



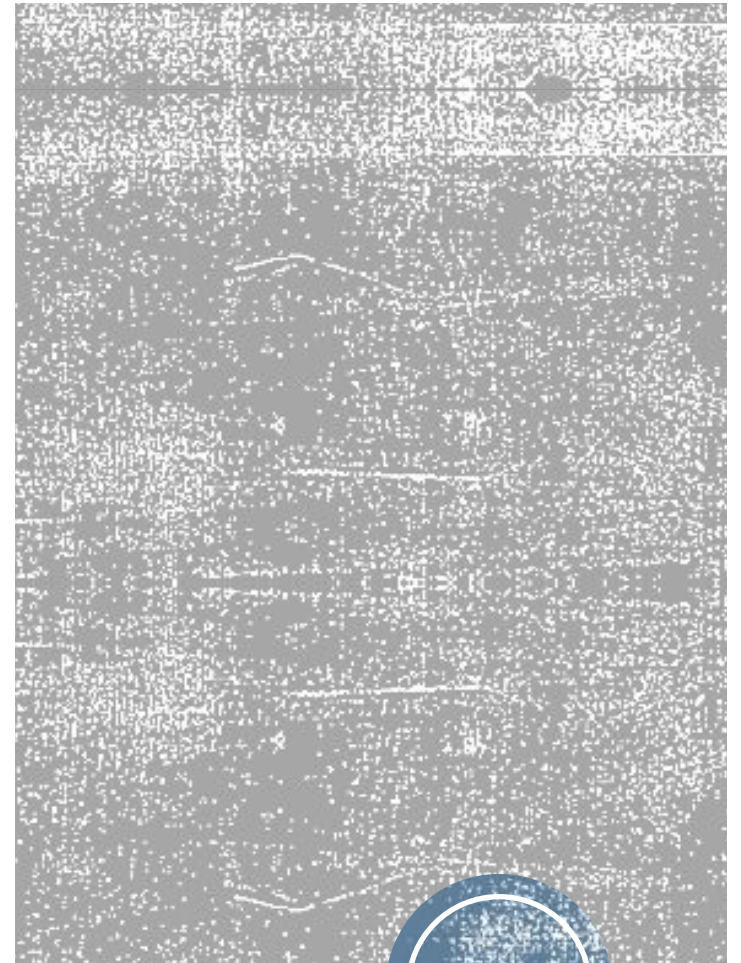
A New Lease on Life: Recycling Automotive Plastics

Sarfraz Ali Kyani









I acknowledge the Traditional Owners of this land and pay respect to their elders – past, present and emerging.





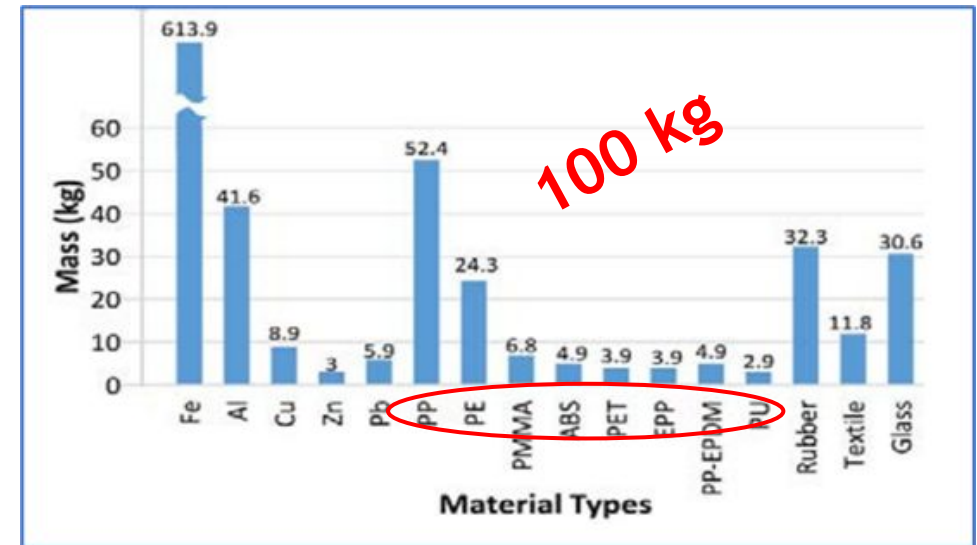
Comparative legislative requirements and ELV management systems

