MURRAY VALLEY WINEGROWERS I **FIELD DAYS**

VINEYARD POSTS IN A CIRCULAR ECONOMY

14th &16th June 2025

Tripti Singh

Director, National Centre for Timber Durability and Design Life

VINEYARD IN MALENY, QLD

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We acknowledge the traditional owners of the land upon which we live and pay respect to Elders' past, present and

PRESENTATION OVERVIEW

- CONTEXT
- TIMBER CIRCULARITY PROJECT
- BUILDING FOUNDATIONS
  - VOLUMES & CONDITION
  - REGULATIONS & LOGISTICS
  - POTENTIAL PATHWAYS
  - GEOSPATIAL MAPPING
  - PILOTS
- STOCKPILING FOR THE FUTURE

VINEYARD IN TASMANIA

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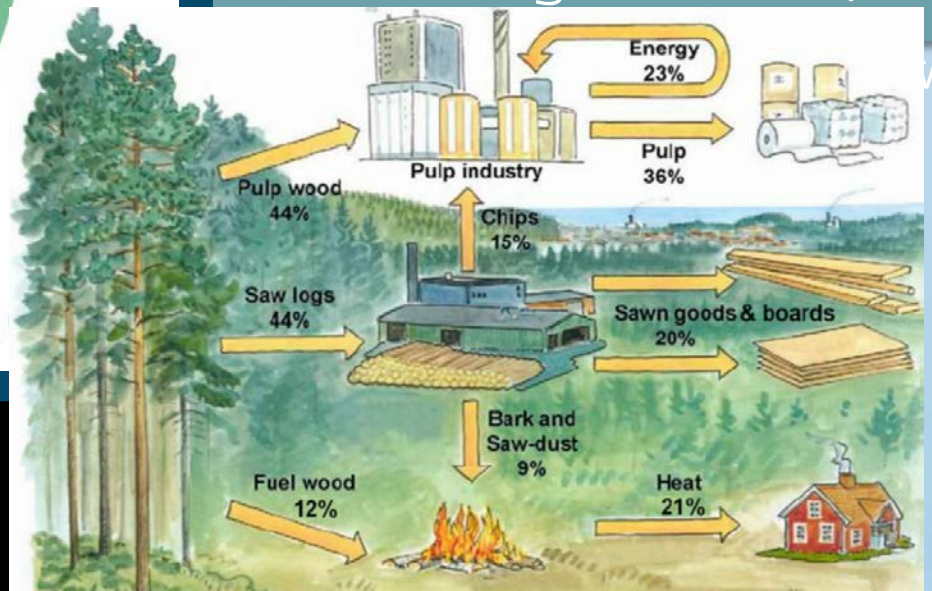
FORESTS FOR OUR FUTURE

Forests play a crucial role in:

- mitigating climate change,
- creating ecosystems,
- conserving biodiversity,
- providing sustainable and renewable resources,
- storing carbon,

wellbeing



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VINEYARD POSTS FROM PLANTATION THINNINGS

Plantation thinning improves forest health and makes the best use of forest resources

6 MONTHS UNTREATED

20+ YEARS TREATED

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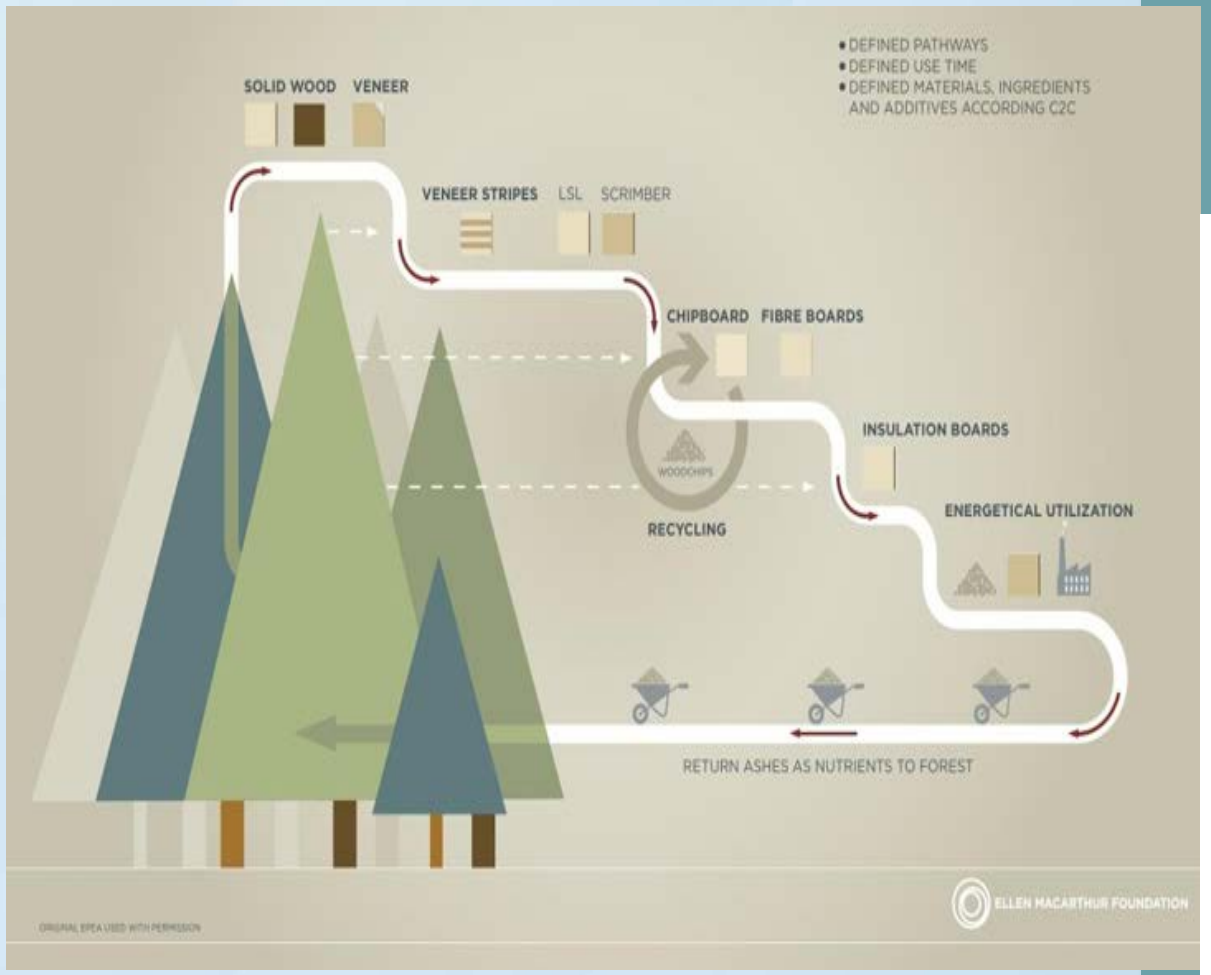
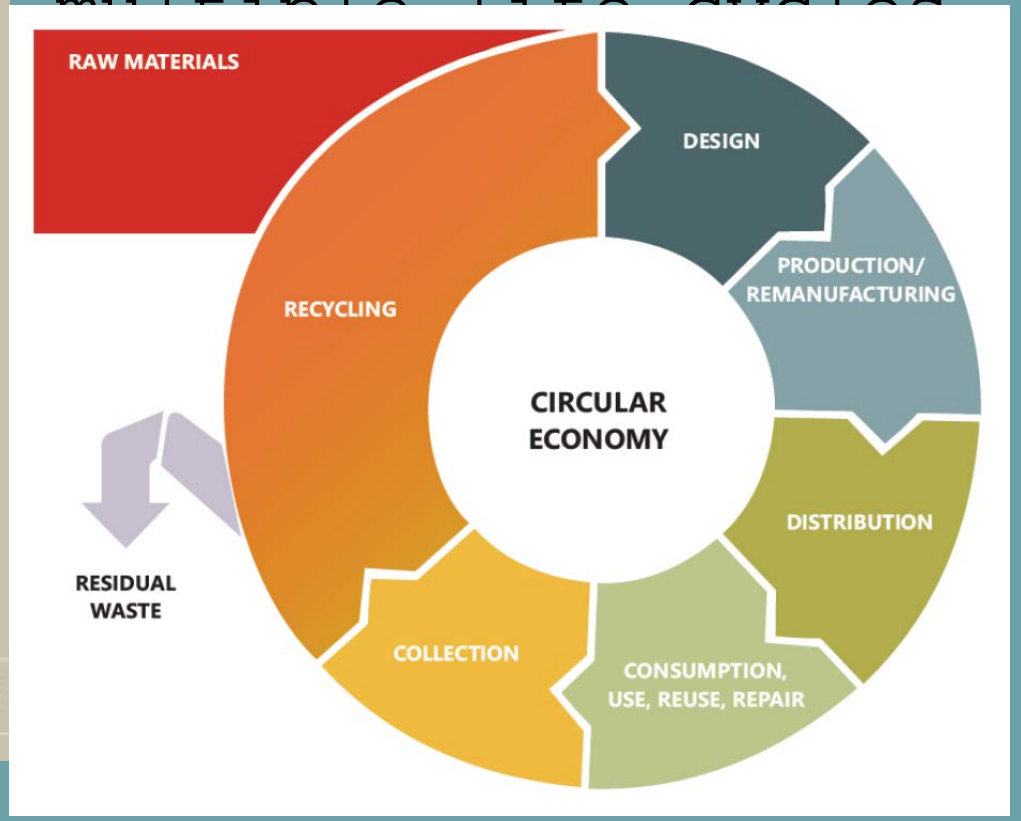
TIMBER LIFE CYCLES



