Analysis of CARE Revised California Carpet Stewardship Plan 2017-2021

Report to Changing Markets

Dr Chris Sherrington

Ayesha Bapasola

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Report for Changing Markets

Prepared by Ayesha Bapasola &Dr Chris Sherrington, Eunomia Research & Consulting Ltd

Approved by

…….

Dr Chris Sherrington

(Project Director)

Eunomia Research & Consulting Ltd
37 Queen Square
Bristol
BS1 4QS

United Kingdom

Tel: +44 (0)117 9172250
Fax: +44 (0)8717 142942

Web: www.eunomia.co.uk

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Contents

1.0. Introduction 1

2.0. Analysis of Response to Findings and Associated Plan Revisions 2

2.1 Finding 1 2
2.1.1 CARE's Response 3
2.1.2 Effectiveness of Incentives 5
2.2 Finding 2 6
2.2.1 CARE's Response 7
2.3 Finding 3 8
2.3.1 CARE's Response 8
2.4 Finding 4 9
2.4.1 CARE's Response 9
2.5 Finding 5 9
2.5.1 CARE's Response 10
2.6 Finding 6 10
2.6.1 CARE's Response 10
2.7 Finding 7 11
2.7.1 CARE's Response 11
3.0. Will the 2017-2021 Plan Deliver Genuine Improvements? 12

3.1 What Would be Required to Implement Genuine EPR? 12
APPENDICES 14

A.1.0 Performance Goals 2017-2021 15

1.0 Introduction

In December 2017, CalRecycle rejected CARE's California Carpet Stewardship Plan 2017-2021.[1] CARE was given 120 days to come up with an improved plan that addressed CalRecycle's criticisms. On the 20th of February, CARE submitted a new Plan, along with a document describing CARE's response to each of the key findings.[2,3]

Eunomia Research & Consulting Ltd (Eunomia) was commissioned by Changing Markets to review the new CARE Plan 2017-2022. The focus of the review is to:

- Review the amendments made in response to CalRecycle's findings associated with the rejection of the original 2017-2021 Plan and to consider whether CalRecycle's criticisms have been adequately addressed;
- Determine whether the changes thus made are likely to stimulate improved environmental performance, and move the stewardship programme closer to something resembling a genuine form of producer responsibility, compared with the previous Plan covering the period 2011-2016; and
- Summarise shortcomings in the revised Plan and identify what changes can be made to improve its operation.

The bulk of our analysis, presented in Section 2.0, relates to CARE's responses to CalRecycle's findings. It is clear from this analysis, and Eunomia's previous review of the 2017-2021 Plan undertaken in December 2016, that the revised 2017-2021 still falls far short of what one would reasonably expect to see within a genuine form of producer responsibility for carpets and carpet tiles in California.[4] The focus of the Plan remains on downstream elements, with no incentive via the assessment fee to design for reuse or recyclability, nor to incorporate recycled content.

In Section 3.0, we consider whether the proposed changes in the 2017-2021 will lead to significant improvements, and go on to suggest what changes would be needed to implement a more genuine form of EPR.

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[1] CalRecycle (2016) 2017 CARE Carpet Stewardship Plan Request for Approval, December 20 2016, available at https://secure.calrecycle.ca.gov/RTrak/ActionItem/DocDetail.aspx?ActionItemID=1788&DocumentID=7522

[2] Carpet America Recovery Effort (2017) California Carpet Stewardship Plan 2017-2021, Version 19, February 2017, available at http://www.calrecycle.ca.gov/carpet/Plans/2017Revised.pdf

[3] Carpet America Recovery Effort (2017) Response to CalRecycle's Key Findings, 20 February 2017, available at http://www.calrecycle.ca.gov/carpet/Plans/2017RevResp.pdf

[4] Eunomia Research & Consulting Ltd (2016) California Carpet Stewardship Programme, Report to Changing Markets, 6th December 2016.