	Europe	Japan	Australia	U.S.
ELV Legislation	Law Directive 2005/53/EC By 2015: Reuse & recycle \geq 85% Reuse & recovery \geq 95%	Law ELV Recycling Law By 2015: Airbag recycling \geq 85% ASR recycling /recovery \geq 70%	Related law (DES) Monitoring under related law: - Environmental Protection Regulation 2019 -Waste reduction and recycling Act 2011	Related law Monitoring under related law - Resource Conservation Recovery Act -Clean Air Act -Clean Water Act
Landfill cost per ton	\$160-\$185	\$150-\$200	\$45-\$105	\$70-\$100
ELV Flow				
Vehicle Collection 	-Subsidiarity principle - Authorised collectors -Issue of CoD for ELV	- Centralised management -Authorised collectors -Electronic manifest system	-Market-driven -Authorised & unauthorised collectors	-Market-driven -Authorised & unauthorised collectors
Depollution/Part Dismantling 	-Recovery of batteries, fluids, catalyst, tyre, etc -Reuse parts (based on market demand)	-Recovery of batteries, fluids, catalyst, tyre, etc -Reuse parts (based on market demand) -Payment for fluorocarbon and airbag recovery	-Recovery of batteries, fluids, catalyst, tyre, etc -Reuse parts (minimal due to low market demand)	-Recovery of batteries, fluids, catalyst, tyre, etc -Reuse parts (high market demand)
Shredding Facility & Shredder Residue Treatment 	-Minimum amount of ASR landfilled due to the lack of landfill space. -Limited thermal valorisation of ASR (energy recovery)	-Minimum amount of ASR landfilled due to the lack of landfill space. -Thermal valorisation of ASR (energy recovery)	- Voluntary recycling and recovery targets based on ELV directive in Europe. -ASR is largely landfilled without further treatment.	-No specific recycling and recovery targets -ASR is largely landfilled. -Relatively low landfill cost
Recycler/ Smelter	-Metal recycling - Plastic recycling	-Metal recycling - Plastic recycling	-Metal recycling	-Metal recycling
Market for second hand products	Developed	Developed	not fully developed	not fully developed 

ELV Recycling – Australia VS EU

Output Stream	Australia %	Belgium %
Material recycling	71.61	90.26
Energy recovery	-	4.07
ASR landfill	28.39	5.67

ELV recycling efficiencies. Australia and Belgium.



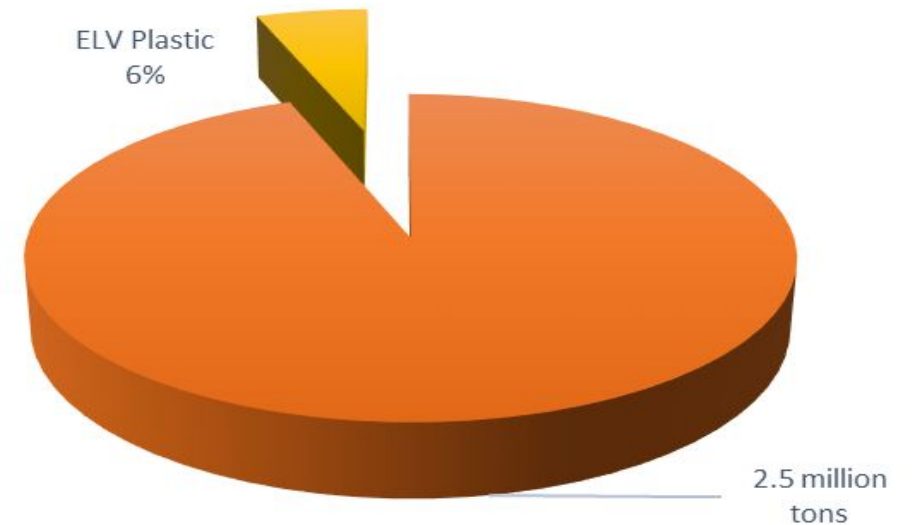
Average material composition of a depolluted vehicle (Soo, et al., 2017)

ELV Materials	Fe	Al	Cu	Zn	Pb	PP	PE	PMMA	ABS	PET	EPP	PP-EPDM	PU	Rubber	Textile	Glass
Australia	96.13	41.9	4.11	36.45	-	-	-	-	-	-	-	-	-	-	-	-
Belgium	99.97	97.52	91.76	98.24	97.08	89.50	89.50	0.32	83.36	0.40	0.58	0.32	0.69	1.94	0.83	79.40

ELV recycling and recovery efficiencies for Australia and Belgium (Soo, et al., 2017).


