retailer**

# MONETARY FLOWS

## LOCAL ELECTRICITY TRADING



**Site B purchases 90MWh from Retailer**  
**10MWh generated at SITE A is “netted off” at SITE B**

# PROJECT RESULTS (PRELIMINARY)

virtual

# THE TRIALS



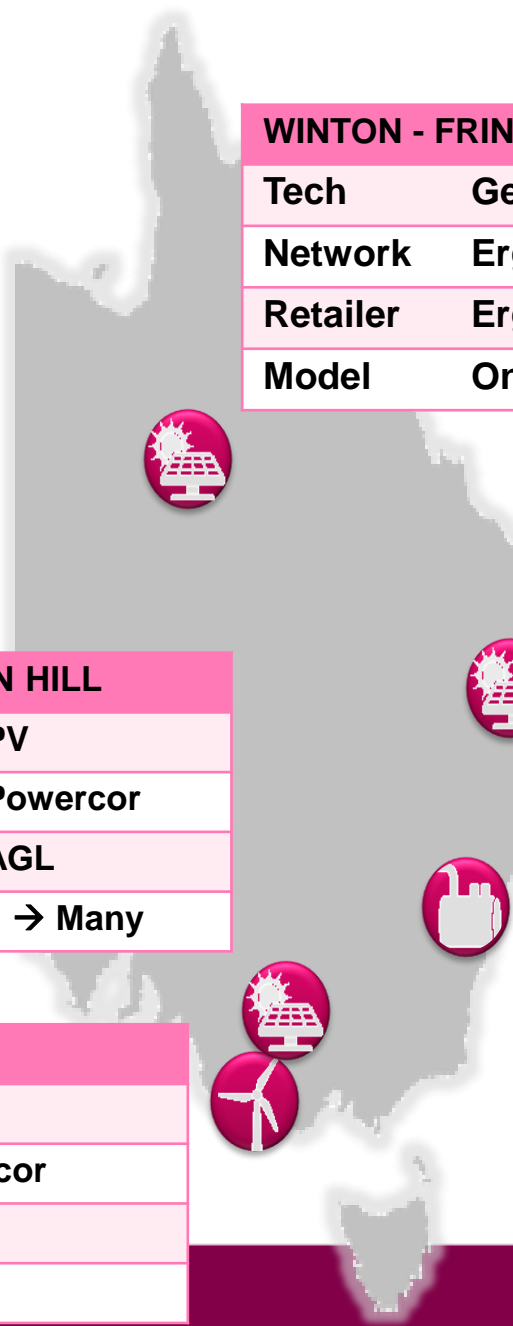
WINTON - FRINGE OF GRID	
Tech	Geothermal
Network	Ergon Energy
Retailer	Ergon Energy
Model	One → One

