

# Resi Loop

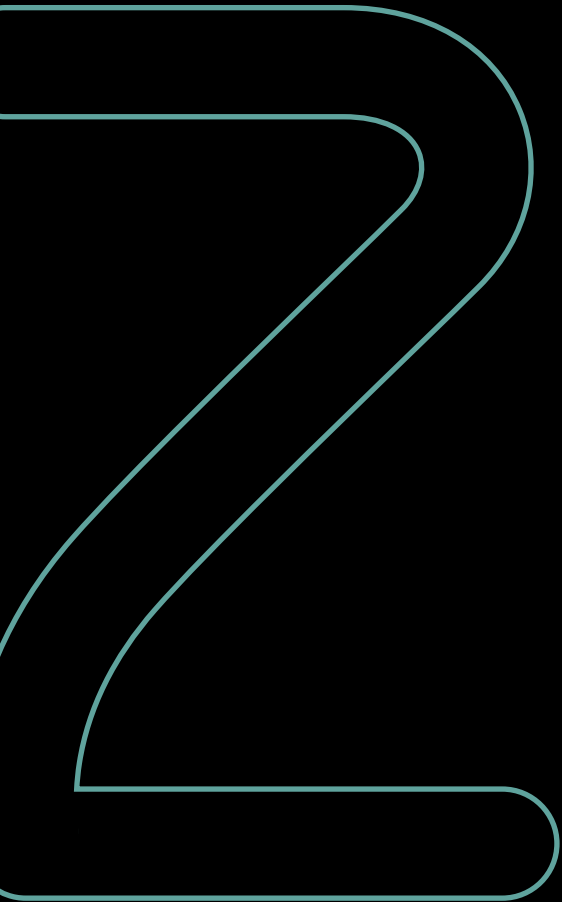
## PART 2: RESILOOP SCHEME PROPOSAL

## PART 2:

# RESILOOP SCHEME PROPOSAL

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This report is Part 2 of a series of reports published in relation to the ResiLoop initiative.

### **Part 1: The ResiLoop Project and Design of a National Product Stewardship Scheme**

### **Part 3: Building Momentum - Implementation of the Roadmap for ResiLoop**

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## DEFINITIONS

**Acceptable Waste Criteria:** the set of guidelines to determine which waste materials and their acceptable condition are to be included in each stage of the ResiLoop project.

**ARFA:** the Australian Resilient Flooring Association, the peak body representing the sector.

**Brand owner:** a company that owns and manages a brand that is part of the resilient flooring supply chain.

**Collection Point:** a location that serves as a site for receiving and aggregating collected resilient flooring waste prior to sending it to a Recycler. The Collection Point is responsible for providing Scheme compliant collection infrastructure (receptacles) and books transport of the materials to a program approved recycler.

**Collector:** the person, contractor, or organization responsible for collecting installation waste from its point of generation, such as a floor layer or installer. The collector ensures that the waste collected meets the overall scheme collection guidelines.

**Contractor:** the person or company that provides services to clients under a contract or agreement. In the context of the ResiLoop project, contractors may be involved in the supply and installation or removal of resilient floorcoverings.

**Distributor:** a company that manufactures and/or distributes or sells resilient flooring products to retailers, commercial contractors, or specifiers.

**Installation waste:** the flooring waste generated during the installation process, such as offcuts or trimmings. This waste is more likely to be free from contaminants typically found in end-of-life waste, such as adhesives and legacy additives.

**Installer:** the person or company responsible for installing new floorcoverings.

**Job site:** the place at which resilient floorcovering waste is generated, either through the uplifting of end-of-first-life floors or as offcuts from the laying of new resilient floorcoverings.

**Manufacturer:** businesses or organisations that are engaged in local manufacturing of resilient floorcoverings or other products and supply these products to the domestic Australian market.

**Pre-consumer waste:** refers in ResiLoop to materials and products entering the waste stream prior to their intended use stage of the life cycle and includes waste generated during the installation stage. Although this may not be consistent with how some standards and bodies define waste streams (where installation waste is included as 'post-consumer' waste), it helps us segment the waste stream based on product age (current market offering versus older end-of-life product).

**Post-consumer waste:** ResiLoop refers to 'post-consumer' as material or products that have reached their intended end user, and which are no longer being used for their intended purpose.

**Program participant:** any manufacturer, brand owner, distributor, importer, collection site, contractor, installer, retailer, project and recycler who has been approved to participate in ResiLoop.

**Recycler:** a business or organisation receiving ResiLoop material and processing it into a form (**Recyclate**) which can be used to replace virgin materials in the production process for new products.

**Recyclate:** the material produced from recycling a product.

**Resilient floorcoverings:** (or flooring) refers to floorcoverings made from materials with some elasticity. This covers a range of products with varying compositions, including Luxury Vinyl Tiles (LVT), sheet vinyl, linoleum/marmoleum, rubber, safety flooring, and hybrid/rigid core tiles.

**ResiLoop:** is an initiative of ARFA, funded initially by a National Product Stewardship Investment Fund grant, to improve the design, recovery, reuse and recycling of resilient flooring consumed in Australia by developing a business case, supported by proof of concept, for a national product stewardship scheme for resilient floorcoverings, together with a roadmap for the national roll-out of the scheme in Australia.

**Specifiers:** professionals responsible for preparing detailed technical specifications and recommending product selections for construction projects.

**Uplifted waste:** waste generated when resilient floorcoverings are removed from a floor, such as at the end of their first life.

# EXECUTIVE SUMMARY

In 2021, the Australian Resilient Flooring Association initiated a project to research, consider and design a national industry approach to recover and recycle resilient flooring products. The Australian Government seed funded the initiative, ResiLoop, between April 2022 and June 2023 with a National Product Stewardship Investment Fund grant.

The ResiLoop scheme is proposed as a hybrid product stewardship model which facilitates the recovery and reprocessing of material through a network of approved and registered organisations. The scheme takes responsibility for operating the material recovery process and owns the collected material until delivery to registered and contracted recyclers. Any revenue earned from the sale of the material will be reinvested in the scheme.

The scheme will aim to:

- Reduce the landfilling of construction and demolition waste
- Develop local recycling capacity and end-markets
- Stimulate innovation and job opportunities in reprocessing and re-manufacturing
- Reduce reliance on fossil-fuel resources and avoid carbon emissions by recycling material
- Create a circularity mindset across the industry through shared responsibility and collaboration
- Support building projects aiming to minimise landfilling of construction and demolition wastes

The financial modelling of the scheme has been undertaken by a third party, RPS, through an iterative process where the feasibility of the options for the model were tested and reviewed by stakeholders and refined until a preferred option was developed. The process built on learnings and data from the Discovery phase and the trials undertaken in 2023.

The scheme recommends adopting a model which uses a simple approach of applying a uniform levy of 12 cents per square metre (SQM) of products to be addressed by the scheme. The levy will be invoiced to brand-owners (importers and manufacturers) who join ResiLoop.

The following scheme design is based on a medium timeframe to 2030 with the financial model applicable to the first 4 years (Stage I).

In Stage I, the scheme will focus on recovery of waste generated from installation of resilient floorcoverings in the commercial and residential building sectors. It will aim to capture waste from three key product types – Luxury Vinyl Tiles (LVT), homogeneous vinyl sheet and non-textile-backed heterogeneous vinyl sheet – in separate waste streams. These products account for nearly 70% of the market and are deemed the most readily recyclable materials.