ELV Plastics in Australia

	Australia
Total vehicles	20.1 million
% increase	1.7%
ELVs (scrappage 7%)	1.4 million
ELV plastic in landfill	140,000 tons



Australia Bureau of Statistics 2021





What

Stakeholder Groups



Expert Group 1-A

Automotive Parts Recyclers Division - APRD

- Jeeepart Recyclers
- Currumbin Wreckers
- Anzac Avenue Wreckers
- NQ Crash & 4WD Spares
- Capalaba Wreckers
- Cooroy Auto Wreckers
- Barsby Auto Parts
- Fixit Spare Parts
- Brisbane Auto Wreckers

Expert Group 1-B

Automotive Engineers Division - AED

- Mark Dodge Motoring
- R&B Mechanical
- Jagga Mechanical
- Stanthorpe Mechanical

Expert Group 1-C

National Auto Collision Alliance – NACA

- Car Craft
- Holmes Smash Repairs
- Drive Accident Solutions
- Exclusive Auto Centre
- Willmot Smash Repairs
- Menzies Auto craft
- Planet Smash Repairs

Expert Group 2-A

MTAQ – Management Team

- Group Chief Executive, Rod Camm
- Deputy Group CEO & GM Member Services, Kellie Dewar
- GM Marketing & Communications, Lysa Dugandzic
- Deputy GM Member Services, Marcello Riotto
- Operations Manager, Scott Gehrke



Australian Government

**Department of Agriculture,
Water and the Environment**

Expert Group 2-B

Government Representatives

- Minister for Environment, The Hon **Sussan Ley** MP
- Minister for Environment and The Great Barrier Reef, Hon **Meaghan Scanlon** MP
- Assistant Minister for Waste Reduction and Environmental Management, The Hon **Trevor Evans** MP
- Head Waste Regulation and Stewardship, **Rachel Burgess**
- Director Public Policy & Waste Initiatives, **Antonella Bates**
- Executive Director, Industry, Development & Compliance, **Andrew Connor**
- Executive Director, Office of Resource Recovery, **Pravin Menon**
- City Councils (Bundaberg, Cairns, Logan, Ipswich, Redlands etc.)



Expert Group 3-A

Plastic Recyclers

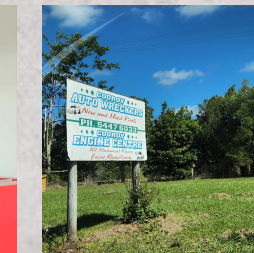
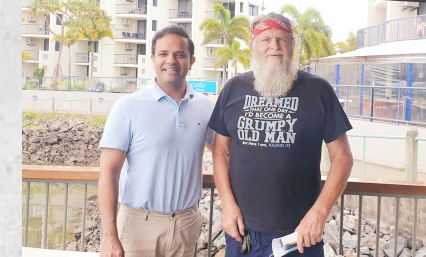
- Kurt Palmer, Cemac Technologies
- J.J. Richards & Sons
- Plastfix – Mario Dimovski (Director)
- David Picone, Telford Smith Engineering
- Vanden Recycling
- Simon Crook, Astron Plastics
- Dough McLean, GT Recycling

Expert Group 3-B

Sustainability Opinion Leaders

- Director Sustainable Finance ANZ, Tania Smith
- Stapylton Resource Recovery
- Centre of Waste Free World, QUT. Leonie Barner
- WRIQ, Mark Smith
- Australian Council of Recycling, Suzanne
- 3D Printing Lab MIT, Mac Cameron

Wreckers & Repairers



Decision Makers



The Honorable Meaghan Scanlon MP
Minister for Environment and The Great Barrier Reef and Minister for Science and Youth Affairs