BYRON	
Tech	PV
Network	Essential
Retailer	Origin
Model	Council 1 → 1

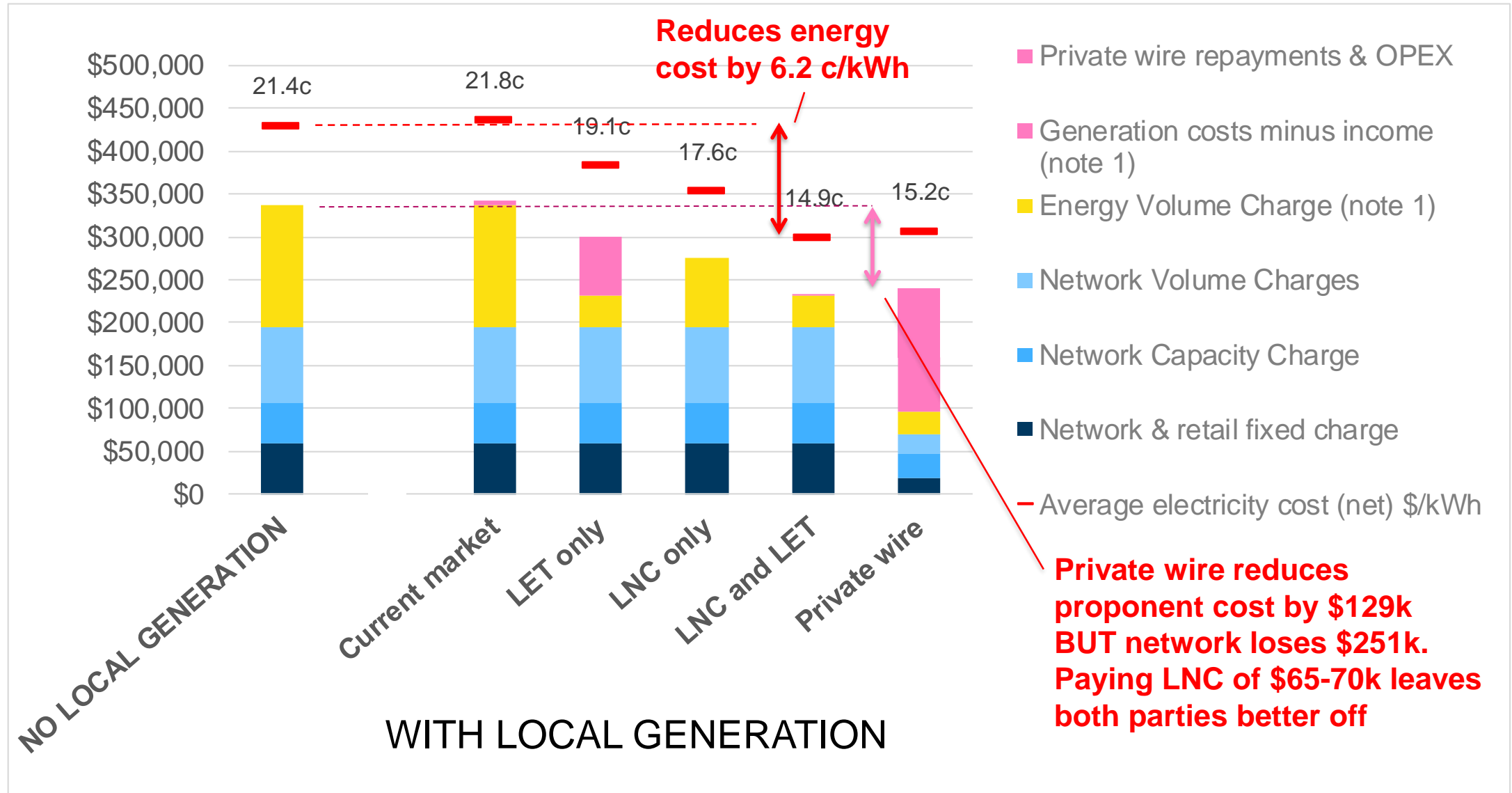
MOIRA/SWAN HILL	
Tech	PV
Network	Powercor
Retailer	AGL
Model	1 → Many

WILLOUGHBY	
Tech	Cogen
Network	Ausgrid
Retailer	Energy Australia
Model	Council 1 → 1