The business modelling for the scheme is highly dependent on the share of the market covered by participating members, the volume of waste recovered, and the availability of viable end markets for the recyclates. The model intends to include allocation of funding to build capacity and capability in the recycling and manufacturing sectors to reprocess these and additional resilient flooring products.

## SCHEME OBJECTIVES

ResiLoop is intended as a new, effectively run and appropriately governed product stewardship scheme to address the challenges presented by past, current and future consumption of resilient floorcoverings in Australia. Potentially as much as 60,000 tonnes of waste are generated per annum. Virtually all this waste has been destined for landfill until now, due to a lack of local recycling infrastructure and end markets for the recyclate, and the high cost of collection and freight to transport the waste.

As a scheme, ResiLoop's objectives are to address these challenges by:

- 1. Enabling increasing recovery and recycling**  
of resilient floorcoverings in Australia at scale through participation in the scheme by a majority of product distributors and flooring installers.
- 2. Building onshore recycling capacity**  
by researching and developing new end applications for the recyclate, encouraging investment in technologies and employment in the recycling sector, and supplying recyclate to local manufacturers to reduce virgin material consumption.
- 3. Driving sector-wide behaviour changes**  
that contribute to the circular economy by informing product development and engaging manufacturers, distributors, specifiers, flooring contractors, recyclers and consumers.





# SCHEME DESIGN PRINCIPLES

While the ambition of ResiLoop is to recover and recycle increasing volumes of resilient flooring waste in Australia, an industry-wide scheme needs to be sustainable. The following set of design principles have been developed and used to guide the design process for the scheme.

## **A medium-term timeframe:**

ResiLoop commences now and will expand iteratively towards 2030 when it will undergo a comprehensive strategic review and assessment. The 2030 timeframe for implementation aligns with the national government goal to establish a circular economy in Australia by 2030.

## **Engaged stakeholders:**

ResiLoop will enable stakeholders along the supply chain to share responsibility for the life cycle of resilient floorcoverings in a way that aligns with their business interests, such as improved reputation and sustainability goals, and creates and delivers value.

## **Economic viability:**

The scheme will need to demonstrate economic efficiency yet be viable over the long term and able to withstand economic risks.

## **Contribution to a Circular Economy for flooring:**

ResiLoop will encourage improved product design, promote maintenance and prolonged use, influence waste generation and recovery, and support recycling into quality products to sustain the material's productive value.

## **Contribution to climate:**

ResiLoop will reduce embodied carbon in products through reduction in use of virgin raw materials in new manufacturing. The scheme will develop and promote safe and environmentally sound outcomes.

## **Behaviour change:**

Through education, incentives and raising awareness, ResiLoop will influence behaviour, improving waste management practices in the built environment and the floorcovering sector and fostering collective innovation.

## **Measurement of progress:**

ResiLoop will set goals, specific short- and medium-term targets and collect relevant data. It will share data with scheme participants to incentivise and reward continuous improvement and high achievement. Annual progress will be measured and the scheme will be reviewed every three years to evaluate its overall performance and timelines.

## **Informed government policies:**

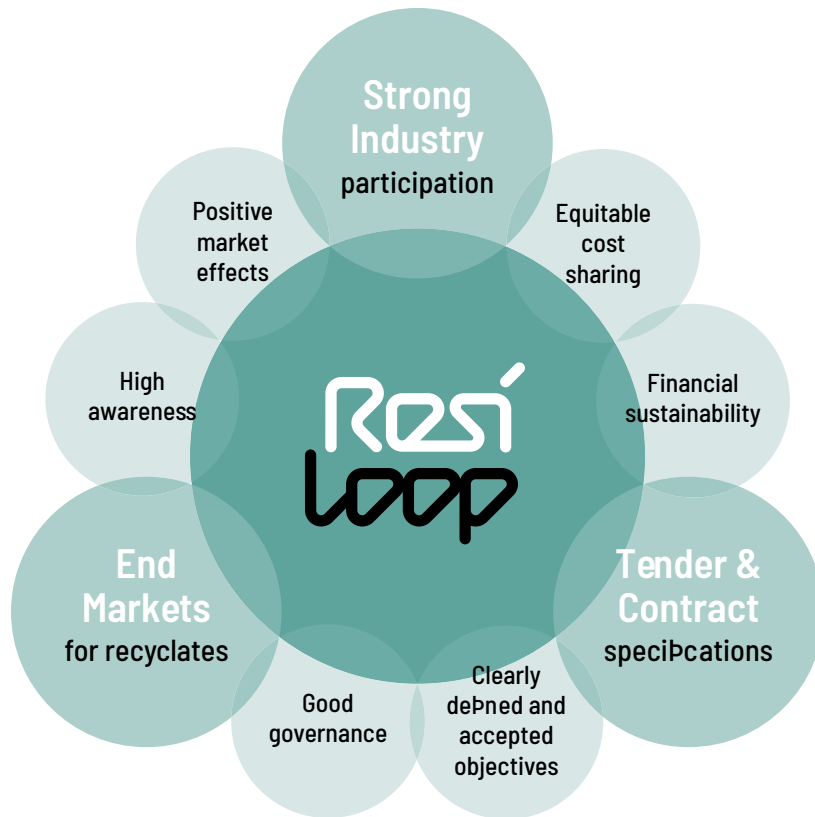
ResiLoop will work in tandem with and help inform the Government's intentions to develop a circular economy in Australia, encourage investment in recycling infrastructure, support manufacturing with Australian recycled content and divert valued resources from landfill. It will aim to offer reasonable access to the scheme nationally.



# SCHEME SUCCESS FACTORS

To be deemed successful, key elements will need to be in place, some of which will take time to develop. The following have been identified as the factors that collectively need to be achieved and sustained to ensure the scheme's ongoing viability.

Figure 1: Critical Success Factors



ResiLoop will be considered successful when it has:

- **High industry participation and investment**, aligned with participating businesses' interests
- **Equitable cost sharing** in its implementation among supply chain participants, including end-consumers.
- **Good governance** with clearly defined roles and responsibilities, accountability and transparency through public reporting, supported by government voluntary product stewardship scheme accreditation and/or scheme authorisation by the Australian Competition & Consumer Commission.
- **Clearly defined and industry accepted objectives**, with measurable sustainability performance indicators.
- **Financial sustainability** in the recovery and recycling of resilient flooring waste, including where necessary, financial incentives such as rebates to drive behaviour change along the supply chain as well as investment to advance future recovery and recycling activity.
- **High awareness** among key stakeholder groups, including specifiers and end users, developed through effective marketing and communication, that secures active support for the scheme.
- **Positive market effects** that see resilient floorcoverings as products of choice and make the industry more resilient. No adverse impacts on market competition.
- **Viable end markets** for recyclate with stable commercial contracts in place.
- **Tender & contract specifications** that encourage and reward construction practices which adopt product stewardship and diversion of waste from landfill.

# SCOPE OF SCHEME

## Stages

It is proposed to implement the ResiLoop scheme in three phases: Stage I (Today), Stage II (Tomorrow) and Stage III (Future) over a timeframe to 2030.