In brief, for genuine progress to be made the California Carpet Stewardship Programme would need fundamental revision, incorporating:

1) A much higher level of cost coverage; and
2) Meaningful incentives for producers to design for recyclability and incorporate recycled content.

2.0 Analysis of Response to Findings and Associated Plan Revisions

The following sections relate to the numbered findings from CalRecycle, and Eunomia's assessment of the associated response from CARE.

2.1 Finding 1

The Plan does not provide enough information about the effectiveness of financial incentives and other Program elements to evaluate whether the recycled output goals (24 percent by 2020 and 26 percent by 2021) would actually constitute continuous meaningful improvement, nor how the Plan would achieve these goals.

In our view, the most salient issues raised by CalRecycle under this finding are:[5]

- The failure on the part of CARE to have sought to understand, through economic modelling, and to present in a transparent fashion the results of the modelling demonstrating the likely effect of any of the financial incentives implemented or proposed.[6]
    - Noting that the 'various subsidies and incentives paid to Program participants' are arguably 'the most critical elements in the Plan', CalRecycle highlights that 'the 2017 Plan does not analyse the effectiveness and sufficiency of the current

[5] CalRecycle (2016) 2017 CARE Carpet Stewardship Plan Request for Approval, December 20 2016, available at http://www.calrecycle.ca.gov/Actions/Document.ashx?id=7522

[6] In the October 2016 version of the Plan, CARE stated on page 45, under Section G. Financing mechanism, that 'the program will develop and utilise tools (such as economic model, cash-flow analysis, etc.) to analyse financing scenarios and recommend most effective options to meet the goals of AB2398 while preserving the integrity of the fund itself.' It was further stated on page 46 that 'CARE has developed an economic forecasting model under contract with Louis-Berger Company. The model enables CARE to run various market scenarios to inform the decision-making process regarding subsidies and other incentives.' The Program Budget on page 49 indicates that $134,236 was spent on the modelling consultant in 2016, with a further $60,000 anticipated in 2017.

or projected assessment, subsidies and incentives, including their relationship to increased recycling and diversion.'

    - CalRecycle states that 'the 2017 Plan should include a transparent process by which CARE will continuously evaluate and adjust the assessment, subsidies and incentives in a timely manner in order to achieve continuous and meaningful improvement.
- The question of market share of carpet versus other flooring types should not, in CalRecycle's view, be a material consideration in setting the assessment fee**.**
    - Even if it were a factor to be taken into account, CalRecycle identifies that the assessment fee accounts for a very small amount of the overall cost (providing illustrative examples that show it to vary from less than one per cent in the case of a 'top-end' carpet, and perhaps two per cent for a cheap carpet).
- The target recycling rate of 24% for 2020 is seen as lacking in ambition (relative to the state's wider waste management aims in respect of source-reduction, recycling and composting). It is the same as the 'aspirational' goal for the current Plan, albeit it is significantly above the reported rate of 10%, which CalRecycle notes has not improved since the first full year of reporting in 2012.
- Furthermore, CalRecycle notes the clear discrepancy between its own estimate of 600,000 tons per annum to landfill in 2014, and CARE's estimate of 173,000 tons of *total* discards in 2015. This means that the reported recycling rate may be significantly overstated.[7] CalRecycle insists that 'the 2017 Plan needs to include a process for evaluating and improving the baseline formula for estimating the disposal of carpet in California.'

2.1.1 CARE's Response

The first paragraph of CARE's letter dated 20 February 2017, responding to CalRecycle includes the following line:[8]

> *This letter addresses **some** of the concerns raised in the seven findings*[9]

This is accurate, in that CARE seems - rather surprisingly - to have chosen to address just a small number of the concerns raised rather than all of them. It's not clear whether CARE has included this line to alert the reader that what follows is just a partial response to CalRecycle's criticisms. This point is not repeated under the response to specific findings. This could give the impression

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[7] There is no detailed breakdown of the tonnage of discarded carpets that follow specific routes. However, if we (conservatively) assume that CalRecycle's estimate of 600,000 tons per annum to landfill represents close to all the tonnage placed on the market (apart from the 17,300 tons that one must assume is recycled based on what CARE states), then the recycling rate would be approximately 2.8%.