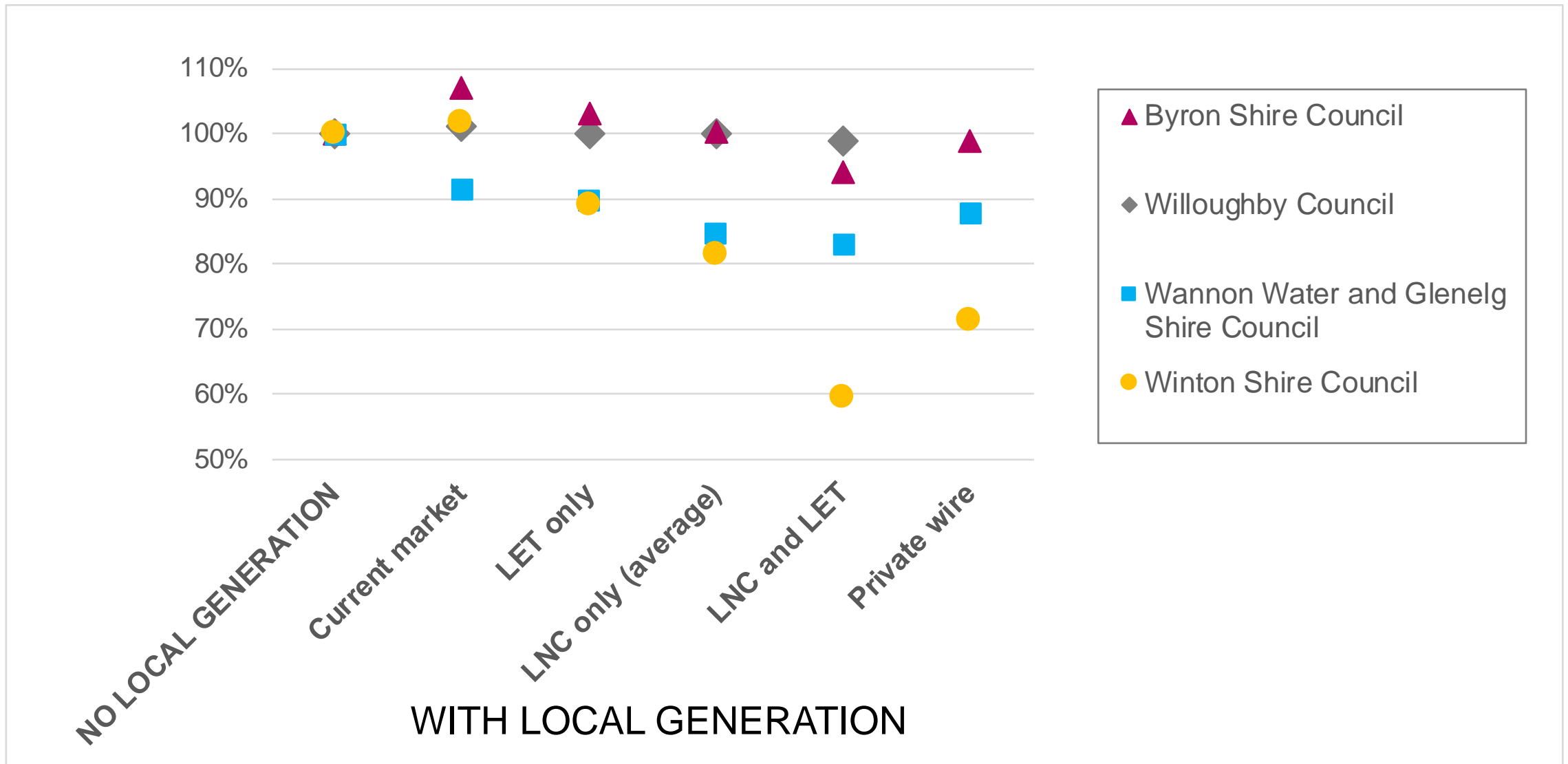
WANNON WATER	
Tech	Wind
Network	Powercor
Retailer	AGL
Model	1 → 2



# WINTON GEOTHERMAL PROJECT RESULTS: ANNUAL COST BY SCENARIO



# TRIALS RESULTS – IMPACT ON PROPONENTS (TOTAL ENERGY COSTS)



# WINTON TRIAL - NETWORK BUSINESS, NET LOCAL IMPACT

	Current market	LNC only (M1)	LNC only (M2)	Private wire
Effect on charges (excluding LNC)	\$400	\$400	\$400	-\$125,500
Local network credit	-	-\$65,700	-\$70,100	-
<b>Net effect on NSP local income</b>	<b>\$400</b>	<b>-\$65,400</b>	<b>-\$69,700</b>	<b>-\$251,200</b>