Rachel Burgess
Head Waste Regulation and Stewardship Branch
Department of Agriculture, Water & Environment



Andrew Connor
Executive Director
Industry Development & Compliance



Pravin Menon
Executive Director
Office of Resource Recovery



Resource Recovery Sites



Opinion Leaders



Mac Cameron
Next Lattice Lab –
MIT



Tania Smith - ANZ
Director Sustainable
Finance



Professor Leonie Barner - QUT
Director – Centre of Waste Free World



David Nolan. President
Auto-Recyclers Association of
Australia



Jane Street
Bedding Stewardship



Rose Reed
Director Product Stewardship
Centre of Excellence



Maryam Esfandbod
Research Innovation Manager
Waste Hub

Plastic & Metal Recyclers





TELFORD SMITH LASER EXTRUDERS FOR 3D ROBOT PRINTING

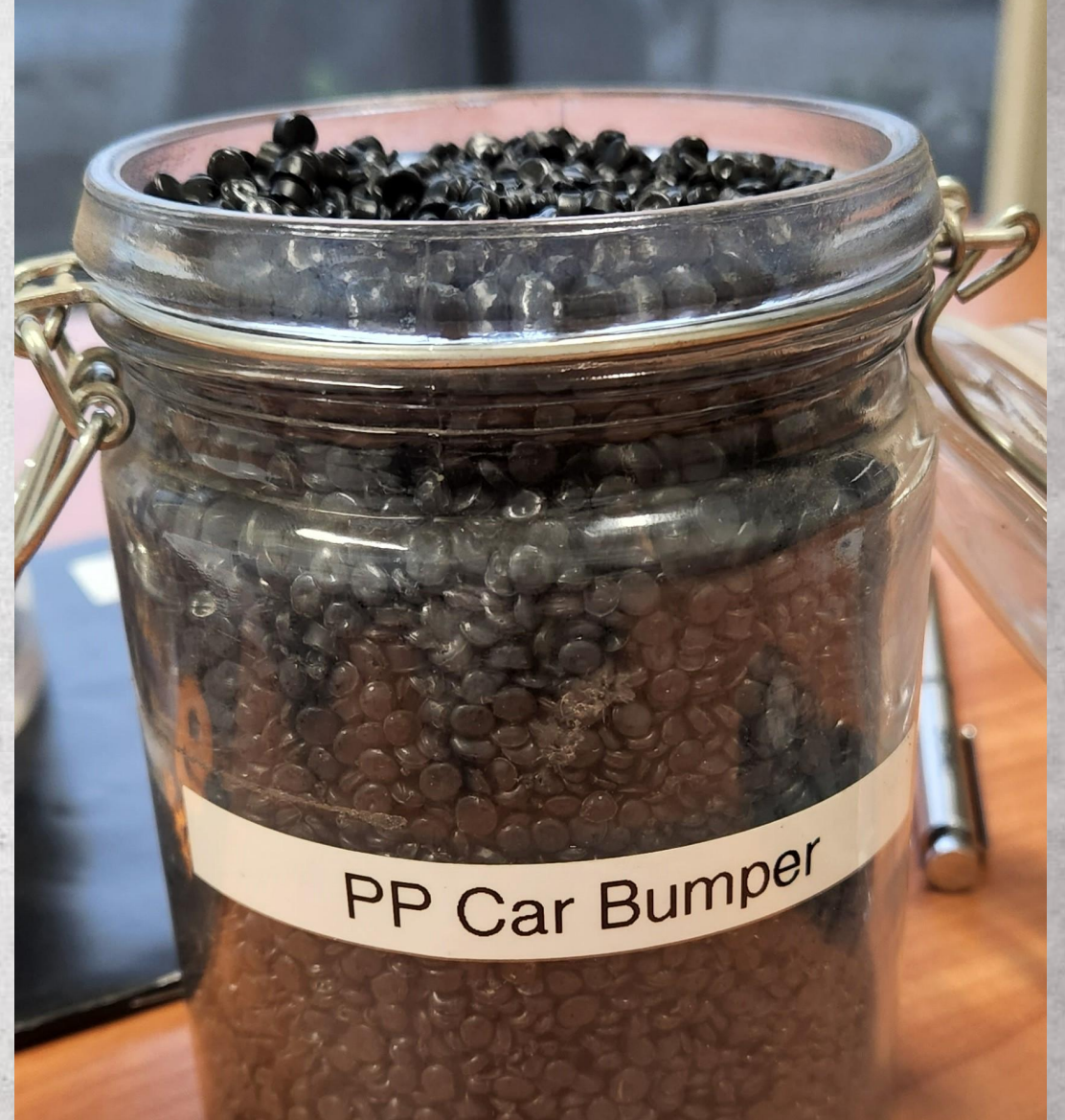
PELLET / RE-GRIND FEED

TELFORD SMITH LASER EXTRUDER SPECIFICATIONS