Need to determine pathways for cycling or cascading through multiple life cycles



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CURRENT REALITY

- Millions of tonnes of timber resources wasted annually
- 60% timber resource directed to landfill at EOL.
-

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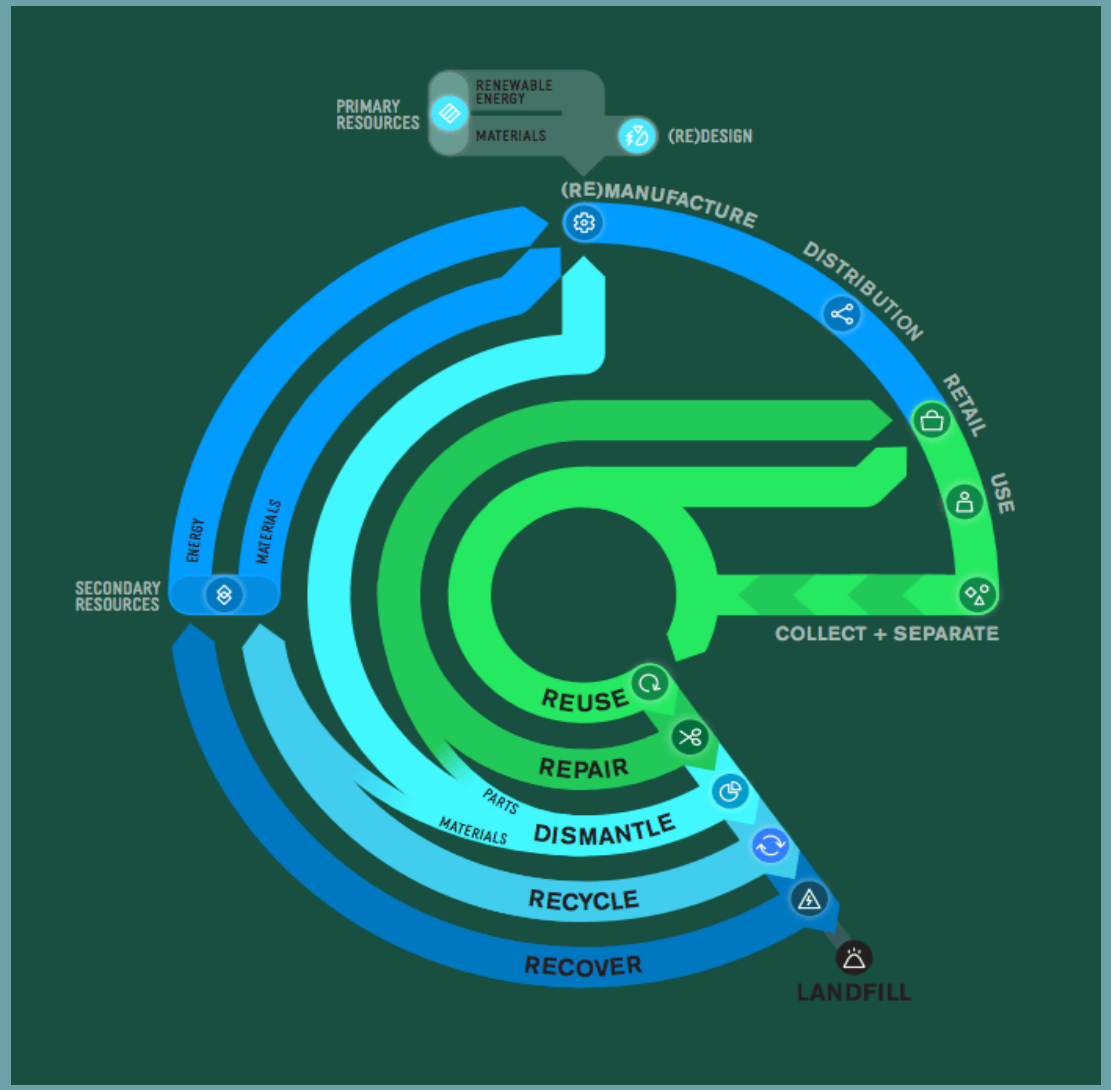
Australian Circular Economy Hub Diagram



Australian Circular Economy by 2030

TIMBER CIRCULARITY PROJECT

and implement strategies and solutions to keep the wood fibre in the supply chain within a circular bioeconomy.