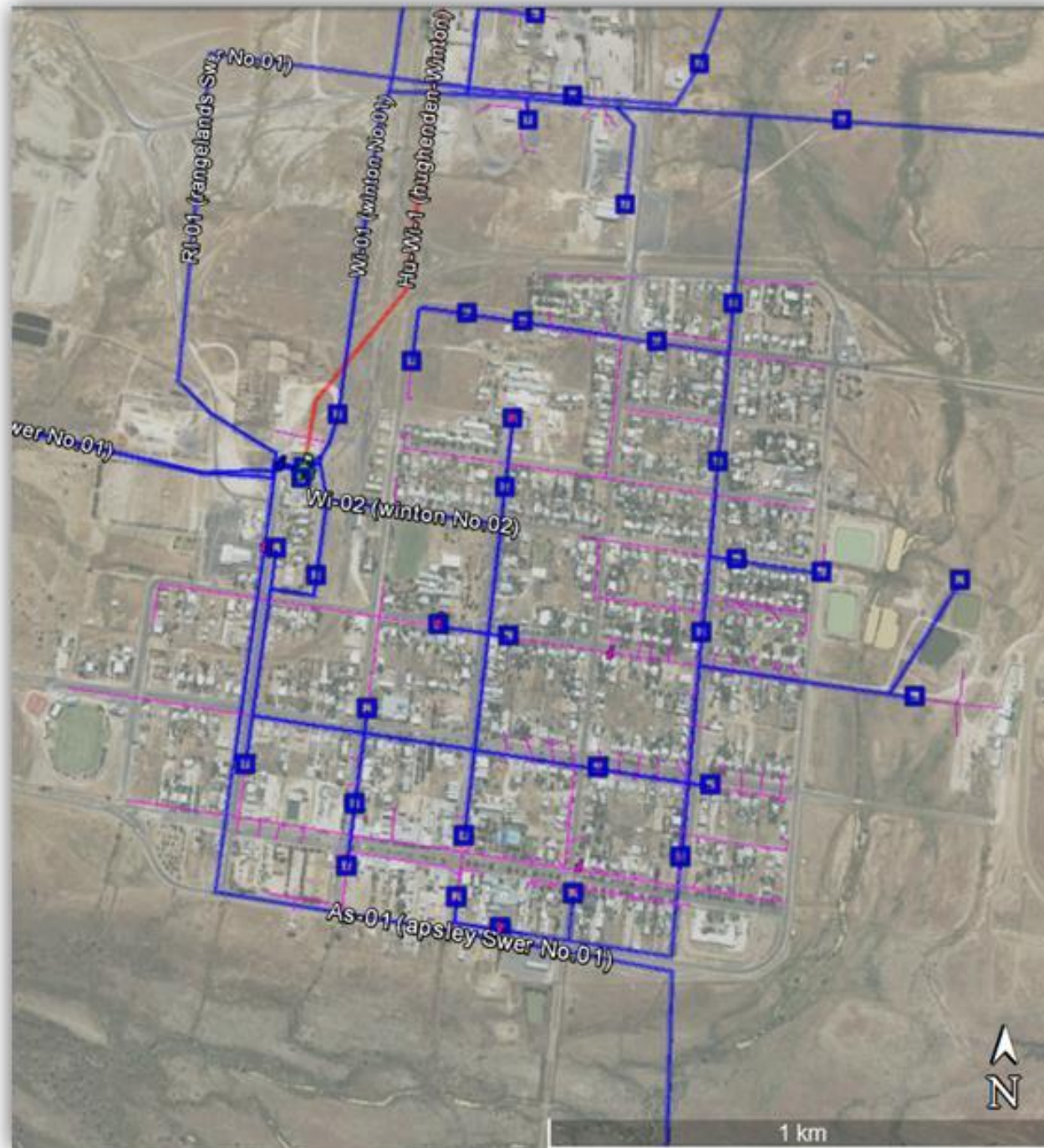
1. Ergon operates under a revenue cap, so any shortfall will be recouped during the next regulatory period.
2. Doesn't take account of network savings as a result of the local generation.