MODEL	18.20	20.20	25.20	32.20	35.20	40.20
MOTOR (KW)	1.5	1.5	1.5	3.0	5.0	5.0
RATE (KG/LH)	1-3	2-5	2-8	2-12	2-16	2-30







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A LETTER FROM THE FOUNDER

My name is Bec Healy and I am the CEO and Founder of Boxhead Plastics bringing to you the Naiteev Golf Tee. I am a certified polymer technician and experienced plastic injection mould operator proving **that one woman can break the mould and make change.**

As a woman in manufacturing, I bring sustainable innovation and an environmental approach to plastic production, demonstrating the capabilities of recycled feedstock in the injection mould industry.

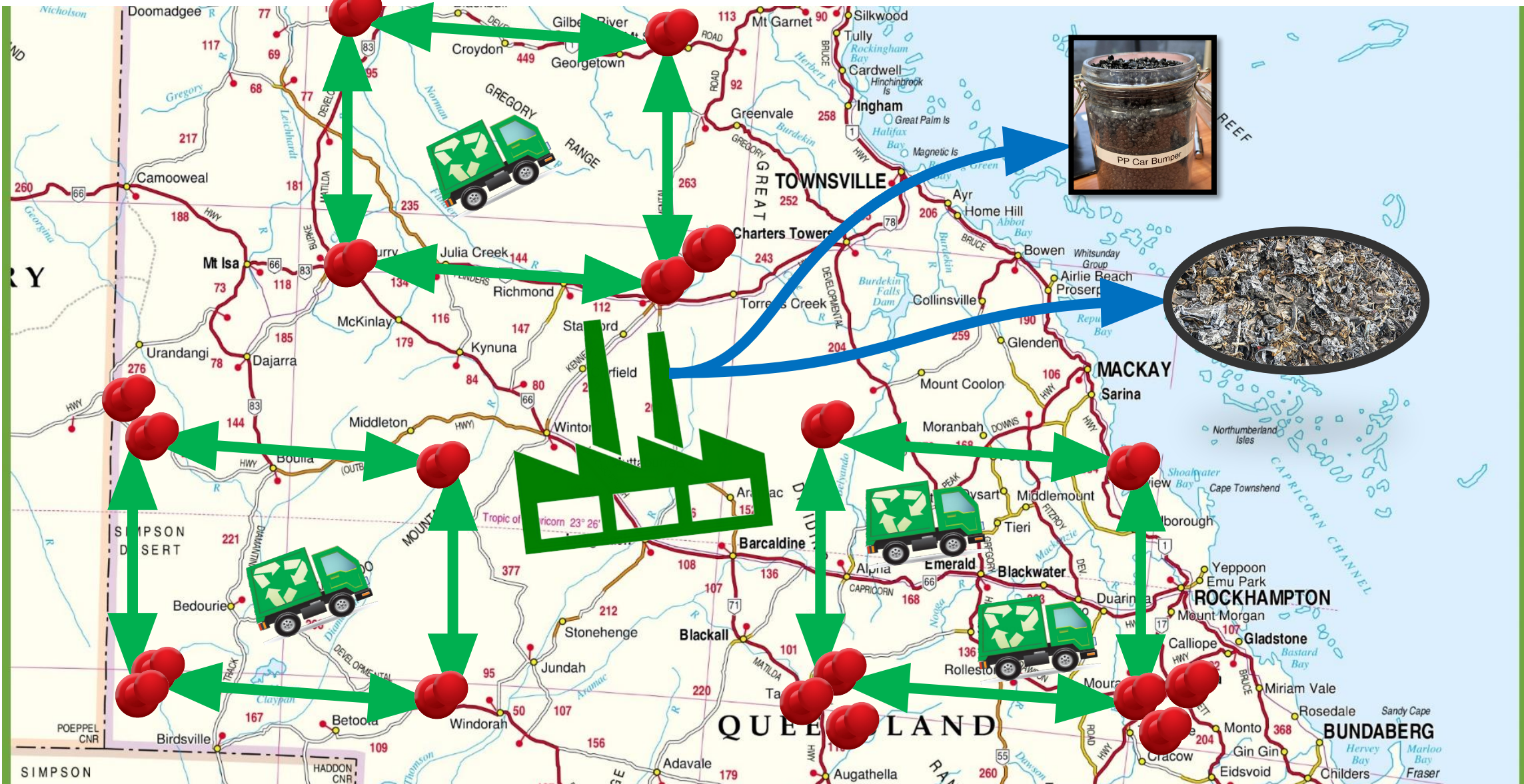
Our innovative practices is a replicable model and can be adopted across Australia to enhance the industry and contribute to more sustainable growth and success.