Focus on the following products:

- CCA treated timber vineyard posts
- Frame and truss offcuts
- Engineered wood products
- Utility poles

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Australian Forest Products Association

KOPPERS Performance Chemicals

azelis Innovation through formulation

HEXION

FTMA AUSTRALIA

ewpaa

TIMBER CIRCULARITY PROJECT I **TASKS**

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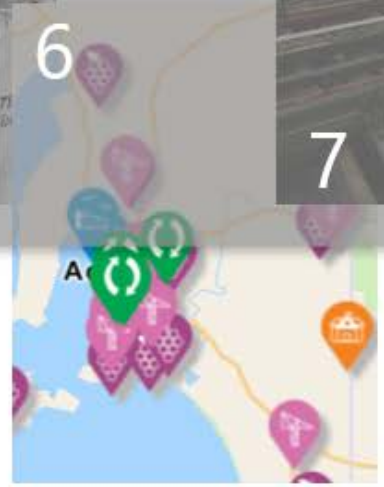


Volumes & Geographic Location

Condition & potential for reuse

Regulatory hurdles

Logistic models

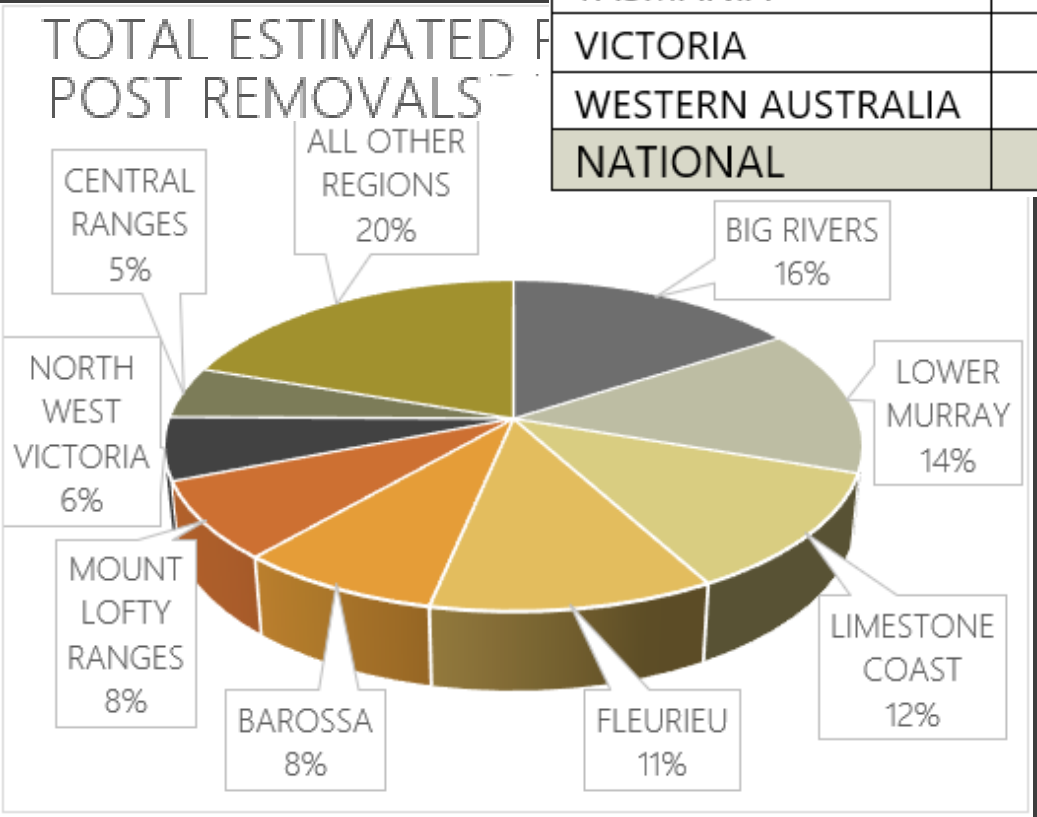
Reuse & Recycling Opportunities

Mapping

PILOT

VOLUMES

STATE	TOTAL POSTS REMOVED (2% attrition rate)	VOLUME OF POSTS (m^3)	DRY WEIGHT OF POSTS (t/yr)
NEW SOUTH WALES	41,6387	6,662.19	3,271
QUEENSLAND	7,461	119.38	59
SOUTH AUSTRALIA	913,794	14,620.71	7,179
TASMANIA	20,639	330.22	162
VICTORIA	262,457	4,199.31	2,062
WESTERN AUSTRALIA	91,827	1,469.23	721
NATIONAL	1,712,565	27,401	13,454



VINEYARD POST REMOVALS

- 1.7 million posts removed annually
- Eight regions account for 80% of total posts removed
- 80% timber posts are CCA treated
- 27 million posts may be stockpiled

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CONDITION I **CHEMICAL ANALYSIS**

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RELATIVE AMOUNTS OF CCA IN RADIATA PINE POSTS

REGION	VINEYARD	YEAR		Average Retention by Element (%)			
				Cu	Cr	As	Total
Langhorne	A	1997	%	0.17	0.25	0.21	0.64
			Balance	0.27	0.39	0.34	
	B	1997	%	0.14	0.20	0.18	0.51
			Balance	0.27	0.38	0.35	
	C	2002	%	0.16	0.23	0.21	0.61
			Balance	0.27	0.38	0.35	
Adelaide Hills	D	1997	%	0.19	0.30	0.23	0.72
			Balance	0.26	0.42	0.32	
	E	2003	%	0.24	0.35	0.12	0.70
			Balance	0.34	0.49	0.17	
	F	2007	%	0.19	0.26	0.25	0.71
			Balance	0.27	0.37	0.36	
AS/NZS 1604		Balance Standard		23-25	38-45	30-37	100

VINEYARD IN MONTVILLE

CONDITION I **VINEYARD POST STRENGTH TESTING**

KEY PARAMETERS TESTED

- Density
- Maximum load
- Maximum displacement
- MoE and MoR

FINDINGS

- Reclaimed posts retain sufficient strength and consistency to be used as

STRENGTH TESTING STOCKPILED VINEYARD POSTS

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REGULATIONS

Regulations regarding end-of-life (EOL) treated timber are set and enforced by each state.