Table 1: Schematic of Stage I, II, III

	Stage I TODAY	Stage II TOMORROW	Stage III FUTURE
<b>Waste stream</b>	Installation	Installation	End of first use
<b>Products</b>	LVT, HO, HE (non-textile backed). Members product only.	Add: Safety Floor and Hybrid products if feasible. Members product only.	All vinyl-containing products. Non-vinyl products.
<b>Consumption Sector</b>	Residential + Commercial.	Residential + Commercial.	Residential + Commercial.
<b>Geographic coverage</b>	Metro NSW, VIC, QLD	Metro, regional NSW, VIC, QLD	National if economically viable

Implementation of 'Stage I – TODAY' will commence with a pilot scheme supported by the participation of industry participants supplying at least 50 percent of the market. Geographically, Stage I will occur in a selective number of locations in NSW, Victoria and Queensland, then gradually expand nationally over Stages II and III with an increasing number of collection participants once ResiLoop has thoroughly tested the scheme conditions and financial parameters. Finally, in 'Stage III – FUTURE', the harder-to-recycle waste streams and least cost-effective locations will be serviced.

## Products and wastes

### Stage I – TODAY

Based on consumption volumes by product category in Australia and both past and current product compositions of each category, implementation will commence with the collection of installation trimmings and stock- and roll-ends from commercial and residential construction, estimated to account for 6–9,000 tonnes per annum.

The initial product categories collected under Stage I will be Luxury Vinyl Tile, homogeneous (HO) sheet and non-textile backed heterogeneous (HE) sheet.

Stage I will include continuing research into product compositions and prospects of recycling in Australia other product categories such as Safety Flooring and Hybrid/rigid core tiles and non-vinyl resilient floorcoverings.

### Stage II – TOMORROW

ResiLoop will introduce collection and recycling solutions for Safety Flooring and Hybrid/rigid core tile installation waste streams if viable reprocessing solutions and end markets for the recyclates have been identified.

### Stage III – FUTURE

This stage will introduce collection and recycling of all post-consumer waste and all feasible product categories with recycling end markets in Australia. For this to eventuate, viable solutions for sorting and assessing the post-consumer wastes streams will need to be developed so as to identify legacy additives – principally restricted ortho-phthalate plasticisers – in waste streams and technologies to remove them from the waste stream. End market options will need to be identified for non-vinyl materials.

# Market sectors

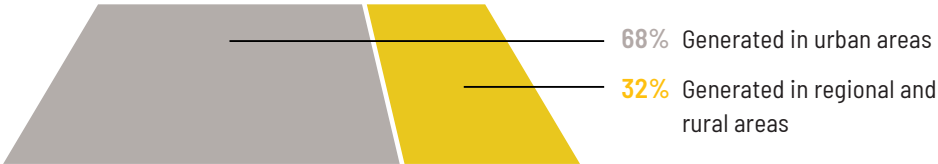
ResiLoop will operate across both residential and commercial building sectors.

# Geographic coverage / regional access

The Material Flows Analysis estimated that 68 percent of the resilient vinyl flooring end of life waste stream is generated in urban areas and 32 percent in regional and rural areas. The intention will be to focus on expansion of the scheme in urban areas before extending into regional and rural areas where the cost of transportation back to recyclers will be higher.

The program will commence with collections in NSW, Victoria and Queensland which account for roughly 80 percent of the waste generated.

Figure 2: Resilient vinyl flooring end of life waste stream



# PRINCIPAL ACTIVITIES

The proposed activities of the scheme are outlined at a high level below. These activities will require funding through the scheme and thus influence the level of contributions required from industry participants.

## **Resource recovery**

Working with key stakeholders in the supply chain including product distributors, specifiers, contractors, flooring installers and third party logistics (3PL) providers, ResiLoop will coordinate the collection and sorting of floor waste from Collection Points and the delivery of the recovered materials to recyclers. ResiLoop will put in place sitable contracts with third party logistics providers and recyclers.

## **Education and engagement**

In order to implement the scheme, a critical mass of scheme participants will need to be engaged over time. This requires developing and managing an effective, targeted marketing campaign to raise awareness of the scheme, and a system for on-boarding stakeholders. The key audiences of this campaign will be industry players rather than household (retail) consumers.

A membership database is required, capable of collating and maintaining relevant data on members and waste collections.

Scheme awareness and necessary training in the collections process will be rolled out through existing industry training channels such as Technical and Further Education (TAFE) institutions, Registered Training Organisations, industry associations, events and forums.

## **Measurement and reporting**

ResiLoop will, in consultation with participating members, develop specific targets to measure progress towards the scheme's goals. A system will be developed to collect and collate relevant data at a sufficiently granular level to enable implementation of any rebates, recognition and rewards, if required.

## **Research and Development**

Ongoing investment in research, development and innovation will be required, which may include:

- Projects to identify suitable processing solution improvements and technologies
- Identification and development, with local partners, of recycled product concepts and development of viable, scalable end markets for the recycle
- Improvements to resilient flooring product design parameters that will facilitate future recycling in the sector
- Identification of suitable technological improvements to reprocessing to identify and sort legacy additive containing material
- Collaboration with international industry research programs that share the same aims
- Market research into consumer preferences
- Updating the Material Flow Analysis to improve underlying data assumptions
- Carbon saving analysis

## **Operations & Governance**

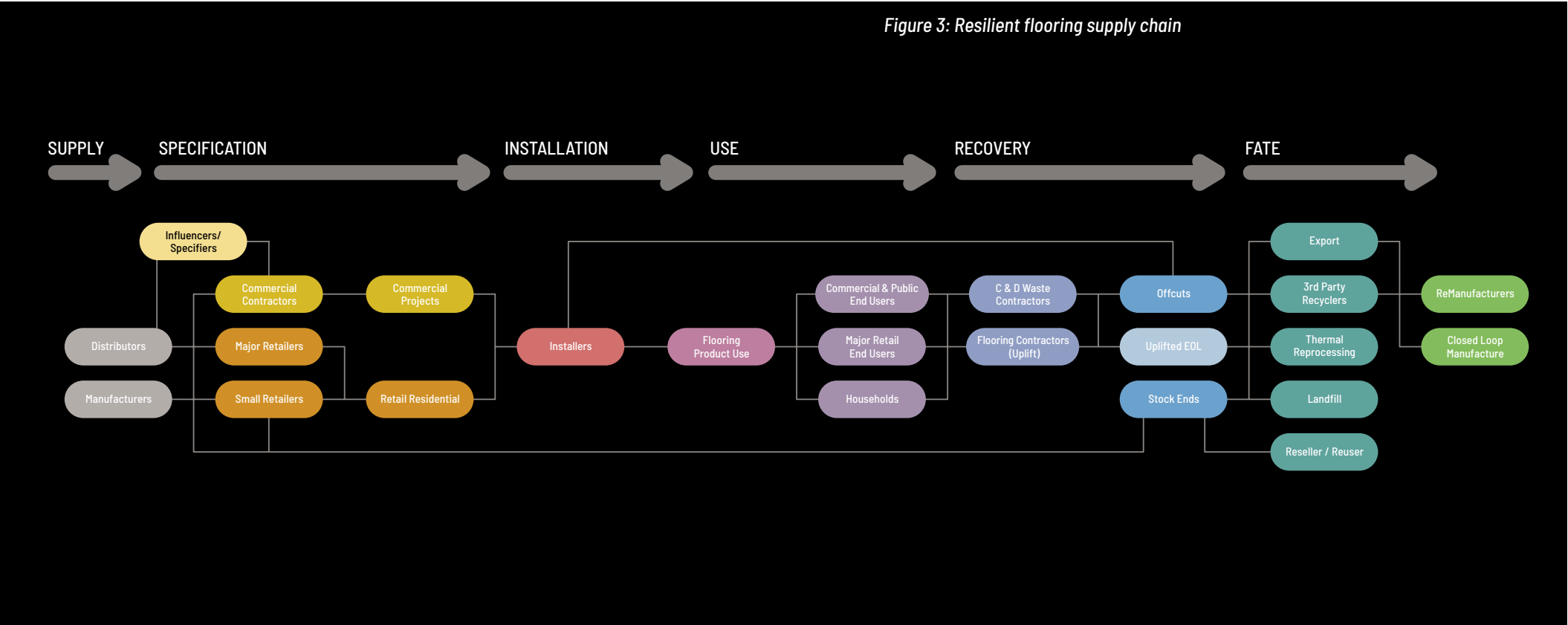
Suitable organisational and management structures will be put in place to oversee the operations of the scheme and provide effective governance, financial control and administration. This may include:

- establishing a governing board
- strategic communication
- a system of auditing and certification or accreditation of key participants
- third party collection of business data and levy invoicing

# DESCRIPTION OF SCHEME (THE RULES)

ResiLoop is based on a hybrid product stewardship model, in which the scheme subsidises the collection and/or transportation of waste and will own collected material until its transfer or sale to a recycler.

Waste accepted under the scheme is collected by registered scheme members, dropped off at registered Collection Points and then is transported by contracted logistics providers to scheme registered recyclers according to the scheme's procedures (see Figure 5: ResiLoop process, page 16).



## Scheme members

Membership of ResiLoop will consist of the following categories:

### ***Member Participants (Full Members)***

These are the resilient flooring product manufacturers and distributors in the Australian market. It is expected that Participants will pay a levy per square metre of certain categories of resilient floorcovering sold. Participants' brands that meet the Acceptable Waste Criteria will be accepted for collection under the scheme. The packaging for the brands' products shall carry the ResiLoop logo so that installers know to collect the scrap.

The modelling of the levy is calculated on the minimum number of scheme participants supplying 50 percent of the relevant products to the market.

Only scheme members' products will be collected in Stage 1 and 2, which limits the risk of 'free riders' benefitting from the scheme. A QR code on collection bags will direct to a list of relevant Member Participants and Members are encouraged to display the ResiLoop logo on their product packaging for ease of recognition on job sites.

Members who continue to take-back waste of relevant product categories for export to manufacturing bases overseas under corporate-led initiatives existing prior to the commencement of ResiLoop, may be entitled to a rebate per tonne of waste returned. Verified data on the tonnes returned annually will be required.

### ***Collectors***

These are the flooring installers who uplift old flooring and lay new floorcoverings. They will need to be registered under the scheme so as to be issued with a unique ID number and access to a digital tracking app. However there is no fee for participation.

They will be entitled to receive free collection bags and to drop off their waste at ResiLoop's Collection Points.

### ***Collection Points (Associate Members)***

Businesses including commercial contractors, retailers and trade accessory suppliers that sell floorcoverings and trade accessories and/or procure installation contractors interested in becoming a Collection Point will be registered under the scheme and pay a small annual fee. They will be issued with a unique ID number, receive access to the digital tracking app and be provided with collection receptacles. The Collection Points will be promoted to collectors as drop off points for collected installation waste. Parties acting as Collection Points will reduce their waste disposal costs as the targeted resilient flooring waste will be picked up at no cost. Collection Points will be entitled to use a ResiLoop logo and their ID number as evidence of their participation in the scheme. They may also be entitled to recognition awards and/or rebates for material delivered under the scheme.

### ***Recycling Partners (Affiliate Members)***

These are the companies, registered under the scheme, that buy the recycle from the scheme. They will abide by a Code of Conduct/ commitment statement that requires their operations to meet, for example, recognised environmental, health and safety standards.

### ***Project Partners (Associate Members)***

These are commercial construction projects procuring resilient flooring, who register under the scheme for a modest fee and are entitled to promote their participation in the scheme and support its operations on site. They will be entitled to use a ResiLoop logo as evidence of their participation in the scheme. A construction projects register will be established to publicise their participation. As part of member obligations, the scheme will require these participants to embed take-back requirements into contracts. This will require contractors, retailers and installers to take-back material to an aggregation point, for delivery to a recycler.



## Recovery strategy: *Bag it, Bulk it, Book it.*

Based on the global scan of other resilient flooring take-back schemes and stewardship initiatives, field trials, learnings at a local level from Australian product stewardship schemes, and following consultation with the Stakeholder Reference Group, a system to recover installation waste from sites has been designed. ResiLoop is not intended to be a retail consumer-oriented scheme, open to households. It will operate only through industry channels, including in Stage III, for end-of-life waste.

The approach, outlined in *Figure 5*, involves the following steps:

1. Collection Points for resilient flooring offcut waste are established. Contractors and retailers supply product and contract installers to uplift and lay new floorcoverings. Waste recovery generation and therefore, the opportunity for recovery is highly dispersed as it is job-site located. However, the contractors, retailers and suppliers of flooring accessories interact daily with installers so are well positioned to act as the Collection Points. Collection Points are intended to become established at registered depots and will be actively promoted to raise awareness. Contractors and retailers registered under the scheme, offering Collection Point locations, will be accredited to afford them recognition and potential competitive advantage.
2. Floorcovering installers, contracted by the above parties to lay new resilient floors, register with the scheme as collectors and are issued with a unique identity number. As installers work, they will be required to bag offcuts of product that meet the Acceptable Waste Criteria in bags provided by the scheme. The bags will be printed with clear labelling on them for product type (in Stage I, LVT, homogeneous sheet (HO), or heterogenous sheet (HE)). Installers are best placed to source separate material; each bag is to contain only one product type so that the waste is not collected co-mingled. Bags are to be returned by the collector to a registered Collection Point. Each bag returned will be logged digitally in a system to record the collector's identity number, job-site location and product type.

Figure 4: Bag labels





- Collection Points will receive the bagged waste in designated, ResiLoop-provided receptacles (pallet boxes, bulk bags or stillages that are both stackable and fork-liftable). Once the receptacles are full, the Collection Point will book a pick-up through the digital app to ResiLoop's contracted third-party logistics provider who will collect the material and provide replacement receptacles and bags. ResiLoop scheme administrators will receive notification of the collection request.
- Transportation of the bagged waste will be managed by a ResiLoop-contracted third party logistics (3PL) provider(s). The material may be transported back to the 3PL warehouse or direct to a scheme registered Recycler. The 3PL provider will digitally track collected, recovered material. Material may be aggregated at the 3PL warehouse until a full load has been accumulated for delivery to the recycler.
- Scheme registered recyclers will receive the material, unload bags, weigh and assess for contamination and log any contamination issues. Ideally, the digital tracking system will be able to match bags against the collector identity so that feedback and tonnage can be recorded by collector. Alternatively, the tracking system will track pallet boxes/stillages to the Collection Point.  
Recyclers will process the material and sell to end manufacturers.