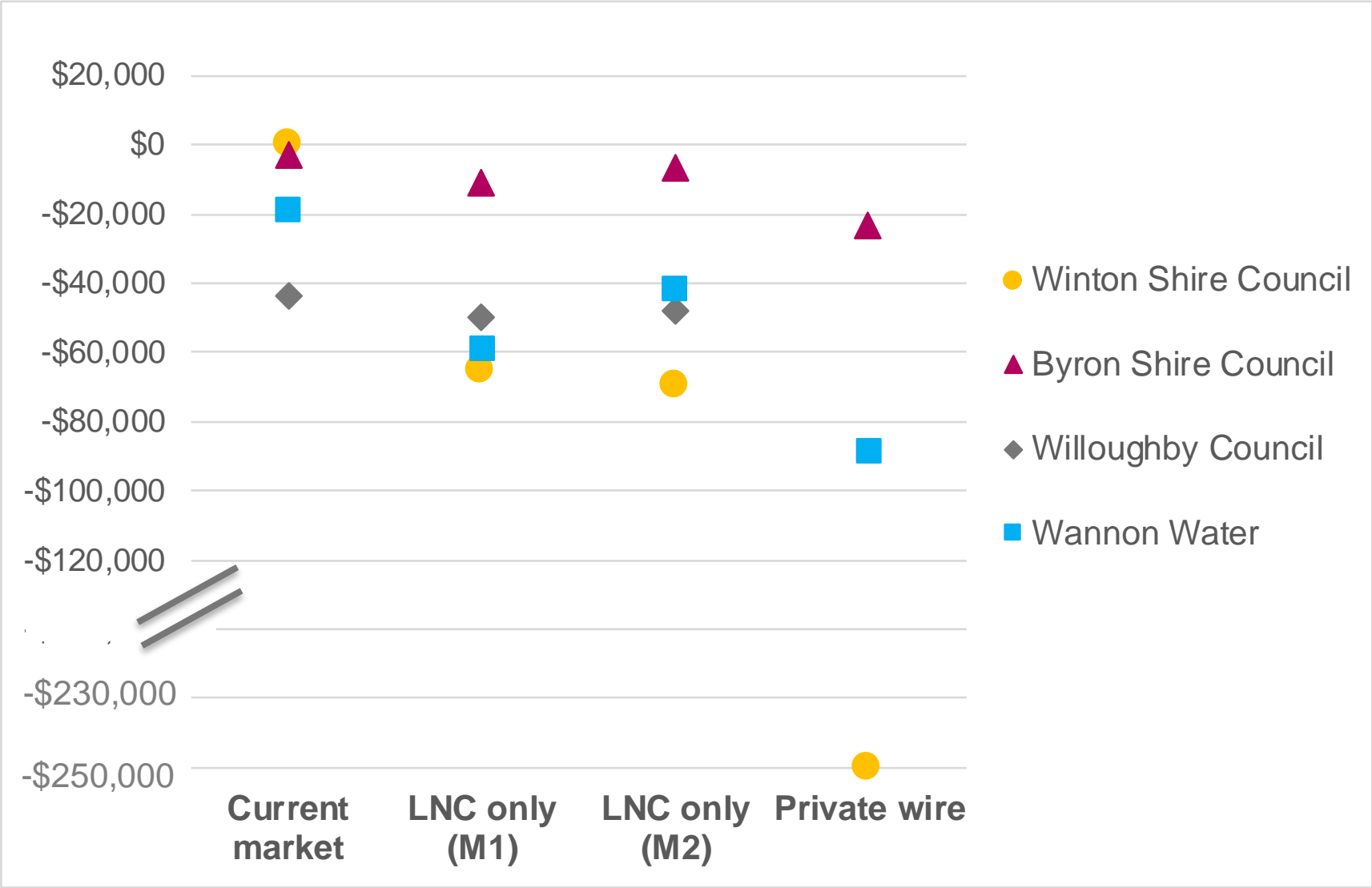
# WINTON NETWORK



# WINTON NETWORK



# TRIALS RESULTS – IMPACT ON NETWORK BUSINESSES



# WHAT NEXT

# LGNC RULE CHANGE PROPOSAL

- Submitted in July 2015 by City of Sydney, Total Environment Centre, and the Property Council of Australia
- Draft determination due early July
- Need your input to the consultation!!!!

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

Stay in touch – project website &  
sign up for newsletter

<http://bit.do/Local-Energy>

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