- While all states are moving to a circular economy, landfill is the major option for EOL treated timber
- Regulations for reusing or recycling EOL treated timber can differ markedly between states

Common regulations are needed across Australia to facilitate and encourage reuse and recycling of

VINEYARD IN SOUTH AUSTRALIA

In Queensland, the “End of Waste” code allows treated timber reuse with

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LOGISTICS

Reusing or recycling old posts includes many logistical challenges

CHALLENGES

- Sorting – visual inspection
- De-nailing/ removing contaminants – hand or equipment
- Bundling/ strapping
- Loading
- Transporting
- Unloading
- Processing –

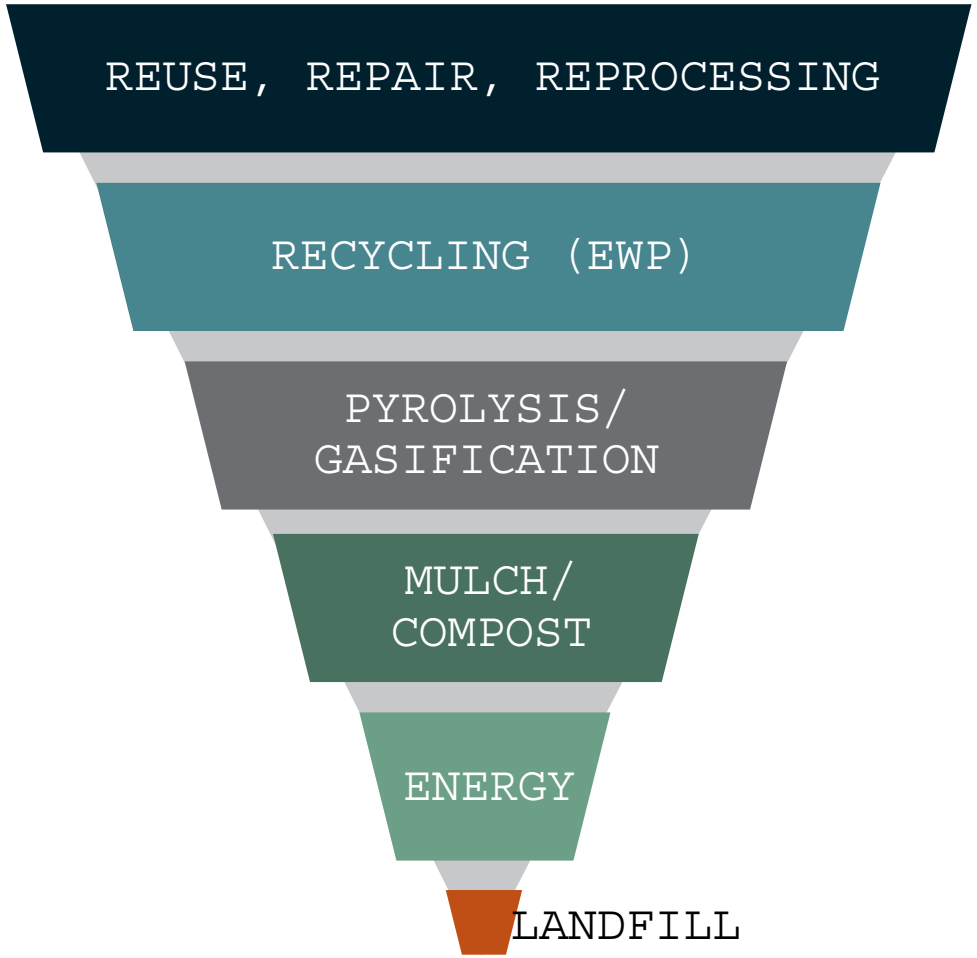
COST DRIVERS

- Transport distance
- Quantity to be transported
- Storage
  - No storage – "just-in-time"
  - Storage at producer of EOL treated timber or EWPs

LANDFILL COST COMPARISONS		
STATE	REGION	AVERAGE COST PER TONNE
NSW	Metro	$340
	Regional	$244.92
QLD	Metro	$282.70
	Regional	$236.70
SA	Metro	$327.60
	Regional	$310
TAS	Metro	$118.50
	Regional	$118.50
VIC	Metro	$330.97
	Regional	$264.50
WA	Metro	$163.75
	Regional	$150

POTENTIAL PATHWAYS

The goal is to avoid resources going to the landfill



- CCA Treated timber post repair or reuse
- 1% CCA chips recycled into particleboard
- Production of energy and biochar from CCA treated timber
- Breakdown with biological processes
- Thermal energy and bioenergy using wood as fuel
- Wood Resources to landfill

PYROCAL VISIT

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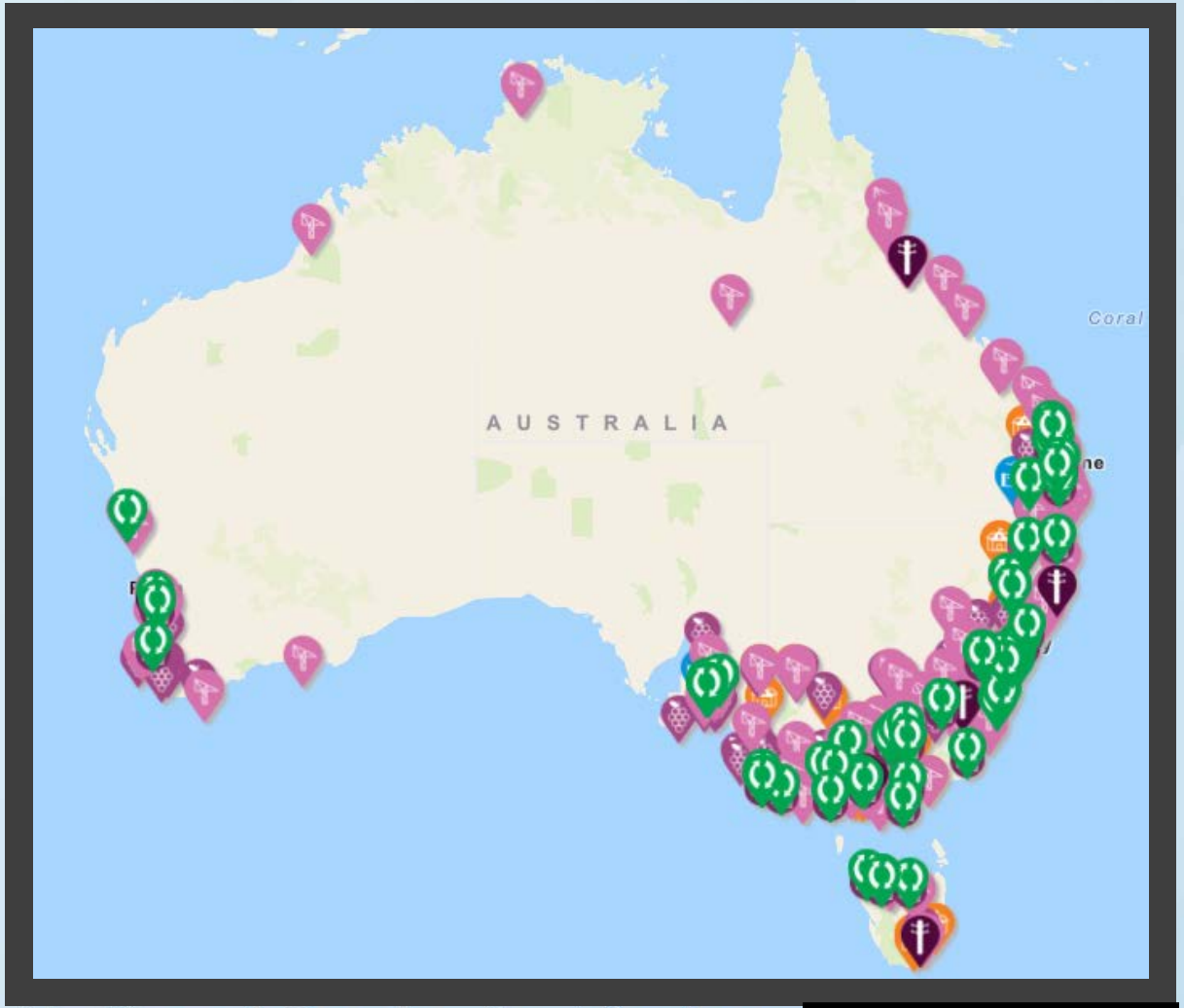
SOLUTIONS MATRIX