Figure 5: ResiLoop material recovery process



## Financial model

Key principles of Resiloop are equitable cost sharing along the supply chain, and transparency in how the scheme is funded and operates. The proposed funding model below was developed by RPS in conjunction with ARFA, informed by data and information gathered through the Discovery phase and Trials.

The methodology was an iterative process where assumptions and options were tested through consultation with ARFA and wider industry members, as well as drawing on RPS's independent professional judgement gained from their experience in product stewardship scheme design. It should be noted, however, that the model will need to be further refined and shaped through testing with the industry and once members have been recruited.

Simplicity was a key recommendation of industry stakeholders, to help understanding and encourage acceptance by industry. The model proposes adopting a simple approach of applying a cents per SQM levy uniformly across relevant product categories.

It is noted that *"A robust process for establishing fee structures is essential to ensuring perception of the fees as fair, reasonable and based on actual program costs. The fee establishment process must also allow for regular revisit as program fees are better understood and audited."*<sup>1</sup>

## Conditions/assumptions

The analysis of funding options was supported through the modelling of various inputs and assumptions including:

- **Expenditure parameters:** The purpose, amount and type of expenditure by the scheme
- **Funding parameters:** The method and rates used to collect revenue from members
- **Market structure assumptions:** The size and market shares of industry members
- **Material flow assumptions:** The amount of material available to collect and expected to flow through resilient flooring supply chains
- **Economic assumptions:** The value of material, as well as assumptions relating to inflation and interest rates.

The key input to the modelling was estimates of flooring waste volumes, including:

- Installation waste generation
- Product weight
- Installation wastage rates.

These are important assumptions because firstly, they relate to the scale of the waste burden and the task facing the scheme; and secondly, they drive the collection, transport and recycling costs of the scheme.

**Table 2: Resilient flooring waste volume assumptions**

Description of waste type	Possible values (tonnes)
End-of-life resilient flooring waste	50,600 tonnes p.a.
Installation offcuts and stock- and roll-ends	9,000 tonnes p.a.

<sup>1</sup> MS2, Product Stewardship in North America and Europe – Final Report 2009

**Table 3: Industry assumptions for installation waste generation and average product weight**

	Sheet flooring	LVT	Hybrid
Installation wastage rate	10%	5%	7%
Average installation wastage rate	7.1%		
Average product weight based on product type and market proportion	4.8kg per SQM		

**Table 4: Consumption of resilient flooring**

	Amount
Total annual Australian market consumption estimate (2022)	24.2 million SQM or 100,000 tonnes
Percentage of industry participating in ResiLoop	50% of total market
Leviable sales at 50% market participation <sup>2</sup>	9.1 million SQM
Members' installation waste volume	0.6 million SQM (2 856 tonnes/year)
Assumed members' installation waste recycling rate	Increasing from 20% in Yr 1 to 35% in Yr 4

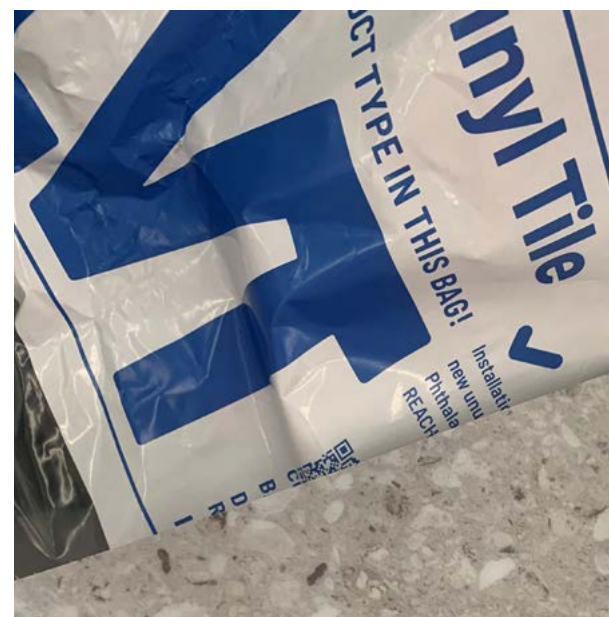
Based on the proposed process for waste recovery and recycling, further assumptions used in the modelling include:

- Only scheme Members Participants' products are collected.
- The products collected are LVT, H0 sheet and non-textile-backed HE sheet.
- Only installation waste and stock- and roll-end materials will be collected.
- Research into the next product type to be addressed – Hybrid/rigid core tiles – will be undertaken.
- The target for collection volumes is an average of 834 tonnes per annum for 4 years, starting at 20% recovery rate building to 35% recovery by end of Year 4.

## ResiLoop Funding Model

**Table 5: Summary of revenue streams and costs**

Revenue streams	Direct costs	Value-add investments	Indirect costs
Product levies	Training	R&D	Organisational overheads (staff, accounting etc)
Scheme membership participant fees	Collections	Education and awareness	
Sale of recovered material to recyclers	Logistics		
	Data management		Governance
	Certifications and audits		



<sup>2</sup> Leviable sales means sales of material that is targeted by the scheme, including LVT, H0 sheet and non-textile backed HE sheet (which the scheme will collect), as well as hybrid/rigid (which the scheme will aim to develop markets for). The 9.1 million SQM figure was arrived at by analysis of confidential sales data for ARFA members provided by BIS Oxford Economics.

**Table 6: Proposed ResiLoop Business Model**

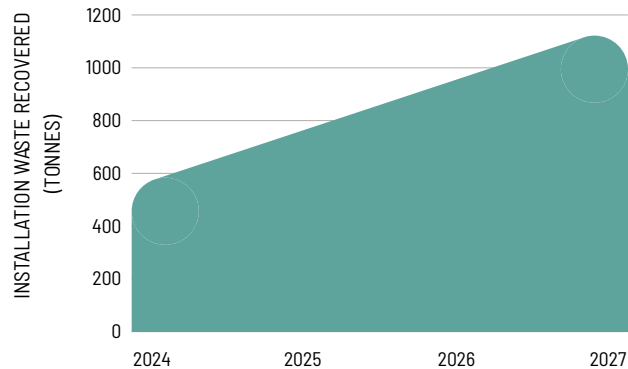
Business Model feature	Recommendation	Rationale
<b>FUNDING</b>		
Funding contributed by	Brands selling: Luxury Vinyl Tile (LVT) Homogenous sheet Not-textile backed heterogenous sheet Hybrid/Rigid tiles	Contributions based on products the scheme is targeting
Expected seed funding for working capital	Estimated as 2 quarter's worth of scheme running costs, provided by founding members  Provided as a cash advance by founding members  Applied as a credit towards, and an offset on, their levy contributions	To allow the scheme to pay for expenditures from commencement
Contribution rate	12 cents per SQM sold	Calculated based on funding needs Applied quarterly based on prior quarter sales
Supplementary funding	From other scheme members ('Associate Members'), including: <ul style="list-style-type: none"> <li>• Contractors</li> <li>• Retailers</li> <li>• Construction sector projects</li> </ul>	Other stakeholders that benefit from the scheme. Installers would also have obligations under the scheme but would not provide funding due to the added administrative complexity of incorporating contributions from them
Supplementary rate	The intention of raising a total of around \$100,000 per year	Simple, flat contribution.  Supplementary rate will be based on number of participating associate members
Rebate on membership for own-brand collection	\$33 per tonne of sheet \$13 per tonne of LVT	Paid to members who collect their own material with 3rd party verified collection data