[8] Carpet America Recovery Effort (2017) Response to CalRecycle's Key Findings, 20 February 2017, available at http://www.calrecycle.ca.gov/carpet/Plans/2017RevResp.pdf

[9] Emphasis added

to the reader of specific sections relating to numbered findings that CARE's response is comprehensive, and addresses all the issues raised.

In respect of Finding 1 CARE has chosen to respond under the following two headings:

(a) Finding 1 urged CARE to address installer subsidies, funding for discounted drop-off fees, or subsidies for secondary manufacturers to use nylon PCC.
(b) Finding 1 stated that "**preserving market share** is not relevant to CalRecycle's evaluation of the adequacy of CARE's 2017 Plan."

If this is CARE's interpretation of what CalRecycle was emphasising in Finding 1 it is woefully inadequate. There is no mention of, for example, how a better understanding of the effectiveness of existing or potential financial incentives might be achieved.

Intriguingly, Finding 1 didn't actually mention subsidies for secondary manufacturers to use nylon PCC, although it was noted alongside installer subsidies and funding for discounted drop-off fees in CalRecycle's introductory paragraph on findings and analysis.[10]

2.1.1.1 Subsidies

In respect of installer subsidies, funding for discounted drop-off fees, or subsidies for secondary manufacturers to use nylon PCC, CARE states that:

> *The Stewardship Planning Committee (SPC) took into consideration many ideas for influencing the supply chain, including the idea of installer incentives, payment of drop-off site tip fees, etc. It would be impossible to cover all of the options discussed over hundreds of hours of meetings, analysis and brainstorming. The fact that they are not explicitly discussed or proposed does not constitute a basis for rejecting the Plan.*

This is a rather odd response. CalRecycle's suggestions seem sensible, and certainly merit more detailed consideration than simply 'having been discussed'. Given that the programme has been running since 2011, it is remarkable that such ideas have not been subject to detailed analysis, at the very least to explain why they haven't been adopted.

Furthermore, the final sentence of the quote above is a little melodramatic. To suggest that the Plan might be rejected simply because 'these ideas…… are not explicitly discussed or proposed' is nonsense. This is not the sole basis for CalRecycle's rejection of the Plan – in fact, compared to the other concerns raised, this is a relatively minor shortcoming.

CARE's response goes on to discuss discounted drop-off fees, admitting that 'this subsidy would likely increase the diversion of PCC', but claiming that 'it would ultimately hinder CARE's

[10] In passing, it's worth noting that the structure of CalRecycle's Request for Approval Decision could be improved in order to encourage a comprehensive response. Specifically, if there were a clearly defined list of points that CARE must address in any response, that would make it more difficult for CARE to submit a partial response, as has occurred in this case.

implementation of other incentives.' Such a hindrance would, of course, only occur if there were no overall increase in funds.

CARE then provides an illustration of how expensive it would have been to have subsidised a discounted tipping fee of $48/ton for the 1,500 tons collected in 2016 (Q1-Q3), claiming this would have cost CARE $720,000. The full basis of this calculation is not presented, but if the intention was to multiply $48 by 1,500 tons, then the total should be $72,000, rather than $720,000.

Given that current sales are reported as 94 million square yards per annum, then rather than the 'additional 1 cent per pound assessment' stated in CARE's response, an additional $72,000 per annum would mean an assessment increase of 0.08 cents per square yard. It's not clear whether CARE's response meant to say 'per square yard assessment' instead of 'per pound assessment', as written. This seems likely, as on a per pound basis, given the average weight of carpet of 4.39lbs/yard, the increase in the assessment would be just 0.02 cents.