The matrix hierarchy against a range of issues

- POTENTIAL SOLUTION
- CURRENTLY AVAILABLE (AU)
- ORGANISATION
- LOCATION
- DETAILS
- TIMBER TYPE ACCEPTED
- ECONOMICS
- ECOLOGICAL ISSUES
- TECHNICAL ISSUES
- SCALE
- REGULATIONS

POTENTIAL SOLUTIONS	CURRENTLY AVAILABLE	ORGANISATION	LOCATION	DETAILS	TYPE OF TIMBER
REUSE, REPAIR & REPROCESSING					
CCA Treated Post Reuse as Fencing Posts	√ (NZ only)	RePost	NZ	Reuse of vineyard posts - processing at site	CCA POSTS
CCA Post repair	√	OcLoc	Edwardstown, SA	Repair post rammed into ground alongside broken post & attached using	CCA POSTS
ENGINEERED WOOD PRODUCTS (RECYCLING)					
Particleboard	√	Australian Panels (Borg)	Oberon NSW	Current investigation with NSW EPA for trial.	Potentially CCA treated wood in small amounts.
Particleboard	√	Laminex	Gympie, QLD Hazelmere, WA	Will accept clean timber chips for particleboard - EWP or PTT	Potentially CCA treated wood in small amounts.
PYROLYSIS & BIOCHAR					
Pyrolysis	√	Pyrocal	Toowoomba, QLD	Systems available however too busy to complete trial in project	Potentially any wood resource
Gasification	√	Enerbi	WA	German technology, available for pilot in Nov.	Potentially any wood resource
MULCH & COMPOST					

TIMBER CIRCULARITY RESOURCE MAP



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PURPOSE

- The map provides a critical link between unused resources and potential solutions

OUTPUTS

- Website
- Geospatial Map
- User Guide
- Supporting data (collated from site-visits, surveys, discussions with industry and associations)

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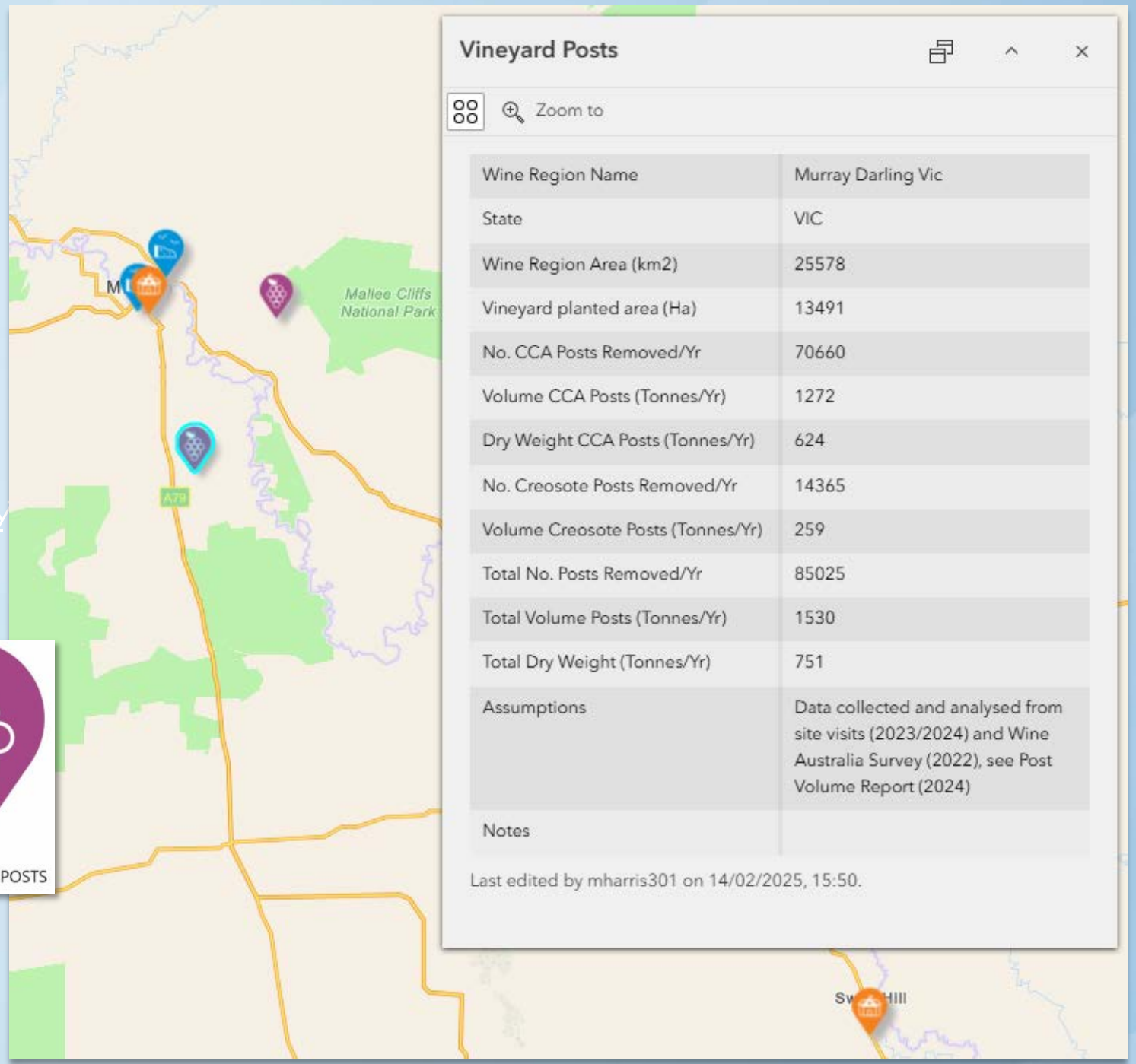
GEOSPATIAL MAP