Thank you for joining me on this journey,

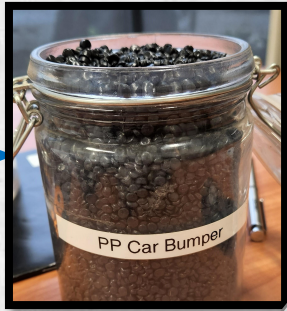
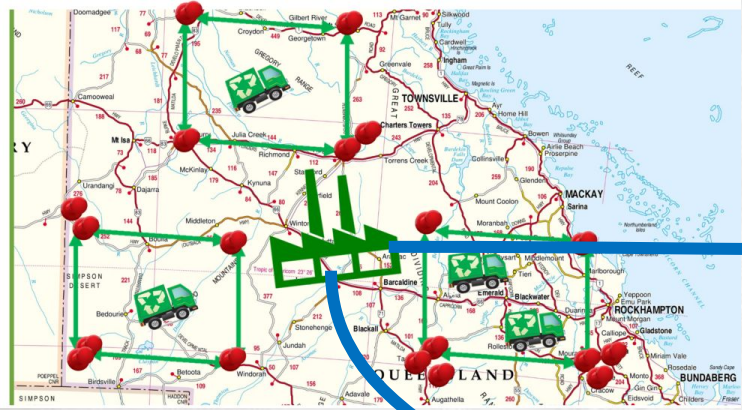
Bec.



How



RECYCLING



Retail



Export

3D Printing



External Enablers

Sustainability Trend

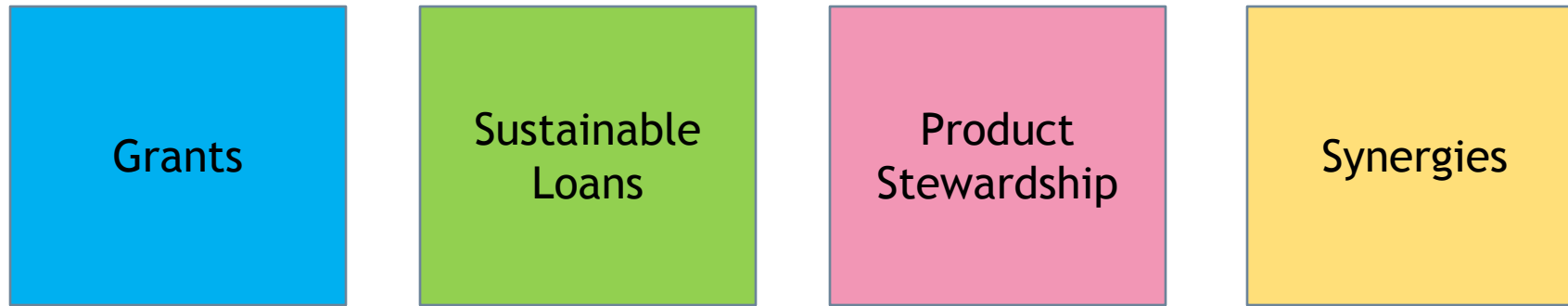


Regulatory Trend

New Technology Potential



Way Forward



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Thank You