2.1.1.2 Market Share

CARE's response then goes on at some length about the question of preserving market share, disputing CalRecycle's interpretation of the requirement for the amount of the assessment not to create 'an unfair advantage in the marketplace'. CalRecycle focuses on the avoidance of unfair advantage towards scheme participants *within* the carpet market. CARE, by contrast, interprets this requirement more broadly, considering that the existence of the assessment fee itself creates an unfair advantage for suppliers of other flooring types who are not required to add an assessment fee at the point of sale to their products.

While strictly speaking, in the case of the Carpet Stewardship Plan, this comes down to a legal interpretation, CARE does have a point here. It would thus be interesting to consider the environmental impacts of carpets, and alternative flooring types, from the production phase through to end-of-life management routes, as well as the associated costs. The correct response to this issue would be for producer responsibility to be extended to other flooring types rather than for it to be scaled back, or capped, in the case of carpets.

2.1.2 Effectiveness of Incentives

Revealingly, one of the revisions to the 2017 CARE Plan can be seen as an admission that CARE does indeed have little understanding of how effective individual incentives might be. The following text has been added to page 16 under the heading 'Increase the recycling of post-consumer carpets':[11]

> *Recognizing that CARE finished the year 2016 at ~11% carpet recycling, a goal of 26% by 2021 represents a 136% increase over 5 years. Given the challenges faced in the current markets, this goal represents both aggressive growth and continuous and meaningful*

[11] Carpet America Recovery Effort (2017) California Carpet Stewardship Plan 2017-2021, Version 19, February 2017, available at http://www.calrecycle.ca.gov/carpet/Plans/2017Revised.pdf

improvement. Until there is confidence that the incentives and investments can deliver market outlets at a faster pace, it is not prudent to set unrealistic goals beyond those already proposed.

The fact that there is a lack of confidence in the ability of incentives (existing or potential) to deliver increased recycling, is arguably down to the complete absence of transparent economic appraisal of the likely effects. This is noted by CalRecycle as arguably the key criticism, with the RFA stating that:[12]

> *CalRecycle staff find the 2017 Plan does not demonstrate CARE's ability to ensure critical financial mechanisms that will have the desired effect of stimulating markets for increased carpet recycling, which is the underpinning of CARE's program design. The economic tool developed by CARE's contractor may provide essential data to develop more targeted and timely market support, but the 2017 Plan does not provide sufficient transparency to validate this.*

For this issue to not have been explicitly addressed in CARE's response is quite extraordinary. One might reasonably have expected CARE to have undertaken such modelling prior to submitting their response of 20 February 2017. For a reported amendment to simply highlight the fact that there is little understanding of the effectiveness of the Program's incentives adds to the impression that CARE is not seriously taking on board the criticisms of CalRecycle.

CalRecycle further required that:[13]

> *The 2017 Plan should include a transparent process by which CARE will continuously evaluate and adjust the assessment, subsidies and incentives in a timely manner in order to achieve continuous and meaningful improvement.*

There is no evidence that this issue has been addressed at all.

2.2 Finding 2

The 2017 Plan does not discuss how stakeholder input, especially the recommendations of the newly formed California Council on Carpet Recycling, is evaluated.

CalRecycle outlined here a need for transparency in the content of consultations with Council, as well as the evaluation mechanism for making decisions based on the outcome of those

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[12] CalRecycle (2016) 2017 CARE Carpet Stewardship Plan Request for Approval, December 20 2016, available at http://www.calrecycle.ca.gov/Actions/Document.ashx?id=7522

[13] CalRecycle (2016) 2017 CARE Carpet Stewardship Plan Request for Approval, December 20 2016, available at http://www.calrecycle.ca.gov/Actions/Document.ashx?id=7522

consultations. Additionally, it was noted that the Council was not consulted on major elements of the Plan, a finding that is corroborated by stakeholder comments on the Plan from the Council members (California Product Stewardship Council, Californians against Waste, ReThink Green), which stated:[14]

> *We are writing as members of the California Council on Carpet Recycling (CCCR) to let CalRecycle know that we were not given a chance to review the Plan before it was submitted to CalRecycle. Also, we wish to convey our enormous disappointment in the Plan in that it does not include even one recommendation of the Council. CARE needs to provide convenient collection locations, support recycled output and processing in California, and design carpets that are recyclable and incorporate recycled content as much as possible.*