INFORMATION COLLATION

- Region
- State
- Area
- Posts removed annually
  - Number & Tonnes
  - CCA & Creosote
- Assumptions
- Notes

VINEYARD POSTS



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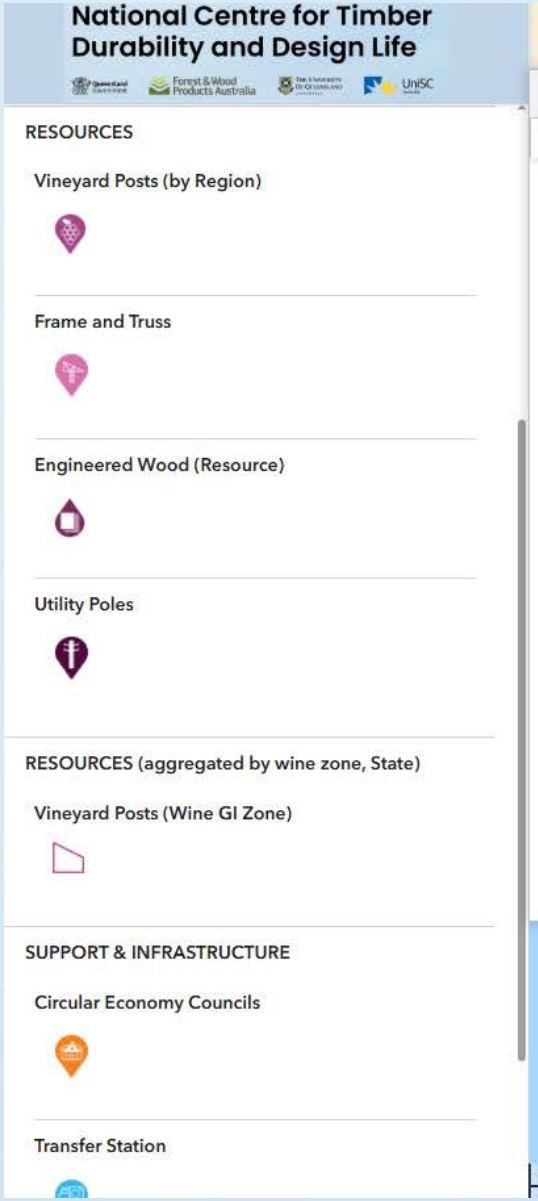
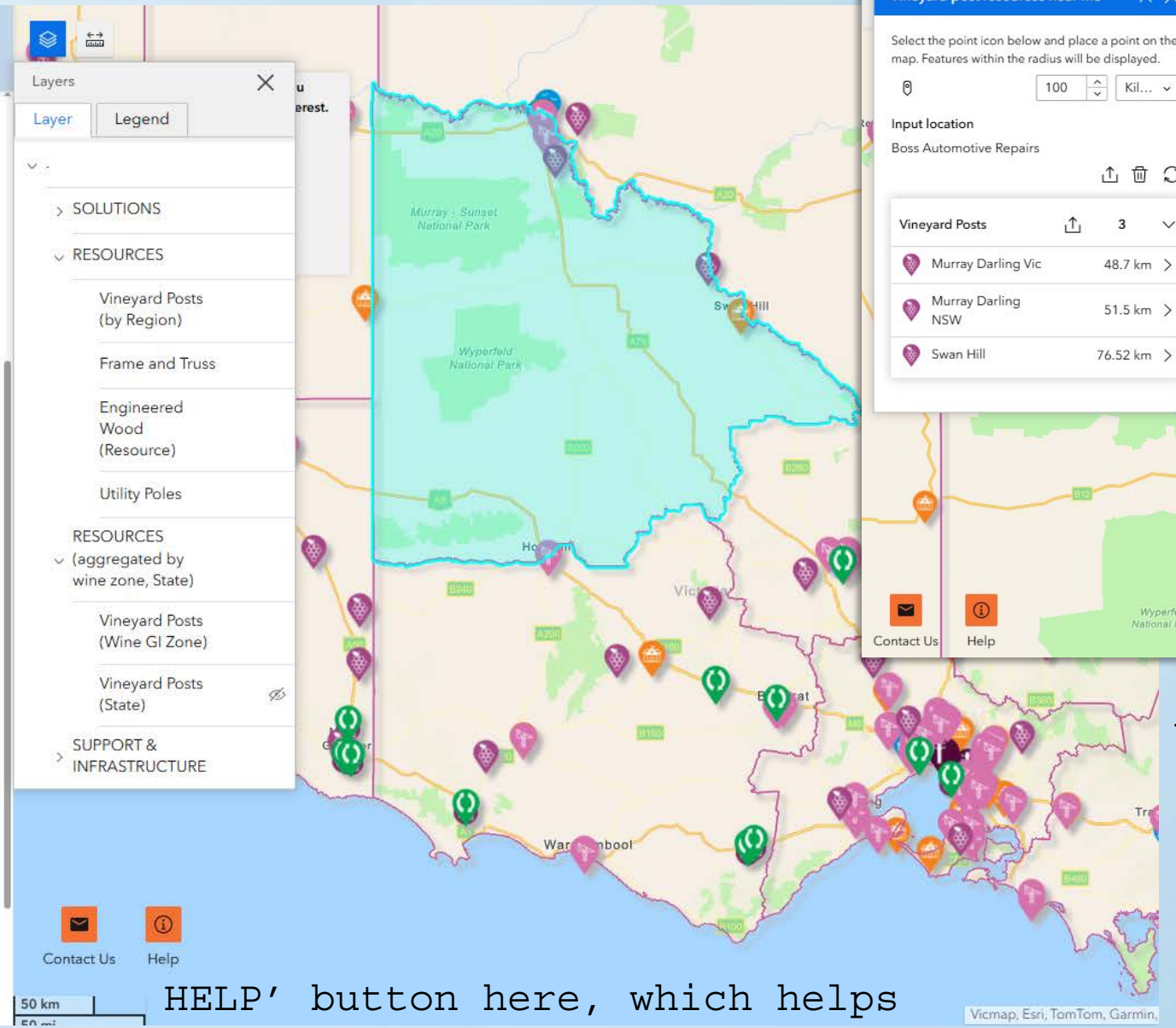
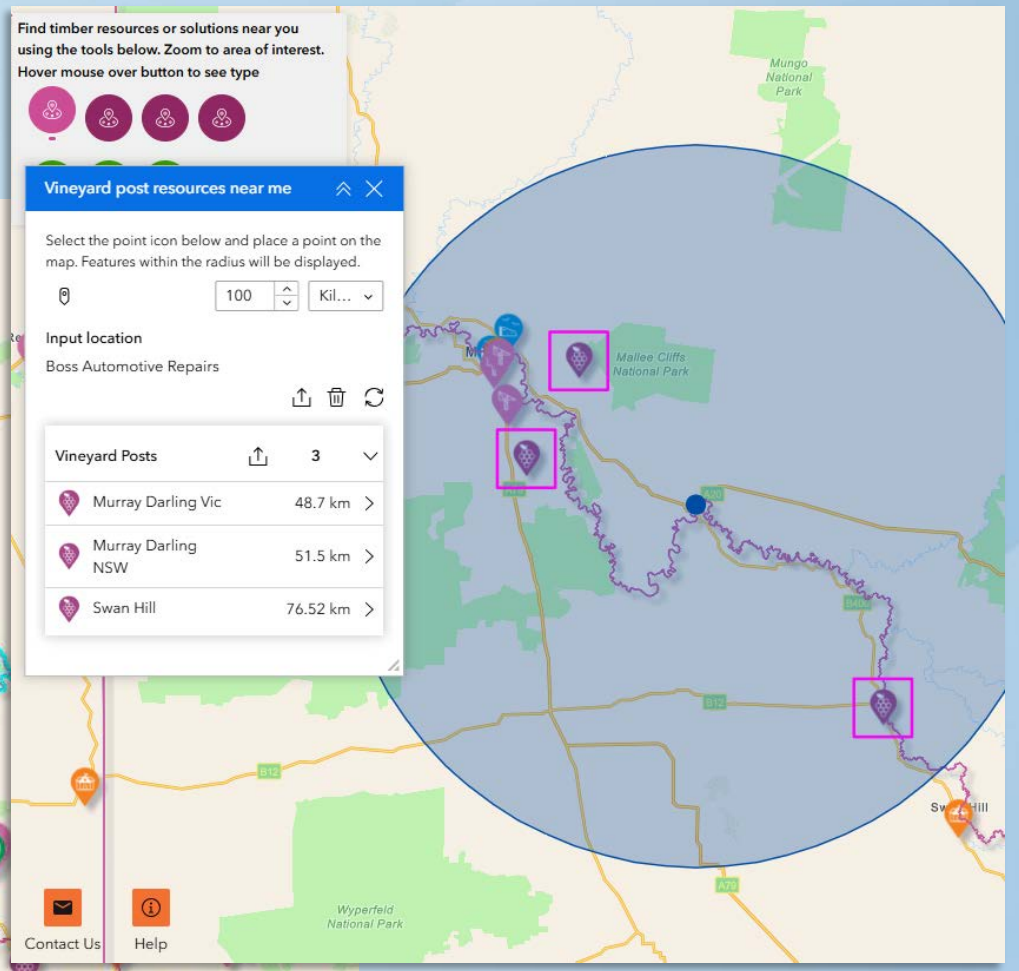
ZONES & MEASUREMENTS