*Proposed ResiLoop Business Model continued on page 18.*

Business Model feature	Recommendation	Rationale
<b>SUPPORT FOR COLLECTION AND RECYCLING</b>		
Provision of collection receptacles to collection points	\$12,000/year	Source: ARFA
Cost of logistics	\$225 per tonne including the provision of colour coded bags, receptacles and freighting of material from aggregation point to recycler, assuming transport within region (eg. Greater Sydney)	Based on the results of a logistics trial commissioned by ARFA and conducted by <i>Circular Design Thinking</i>
Investment in reprocessing capacity, with a (no-interest) return of capital payback from the investee in the form of feedstock payments of \$100 per tonne until capital is paid back	4 x \$250,000 capital grants for pilot or expansion projects to process LVT, homogenous sheet, non-textile backed, and hybrid/rigid tile material over a 4-year period	Grant recommended over a rebate (\$ per tonne support) because the intention is to stimulate capacity that is financially self-sustaining over the long run and not reliant on ongoing support  Propose conditions including: <ul style="list-style-type: none"> <li>• Minimum 1:1 contribution (proponent must contribute at least 50% CAPEX)</li> <li>• Minimum capacity increments of 200 tpa</li> <li>• Demonstrate financial feasibility</li> <li>• Return of capital as scheme delivers feedstock (\$100 per tonne) to reflect that investors need confidence, including not just good access to funding, but also secure supply of feedstock</li> </ul>
<b>OTHER EXPENDITURE</b>		
Allowance for other expenditure	\$650,000	Benchmarked based on size of scheme and other scheme budgets Assumes: <ul style="list-style-type: none"> <li>• staff</li> <li>• overheads</li> <li>• research, audit and consulting services</li> <li>• accounting, legal and administrative services</li> <li>• financial, technical and contract due diligence on capital grants</li> </ul>

This model supposes an annual budget of approximately \$1.1–\$1.3 million, comprising of approximately:

- 25% logistics costs
- 55% program costs
- 20% market development



**Figure 6:**  
*Installation waste recovered*

Factors considered in developing the model include:

- That the levy apply per square metre of product rather than per kilogram, acknowledging that weight varies across product categories and products. A weight based levy would add complexity in sales data collection. Feedback from stakeholders recommended keeping it simple and it was agreed to levy on square metres. Similarly, it was agreed to implement a flat fee across all relevant products regardless of the wholesale price.
- That collecting a levy from the brand-owner is the most efficient approach as there are far fewer entities than at the retailer or commercial contractor stage of supply chain.
- That the levy be based on only those product categories being collected or researched for inclusion.
- That the frequency of levy collection be based on the previous quarter's sales data. ARFA already commissions a quarterly market data report in which members report to an independent third party their sales data for compilation into an aggregated report.
- That levies may be passed onto end consumers and this be made transparent by evidence through direct reference or use of the ResiLoop mark on invoicing together with the participant registration number.
- That rebates be offered on tonnes collected under company take-back schemes.

### **Member Participants' Levy**

Manufacturers/importers (Brand-owners) joining the scheme will agree to pay a levy on the square metres of relevant products placed into market. ARFA is already well positioned as sales data is currently submitted by its members to a third party every quarter.

The contracted third party will calculate levy receipts and provide invoicing details for each company to a third party accountant for billing and collection of the levy. Sales data submitted would need periodic independent auditing.

Except for the initial invoice on joining the scheme, Member Participants will be invoiced quarterly in arrears based on the previous quarter's sales data. Companies will therefore be able to forecast their next invoice.

At the commencement of the scheme, the initial invoice will comprise two quarters' worth of sales levy collected from Member Participants as a cash advance to provide seed funding for working capital as the scheme commences. The additional quarter's worth of funding will be applied as a credit towards, and an offset on, Member Participant's future levy contributions.

### **Associate Members' Annual Fee**

An annual membership fee will apply to participating contractors, retailers, large construction projects who register and agree to operate a Collection Point. Associate Members will need to meet a Code of Conduct and will receive access to a program trade mark and a unique identification number as a registered scheme member.

The fee will be modest and less than the average annual cost incurred for equivalent volumes of resilient flooring installation waste disposal. It may be set according to a sliding scale based on business volume.

The fee may be paid by a retail group at head office level for inclusion of an agreed number of retail stores.

ResiLoop will supply annual certificates to Collection Points recording the total volume of relevant waste collected and confirming the recycling of this material.

Installers need to register with the program to be issued an identification number, however they will not be required to pay a fee.

Construction companies will also be encouraged to join as Associate Members, giving them accreditation as a scheme member and potentially, waste tracking data relevant to their projects where ResiLoop scheme members are contracted to supply.

### ***Affiliate Membership***

Recyclers contracted to receive the recovered materials will be Associate Members, giving them some surety of supply. There will be no membership fee.

Waste will only be passed onto a scheme recognised recycler. Recyclers will need to comply with a Code of Conduct and supply data.

### **User pays system for stock and roll ends**

Stock, batch and roll ends will be addressed through a fee paid per kilogram by the contractor or retailer or product distributor, booking a collection through ResiLoop. ResiLoop will coordinate a 'milk run' periodically to collect these materials and send them for recycling.

## **Compliance**

On joining, Member Participants will sign an agreement obligating them to comply with scheme rules, to provide accurate sales data to a contracted third party and to pay the annual levy set by the ResiLoop Board.

All Members will have the right to use the ResiLoop logo on relevant product packaging, invoices and promotional materials.

A register of scheme members will be maintained, recording each members' unique number allocated. This will be available online on ResiLoop's website.

Failure to adhere to commitments made through participation in the scheme may lead to revocation of a Participant's registration and accreditation.

Draft Codes of Conduct and membership rules are provided in the Appendix.

### ***Terms and Conditions for use of the ResiLoop logo***

- Membership fees and applicable levies will be paid as due.
- Rules regarding the display of the logo will be complied with.
- Members intending to use the ResiLoop logo will need to comply with scheme requirements for their membership category including, for example: data provision, workplace procedures, occupational health and safety, scheme audits, disposal of contaminated waste.
- Members will be expected to retain and make accessible to the scheme, including for audit purposes, records demonstrating that obligations and scheme procedures are being met.



## Organisational structure

ResiLoop is an initiative of ARFA. However it will be established and operated as a Product Stewardship Organisation (PSO) as a separate legal entity, a public company limited by guarantee. This will provide operational independence and transparency and is designed to encourage broad supply chain representation.

It will be overseen by a Board of Directors which shall include representation of brand owners/suppliers, contractors, retail groups, installers and other relevant stakeholders. It may appoint a Chairperson from among the Board members or choose to appoint an independent Chair.

ResiLoop's funds may be held in a controlled trust and will be subject to regular independent audits.

The ResiLoop PSO will not have access to individual Member Participant's sales or levy invoicing data to protect commercial confidentiality.