CalRecycle expects the 2017 Plan to:

> *Address major recommendations flowing from the stakeholder consultation process, and CARE's rationale for accepting or rejecting these recommendations.*

2.2.1 CARE's Response

CARE's response is brief, indicating that the latest changes to the 2017 Plan have not been discussed with the Council. However, a webinar was reportedly held on 9th February to 'share changes and to specifically discuss ideas proposed by the Council that have been incorporated into the revised Plan', though presumably not to discuss ideas that were *not* incorporated into the revised Plan.

CARE commits to:[15]

> *Actively discuss all program changes in the future with the Council.*

In addition, note has been made in several areas of the Plan where ideas of the council were incorporated such as micro grants for reuse and collection, though with the caveat that this will only be "considered if funds allow". Additionally, the transparency on council input does not appear to have extended to the core funding mechanism itself, as it is stated that:

> *The SPC has taken into consideration many ideas from many sources, including the Council, for influencing the supply chain, such as installer incentives and payment of drop-off site tip fees. Current funding is not sufficient to add such large increases in subsidies at this time.*

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[14] CalRecycle (2016) 2017 CARE Carpet Stewardship Plan Request for Approval, December 20 2016, available at http://www.calrecycle.ca.gov/Actions/Document.ashx?id=7522

[15] Carpet America Recovery Effort (2017) Response to CalRecycle's Key Findings, 20 February 2017, available at http://www.calrecycle.ca.gov/carpet/Plans/2017RevResp.pdf

This situation could, and as per AB2398 should, be resolved through an increase in the assessment fee, which is meant to be sufficient to meet the anticipated costs of the Plan.

It is clear that the 2017 Plan has not (yet) been revised in such a way as to meet CalRecycle's requirement that it 'address major recommendations flowing from the stakeholder consultation process, and CARE's rationale for accepting or rejecting these recommendations.'

2.3 Finding 3

The 2017 Plan does not sufficiently address reasonable consumer access to recycling services in critical population centers in California.

CalRecycle questions the rationale behind the 'one centre in each county' goal maintained by CARE in its 2017 Plan, pointing out its arbitrary nature and inability to address consumer access needs in densely populated areas. It also notes a lack of a strategic approach in integrating these within the existing network of 200+ private collection sites. CalRecycle finds that the one site per county approach:

> *Does not fulfil the statutory or regulatory requirements, and will leave many of California's nearly 40 million residents without convenient carpet recycling opportunities.*

2.3.1 CARE's Response

CARE's response states that:

> **In addition to** *the continued expansion in 2017, [with] the goal of providing coverage in all 58 counties by the end of the year, CARE* **will conduct the convenience study** *referenced in the Plan.*[16]

However, it is worth noting that in the revised Plan itself, it is stated that:

> **After** *the Program achieves its goal of establishing at least one public drop-off site in each county by the end of-2017, the Plan incorporates* **the option of conducting a study** *of collection convenience to determine if and where additional sites may be needed. In the event that any particular county or counties decline drop-off service offerings, CARE will work to reallocate resources…***if results are completed and available**…**Upon completion of the study, CARE will consider these findings and identify a timeline for implementation, should the study indicate that sufficient sites are not already provided.**

Thus the actual revision in the Plan appears *not* to commit to conducting a convenience study alongside the continued expansion of current goals, but rather only to consider the option of undertaking a study once the goal of one site per county has been met.

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[16] Emphasis added

Furthermore, the Plan in its current form appears to commit to reallocation of unallocated resources *only* if the findings of the study are available at that time – which is unlikely if the study does not commence until after the program goal is achieved as per the first sentence.

Finally, even in the event of a study being completed, CARE makes no commitment to deliver changes on the basis of the study, or even a timeline for the study itself, or any subsequent implementation of actions based on the study findings.