HELP' button here, which helps you navigate

A 100km radius between Swan Hill and Mildura.

This would be useful for solution providers to determine locations to set up or councils to create hubs for

POTENTIAL REUSE PILOT

REUSE AS AG FENCE POSTS

Activities

- Sorting
- Processing
- Moving to market, etc.

Trial period

- 3-4 weeks mid 2025

Feedstock

- Up to 600 CCA posts/ day

Challenges

- Equipment avai
- EPA regulation
- Market perception
- Processing & transport costs
- Post size

Benefits

- Proof of concept
- Understanding logistics
- Establishing networks/ markets
- Provide information for CE development

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STOCKPILING FOR THE FUT

Guideline for stockpiling posts

Consistent and responsible management approach will:

- Allow safe handling and storage
- Minimise risks
- Reduce impacts

Providing the best [illegible] for posts to be reused or recycled in the future

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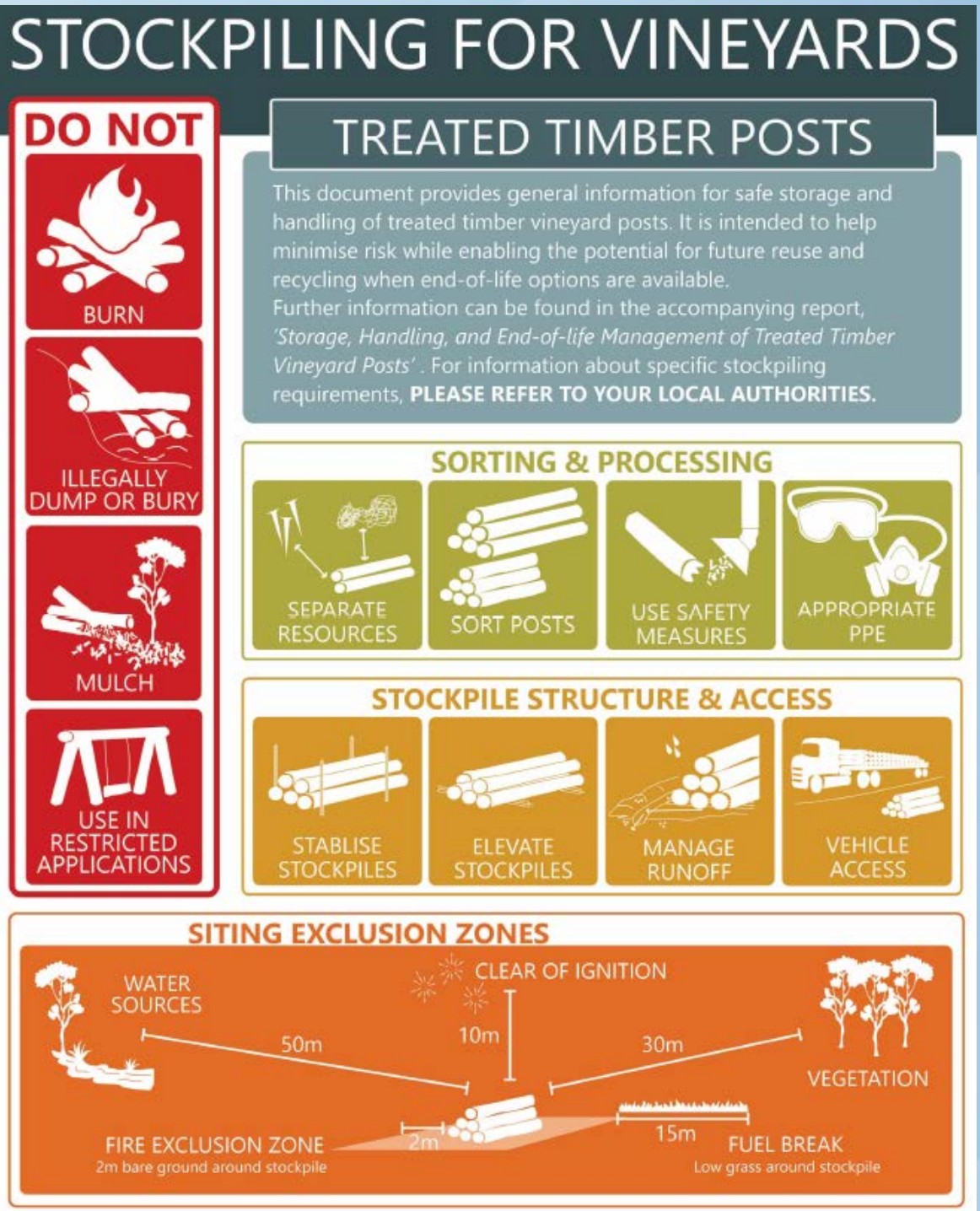

SUMMARY

GREATER UNDERSTANDING OF

- State Regulations and Policies
- Logistics
- National and international solutions

The foundational work to establish pathways is being done.