The PSO will be accountable for:

- Business planning
- Risk assessment & control
- Collections & logistics management
- Membership recruitment & training
- Ethical and corporate governance standards
- Marketing & communications
- Research & Development
- Accounting
- Outsourced services

## ACCC authorisation

As ResiLoop intends to bring together participants from across the industry to effect arrangements in the market which may affect the price of resilient floorcovering products, its activities have the potential to fall within the definition of "cartel behaviour" as defined under the Australian Competition and Consumer Act 2010 (Act). This restricts industries from making a contract or arrangement, or arriving at an understanding, *"a provision of which would have the purpose, or would or might have the effect, of substantially lessening competition."*

Once the final scheme design is determined, authorisation from the Australian Competition and Consumer Commission will therefore be sought for the scheme to operate under subsection 88(1) of the Act.

## Risk management

A number of potential risks have been identified in relation to establishing and operating a national product stewardship scheme for floorcoverings. These have been summarised below.

*Table 7: Risk identification and control strategies*

Risk Type	Mitigation
<p>Financial sustainability. The modelling required many assumptions and forecasts. Without an operating track record on which to base these, the assumptions and forecasts are highly uncertain, resulting in the potential for revenues to be very different from forecasts, as well as costs to be very different from forecasts.</p> <p>This presents a solvency risk to the scheme, which refers to the situation where an entity has insufficient funds to meet its financial obligations</p>	<ul style="list-style-type: none"> <li>• Reliable forecasting</li> <li>• Minimum market coverage (ie. 50 per cent) and ability to adjust levy and charges</li> <li>• Secured contractual commitments from members who, collectively have a market share greater than the minimum market share target threshold before launching</li> <li>• Gradual increase in the number of Collection Points, to ensure that collections do not significantly exceed anticipated volume</li> <li>• (if the potential to collect is much higher than the scheme can fund, the scheme can agree to higher contribution rates with members).</li> <li>• Maintaining a line of credit or an agreement with members to obtain temporary 'top up' contributions, in the event the scheme is under significant cashflow pressure.</li> </ul>
<p>Operational eg: The risk of a breakdown of an aspect of the Resiloop program that could include harm to the health and safety of participants, failure of supply chains, non-compliant behaviours and a basic misunderstanding of how the system works. This could result in a major consequence, such as non-compliance to laws and regulations, harm to a participant or major damage to the Resiloop brand.</p>	<ul style="list-style-type: none"> <li>• Implement specific procedures and documentation in engaging partners for collection, storage, transportation and recycling of materials.</li> <li>• Ensure adequate training of installers and collection points and all participants in the correct aspects of the system.</li> <li>• Having a secure supply chain is critical to the success of the program and Resiloop should ensure it has adequate back-up options in place should a supplier in the chain fail or be unable to process material adequately.</li> <li>• Ensure adequate insurance policies.</li> </ul>
<p>Market. In terms of whether the existence of the scheme has any effect on purchasing decisions by consumers</p>	<p>Implement a broad campaign to raise awareness of the purpose and benefits of the scheme.</p>
<p>Free riders, where businesses take advantage of the scheme without contributing financially</p>	<p>Limited in Stage I as only Member Participants' products collected. Mitigate through industry education and awareness raising campaign such as the scheme participant coverage is maximised. Certain benefits delivered to participants only.</p>
<p>Legal in respect of levies on imported products</p>	<p>Mitigate as a voluntary scheme, opted in. Market is comprised predominantly of importers. Importers and local manufacturer treated equally</p>
<p>Environment, Health &amp; Safety</p>	<p>Risk assessment conducted. Controls recommended include:</p> <ul style="list-style-type: none"> <li>• Mandating acceptable storage volumes on sites and having a 'must go to landfill' clause if any one site holds too much stock, or where a lawful storage or disposal solution is no longer available;</li> <li>• Tracking material collections and having a reporting program to have oversight of any bottlenecks before they occur;</li> <li>• Developing procedures and processes for addressing contamination in collections including how to isolate it, notify ResiLoop and dispose of it in a lawful way.</li> <li>• Considering using smaller collection bags for LVT which is a heavier product, to ensure the weight of bags is suitable for manual handling.</li> </ul>

## Performance measures

The following are proposed as potential performance measures for the scheme.

- Recovered volumes, diversion from landfill: over 3,300 tonnes over four years.  
Year 1: 571 tonnes of recovered materials rising to 1,108 tonnes in Year 4.
- Tonnes of recyclate produced
- Recycling efficiency rate (recyclate tonnes/recovered tonnes)
- Number of Collection Points
- Number of new products made from recyclate
- Geographic coverage
- CO<sub>2</sub> emissions saved from virgin raw material substitution

The Board of the PSO would be responsible for agreeing the measures to be adopted and putting necessary processes and tools in place to measure and collate relevant information.

## Key data to be captured in a data management system

### *At Collection Points:*

- Records number of bags of acceptable recovered material including unique identification reference of Collector, number of bags delivered by product types collected.
- Confirms acceptable condition of waste delivered (no obvious significant contamination)

### *By Transporter:*

- Measures and records total weight of recovered materials; entered in transport receipt to the Collection Point.
- Collection Point confirmed via uploaded JPEG with a valid geotag or via the Transporter's consignment document

### *By Recycler:*

1. Weight of material by product type received for recycling is measured and recorded, matched to Collection Point origination, and/or Collector if feasible. Weight checked against the Transport consignment documentation.
2. Conformity of recovered material; photographs and records any waste removed as contamination.
3. Confirms that the collection has less than X percent contamination by weight.
4. Records excess contamination in the records of the Collection Point or Collector identified as responsible for the waste collection.
5. Records weight of recyclate produced and end application/destination
6. Records destination of contamination material

# APPENDIX TO PART II

## Membership Guiding Principles / Code of Conduct

### All participants agree to:

- Promote ResiLoop to supply chain participants in the industry as well as encourage recognition of ResiLoop to specifiers and procurers of resilient flooring
- Use the ResiLoop logo/branding in accordance with the terms and conditions that apply to its use
- Comply with relevant occupational health, safety and environmental regulations and relevant legal and licensing requirements for their business
- Comply with any ResiLoop procedures for quality, transparency and traceability
- Provide reporting to the scheme as required to manage applicable fees, levies, rebates and claims under the scheme
- Cooperate with audits instigated by the Program and any surveys undertaken from time to time
- Retain and make accessible to the scheme, records to demonstrate these obligations and related program procedures and guidelines are being met and for audit purposes as appropriate
- Collaborate and cooperate with operators of ResiLoop Collection Points, scheme contracted third party logistics providers and approved recyclers
- Encourage the adoption of requirements to take-back resilient floorcovering waste from installation sites in tenders and contracts to improve the diversion of these wastes from landfill in Australia

### Requirements of Scheme Participants

Scheme members and participants are expected to maintain legal compliance with all relevant regulatory requirements for their business activities, including activities related to scheme participation. This includes, for example, environmental management and protection, occupational health and safety, fire safety, corporations law etc.