2.4 Finding 4

CARE's proposal to reduce subsidy guarantees to six months does not mitigate the uncertainty and high risk in investment for processors and others to establish and grow critical California infrastructure for long-term carpet recycling.

The reduction of the guarantee period from 12 to 6 months, made without consulting the Council, is found by CalRecycle, to go against the Plan's 'guiding principle' to 'achieve economic stability'.

2.4.1 CARE's Response

CARE states that 'this finding has been resolved', reverting to the 12 month guarantee in the revised plan, but with the addition of a proration formula to act as a "safety valve provision deemed necessary to ensure liquidity of available funds". Effectively this would limit the financial exposure of CARE to the (arguably unlikely) event that recycled output increases significantly.

Further analysis of this provision and its potential impact in limiting the effectiveness of a 12 month guarantee to limit risk will be possible only after the proration formula has been agreed (it is a concept only at present), the date for which has been stated in the revised Plan as October 2017.

2.5 Finding 5

In the 2017 Plan, CARE has inappropriately redefined its primary method for measuring progress towards achieving its diversion and recyclability goals (from proportion of all discards to proportion of gross collections).

This finding, coupled with the first finding of discrepancies in CARE's baseline calculation (see Section 2.1), amounts to CARE's reported results being open to misinterpretation. CalRecycle qualifies this with a numeric example, and states:

> *To be clear, increasing diversion and improving the yield from collected carpet are important goals. However, CalRecycle staff find CARE has not justified promoting a metric for diversion that may mislead stakeholders regarding the success of its activities, and that obscures achievement of continuous meaningful improvement in the Program overall.*

CalRecycle also points out the effective re-definition of the term 'Recyclability' in the CARE 2017 Plan, questioning the choice to limit this to an improvement in recycling processes while ignoring

improvements in the manufacturing of a product to make it more recyclable. CalRecycle clearly rejects the explanation that manufacturer process lie outside CARE's remit, stating:

> *Carpet Law explicitly holds the manufacturer responsible for implementing the law, CARE is an agent of the manufacturers. The Plan should focus on product design for recyclability to meet the intent of this requirement.*

2.5.1 CARE's Response

CARE responds to the first point by stating that this change was unintended and that the use of gross collections as a baseline was meant to provide an additional metric to the existing one using discards, and not a substitute for it. Both the formula and the text under Goal #5 on page 17-18 in the revised Plan have thus been changed back to a baseline of discards rather than gross output, though the target goal has also reduced from 90% to 60%.

On the question of recyclability, the revised plan does not address the concerns about defining recyclability goals in any way, and the use of 'gross collections' rather than total discards as the baseline measure against which recycled output is measured is maintained to arrive at the recyclability yield in the revised Plan. The target goal for yields, however, was raised to 60%. No mention is made of the product design for recyclability in CARE's letter of response on this point.

2.6 Finding 6

The 2017 Plan fails to identify or evaluate the education and outreach (E&O) activities most likely to result in increased recycling and diversion.

To address this issue, CalRecycle recommended a shift from the current focus on 'process-based' evaluation metrics to 'performance-based' ones, as well as further engagement with installers and building owners alongside a more adequate budget for E&O activities. In order to achieve efficiency in spend of this budget, a system of prioritisation for various E&O activities, in which "individual activities are correlated to actual increases in recycling as the Program matures" is also advocated.

2.6.1 CARE's Response

In its revised Plan, CARE recognises the importance of CalRecycles' comments and introduces a new section on E&O activities, outlining the various ways in which the Plan seeks to engage with the range of stakeholders in the PCC supply chain, and, importantly, including installers and building owners in this list. Greater transparency is provided in the linking of E&O activities to diversion rate and market development goals in the Plan, as well as in the rationale for a regional, rather than nationwide public information campaign in CARE's letter.

However, the overall goal of E&O activities remains unchanged, with CARE's letter committing only to "continue to explore ways to get indicators of progress" and the revised Plan stating clearly that "it is our *assumption* that outreach success will contribute to operational success. The outreach plan is not designed to be directly correlated to operational program goals such as increasing recycled output."