It may take another couple of years to establish working solutions, we will get there

- so please continue t
- stockpile your posts

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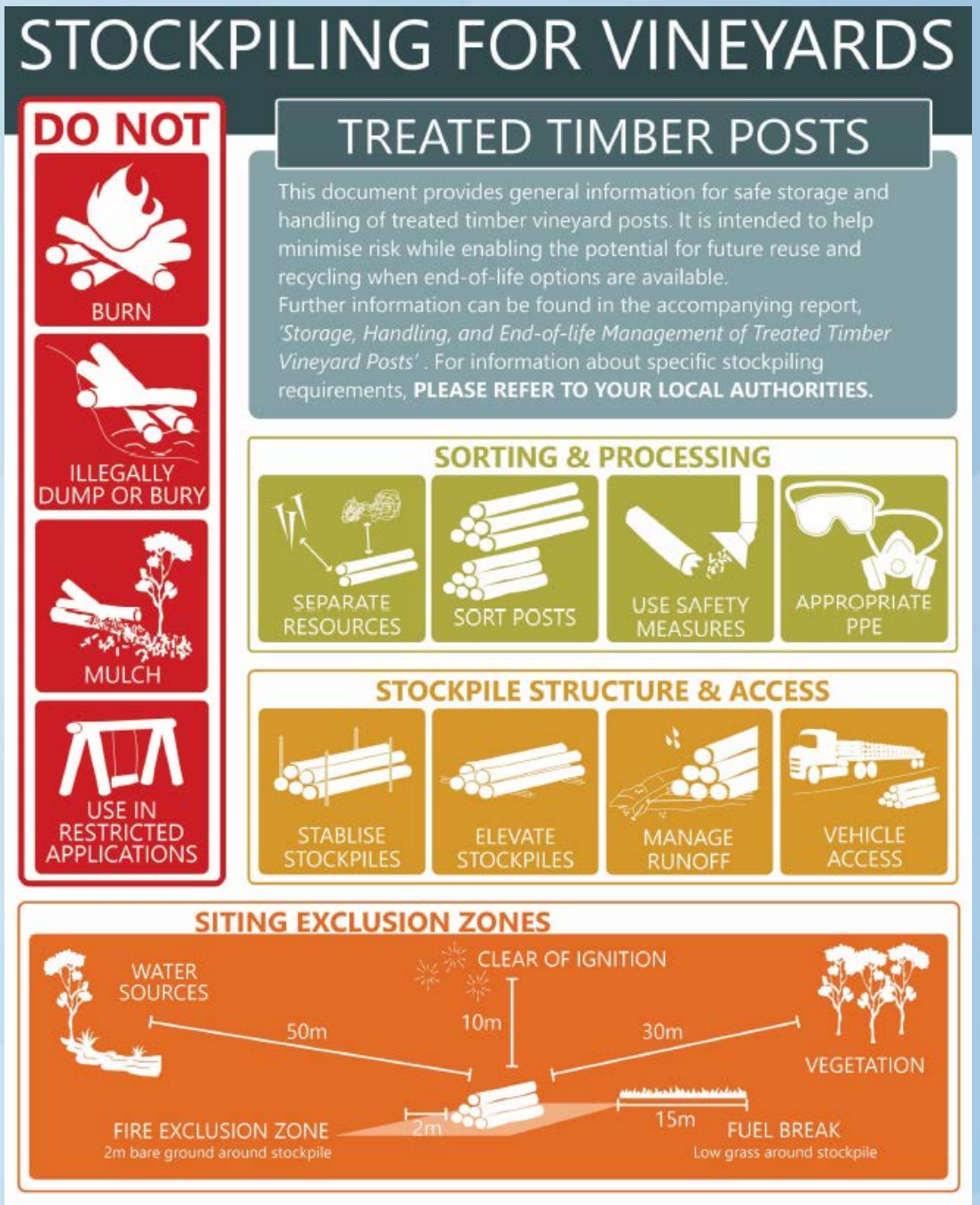

THANKS & SURVEY

CONTACT DETAILS

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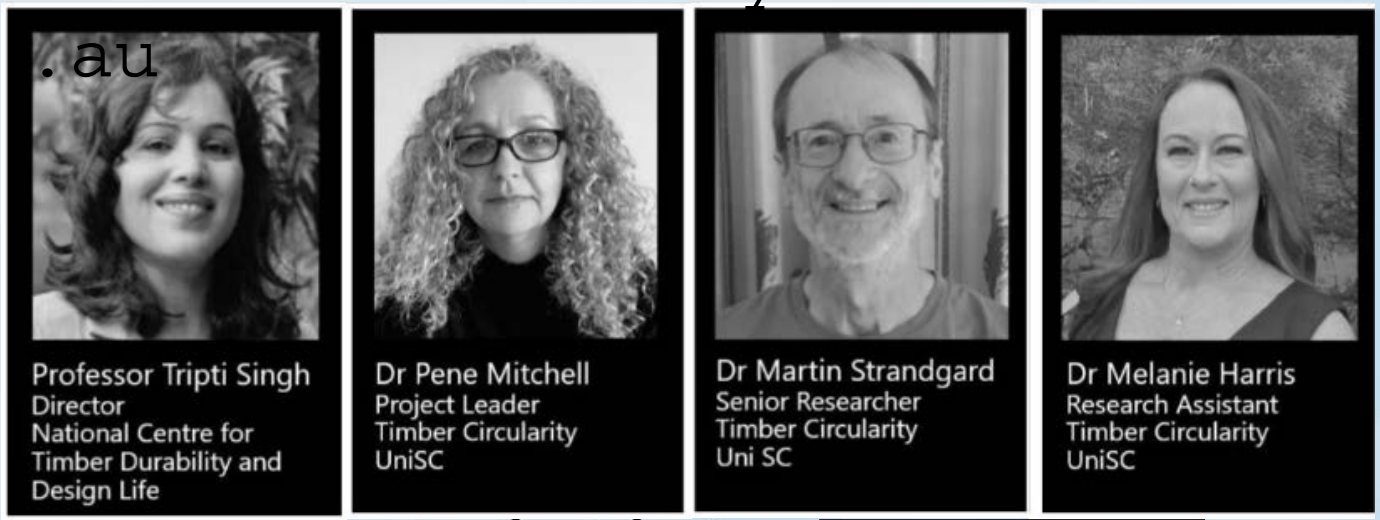

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VINEYARD POST SURVEY

https://forms.office.com/r/5CEUffKvC7