*Table 8, over page, summarises proposed additional requirements for scheme members as conditions of membership.*

**Table 8: Requirements of scheme participants by membership category**

Member Participants (brand-owners/distributors)	Collectors (flooring layers/installers)	Collection Points	Transporters	Recyclers
<i>Appropriate insurance policies are to be held by participants eg public and product liability, workers compensation, environmental risk.</i>				
<ul style="list-style-type: none"> <li>Sign up to the Scheme and agree to the Scheme process</li> </ul>	<ul style="list-style-type: none"> <li>Register with the Scheme and agree to comply with the Scheme process</li> </ul>	Risk assessments and management plans in place in relation to the collection, storage, handling and processing of flooring waste materials		
<ul style="list-style-type: none"> <li>Contribute a volumetric fee, determined by the Board of the Product Stewardship Organisation, as a levy per square metre of relevant product sales</li> </ul>	<ul style="list-style-type: none"> <li>Agree to collect scheme compliant resilient floorcovering waste from job sites following the scheme's procedures using scheme-approved or -provided collection bags and to deliver to scheme-approved Collection Points</li> </ul>	Data collection and management – parties shall enter and maintain accurate records of waste materials collected and processed under the scheme so as to facilitate traceability and make this data available to the scheme manager and auditors		
<ul style="list-style-type: none"> <li>Agree upon signing to commit to payment of levies for one full year</li> </ul>	<ul style="list-style-type: none"> <li>Use the approved waste tracking system and accurately record required details of waste collected</li> </ul>	<ul style="list-style-type: none"> <li>Register Collections Points at Associate Members' depots with the Scheme and agree to comply with the Scheme process</li> </ul>	<ul style="list-style-type: none"> <li>Deliver waste floorcovering materials collected by Scheme participants only to Scheme approved Recyclers</li> </ul>	<ul style="list-style-type: none"> <li>Register as an Affiliate Member of the Program, approved by the Scheme and agree to the Scheme process</li> </ul>
<ul style="list-style-type: none"> <li>Provide to a third party contracted by ResiLoop data on the types and volumes of resilient flooring products supplied to the domestic market</li> </ul>	<ul style="list-style-type: none"> <li>Act in the best interests of the scheme</li> </ul>	<ul style="list-style-type: none"> <li>Make space available in accordance with scheme terms for a readily accessible, scheme-approved or -provided collection receptacle and allow registered Collectors to drop-off scheme compliant recovered materials</li> </ul>	<ul style="list-style-type: none"> <li>Maintain applicable licences for the transportation of these materials</li> </ul>	<ul style="list-style-type: none"> <li>Comply with ISO 14001 or an equivalent Environment Management System in reprocessing operations and produce recycle(s) for use in new, end product manufacture</li> </ul>

Member Participants (brand-owners/distributors)	Collectors (flooring layers/installers)	Collection Points	Transporters	Recyclers
<ul style="list-style-type: none"> <li>Demonstrate best practice manufacturing standards addressing PVC resin manufacture and sourcing and safe and sustainable use of additives eg. through Best Practice PVC certification, compliance with the PVC Stewardship Program, or similar third party verified eco-certifications</li> </ul>	<ul style="list-style-type: none"> <li>Respond to program surveys as and when required to help improve the collection system</li> </ul>	<ul style="list-style-type: none"> <li>Maintain Collection receptacles at Collection Points in secure locations. Receptacles shall have clear signage for identification</li> </ul>		<ul style="list-style-type: none"> <li>Provide processing services of resilient flooring waste collected through ResiLoop. Waste will be reprocessed in accordance with the Scheme Recyclate Specifications or specific end-customer requirements</li> </ul>
<ul style="list-style-type: none"> <li>Enhance the ability to improve onshore recycling outcomes through meeting any product design criteria agreed and advocated by the ResiLoop Board</li> </ul>		<ul style="list-style-type: none"> <li>Grant access (free of hazards) for Scheme registered Collectors to drop off materials</li> </ul>		<ul style="list-style-type: none"> <li>Shall not use landfill, energy recovery or incineration as standard practice for disposal</li> </ul>
<ul style="list-style-type: none"> <li>Give 6 months notice of a wish to withdraw from the scheme</li> </ul>		<ul style="list-style-type: none"> <li>Accept collected, scheme compliant, resilient floorcovering waste only from ResiLoop registered Collectors</li> </ul>		<ul style="list-style-type: none"> <li>Use the approved waste tracking system and accurately record required details of waste received, processed and any residue waste disposed to landfill or thermal treatment</li> </ul>
<ul style="list-style-type: none"> <li>Promote participation of relevant products in the Scheme to product specifiers, downstream customers and end markets so as to aid identification for recovery of installation waste from these products</li> </ul>		<ul style="list-style-type: none"> <li>Maintain Scheme receptacles for collation of waste in the condition required for transport in accordance with instructions from the contracted transport provider and/or ResiLoop</li> </ul>		<ul style="list-style-type: none"> <li>Respond to Program surveys on collection rates and costs as and when required</li> </ul>
<ul style="list-style-type: none"> <li>Consider marking product packaging with the ResiLoop mark</li> </ul>		<ul style="list-style-type: none"> <li>Make best efforts to reject or remove any obviously contaminated materials or materials not complying to the Scheme process prior to transportation</li> </ul>		<ul style="list-style-type: none"> <li>Comply with mandatory acceptable storage volumes on sites determined in consultation with the Scheme administrators</li> </ul>

Member Participants (brand-owners/distributors)	Collectors (flooring layers/installers)	Collection Points	Transporters	Recyclers
<ul style="list-style-type: none"> <li>Encourage specifiers and procurers to recognise ResiLoop to improve recovery and diversion of waste from landfill</li> </ul>		<ul style="list-style-type: none"> <li>Aggregate and deliver scheme compliant resilient floorcovering waste to a scheme approved Recycler using nominated or agreed transport providers</li> </ul>		<ul style="list-style-type: none"> <li>Track material collections and have a reporting program to have oversight of any bottlenecks before they occur</li> </ul>
<ul style="list-style-type: none"> <li>Include the cost of the product stewardship program's product levy as a component of the product price and mark invoices as inclusive of the ResiLoop levy</li> </ul>		<ul style="list-style-type: none"> <li>Where relevant, indicate on invoices that the ResiLoop levy is a component of the product price</li> </ul>		<ul style="list-style-type: none"> <li>Develop procedures and processes for addressing contamination in collections including how to isolate it, notify ResiLoop and dispose of it in a lawful way</li> </ul>
		<ul style="list-style-type: none"> <li>Collect data as requested under the terms of the scheme on waste collections</li> </ul>		<ul style="list-style-type: none"> <li>Report relevant hazards and significant incidents directly related to or impacting ResiLoop collected waste or processed recyclate to relevant authorities and to the Product Stewardship Organisation to enable a better understanding of the risks and to improve risk management under the scheme</li> </ul>
				<ul style="list-style-type: none"> <li>Comply with any feedstock commercial agreements in place</li> </ul>
				<ul style="list-style-type: none"> <li>Comply with the maximum waste storage volumes and any storage timeframe limitations determined by the Scheme</li> </ul>
				<ul style="list-style-type: none"> <li>Provide evidence of a suitable closure plan that assures against abandonment of any recycling products or materials. The closure plan will be supported by proof of a sufficient financial instrument to guarantee the execution of the closure plan</li> </ul>

*Disposal of any resilient floorcovering waste shall be compliant with applicable State and local environment and waste regulations.*



**ARFA**

AUSTRALIAN RESILIENT FLOORING ASSOCIATION

**ARFA Members:**

Altro  
Amtico  
Armstrong Flooring  
Floorlife  
Forbo  
Gerflor  
Interface  
Karndean  
Kenbrock  
Milliken  
Pegulan Flooring  
Polyflor  
ShawContract  
Signature Floors  
Tarkett

**Associate Members:**

Attar

Resi  
Loop