In addition, the suggested budget for E&O activities remains unchanged. As such, CalRecycle's concerns have been largely unaddressed. Committing to a revised budget to support a study to evaluate existing indicators, and explore new ones, (perhaps alongside a similar study considering the effectiveness of economic incentives as discussed in Section 2.1.2) would have been a more appropriate response.

2.7 Finding 7

The 2017 Plan does not sufficiently address increasing the recycled content in carpet itself (as opposed to secondary products), which could significantly boost end markets for PCC material.

CalRecycle argues that closed loop recycling be prioritised as a more stable market for PCC materials than the (less environmentally beneficial) 'downcycling' efforts that have dominated the Plan to date. CalRecycle concludes that:

> *The Plan neglects a key market development strategy that is within the control of the carpet manufacturers…which is to increase their own use of PCC materials in manufacturing new carpet.*

2.7.1 CARE's Response

CARE responds by providing examples of emerging technologies in this area, but fails to offer support or an incentive for market development in these areas, stating on Page 22 of the revised Plan that:

> *Since the introduction of such newly designed products will take time to penetrate the market, CARE will monitor the sales of those products and, beginning in Year 4 of this plan, CARE will determine the timing, based on estimated lifespan of new products, to begin the education process with retailers and installers for recycling the new products.*

This commits CARE to 4 additional years of inaction on this front, even after which they only commit to a *consideration* of the timeliness of spreading awareness of the topic.

In addition, CalRecycle's mention of previous work that recommended changes to standards for carpet design and manufacture as a potential starting point for delivering recyclability goals is ignored.

This is entirely inadequate, as incentivising (or potentially mandating) the incorporation of recycled content in new carpets, and their recyclability, should be at the heart of any meaningful EPR scheme for carpets in California.

3.0 Will the 2017-2021 Plan Deliver Genuine Improvements?

This section provides a brief, high level review of the changes proposed in the revised 2017-2021 Plan relative to the previous Plan period 2011-2016.

In short, very little has changed. The performance goals have become a little more detailed, and more ambitious, and some of the subsidy levels have increased, along with the flat rate assessment fee. However, the focus is still squarely on the downstream elements, with no incentive via the assessment fee to design for reuse or recyclability, nor to incorporate recycled content.

Details on the six performance goals, and how they have been amended relative to the California Carpet Stewardship Plan that covered the period 2011-2016, are given in Appendix A.1.0.

3.1 What Would be Required to Implement Genuine EPR?

The observations included in Eunomia's December 2016 report for Changing Markets remain valid. If the California Carpet Stewardship Programme is to be developed into a genuine form of EPR, then significant progress needs to be made in the following areas:

- Cost coverage – at present, only a very small proportion of the actual end-of-life costs are covered. The scheme should move towards full cost coverage, taking account, to the extent possible, of external costs in the scheme design;
- Incentivising design for reuse and recyclability - For an EPR scheme to be most effective, and to both reward and stimulate further innovation, part of the fee should vary based on the extent to which the product can be reused and/or recycled. The highest unit fee would be for carpets that cannot be recycled using currently available technology. The fee would be reduced for carpets and carpet tiles that can more readily be recycled, with a further reduction for products that can be reused
- Incentivising the use of recycled content - Part of the fee should vary based on the extent to which the product contains recycled content. The highest unit fee would be for carpets that contain entirely virgin contents, while for products that contain recycled content, the fee will be reduced proportionally as recycled content rises.
- Of course, it is important not only to incentivise recycled content, but also to ensure that this does not compromise recyclability, hence there are two separate variable components to the fee. To illustrate, half of the fee could be fixed, while the other half could be variable. The variable component could comprise of two equally, or differently, weighted aspects, relating to recycled content and recyclability. If the overall fee were $1 per yard, it could be that $0.50 is a fixed element. A carpet that is made of fully recycled content but not recyclable would pay a further $0.25 to reflect the fact that it is not recyclable, meaning a total fee of $0.75. If the carpet were fully recyclable, the fee could be reduced to $0.50 overall. In this way both use of recycled content, and design for recyclability are incentivised. To reiterate, the numbers above are purely indicative,

and the actual levels would need to be determined based on a better understanding of other relative costs and revenues. Importantly, there should be flexibility to iteratively update such a fee and its relative weightings.

- Take-back requirement – one way of increasing the amount of post-consumer carpet collected in way that is more convenient for consumers would be to implement a take-back requirement on outlets that sell new carpets. This could be undertaken either at the same time that the new carpet is delivered, or subsequently. The additional cost of this take back would be covered by the assessment fee. While likely to be a more expensive (to CARE) approach than the current collection centers model, this would significantly increase the incentive for used carpets to be delivered separately to other waste, and help ensure high subsequent diversion from landfill.

APPENDICES

A.1.0 Performance Goals 2017-2021

There are six performance goals noted in the 2017-2021 Plan.

A.1.1 Increase the Recyclability of Carpets

In the previous Plan covering 2011-2016 the emphasis for this performance goal was on encouraging the development of technologies to recycle more of the carpet components, without any quantitative target:[17]

> *Rather than setting a quantitative goal, the CARE goal will be to identify, qualify and report on all technologies that significantly improve the ability for carpet to be recycled*

For the 2017-2021 Plan, there *is* a quantitative target, which is to increase the yield (i.e. the portion of gross collected material that is successfully converted to recycled output for use as a feedstock input for a secondary product) to 60% by 2021. Trends to date are shown in Table A - 1.

Table A - 1: Yield (% of Gross Collected)

Year	Baseline (2011/12)	Year 1 (2012)	Year 2 (2013)	Year 3 (2014)	Year 4 (2015)
Yield	28%	32%	41%	35%	34%

However it's worth noting that this is not closed loop recycling into new carpets. Rather this is what might be termed 'down-cycling' into products such as carpet cushion, building insulation and bedding.

A.1.2 Incentivise Market Growth of Secondary Products

The performance goal here is to increase the number of recycled carpet content products in the marketplace by 30% by 2020 over the 2016 baseline. Data on such products is only available from 2015 onwards, as follows:

- 2015 – 18 products, 6 vendors, 1 California vendor; and
- August 2016 – 25 products, 10 vendors, 4 California vendors.

[17] Carpet America Recovery Effort (2014) California Carpet Stewardship Plan Revised, Version 3.2.2, available at http://www.calrecycle.ca.gov/Carpet/Plans/PlanJun2014.pdf

To be clear, this is not a goal based on the volume of sales of such products, or the weight of such products (or the weight of the recycled content thereof). This is simply based on the number of different products. The Plan gives the following example:[18]

> *If two manufacturers both produce recycled carpet cushion, the carpet cushion product from each manufacturer would count as a separate product.*

This seems far from ambitious. Between 2015 and 2016, seven new products with recycled carpet content became available – a year to year increase of 38%. It would require only eight further such products to become available by 2020 to achieve a 30% growth from the 2016 baseline. The volume of sales of such products is not a factor in whether or not the goal is achieved, however, this is accounted for in the recycling target described in Section A.1.4

A.1.3 Increase the Reuse of Post-consumer Carpet

The associated performance goal is to increase reuse quantities, as measured by weight, by 100% by 2021 compared to 2016. The reported reuse quantities since 2011 are shown in Table A - 2.

Table A - 2: Reuse of Post-consumer Carpet (2011-2015)

Year	Baseline (2011/12)	Year 1 (2012)	Year 2 (2013)	Year 3 (2014)	Year 4 (2015)
Reuse Quantities (lbs)	98,000	152,000	26,000	174,000	602,000

It's interesting to note that the target is to achieve a 100% increase by 2021 compared to 2016 levels - which are not reported. As can be seen, the levels of reuse fluctuate dramatically. If the target were set relative to 2015 levels, the goal would be over 1.2 million lbs of reuse in 2021, but if it had been set relative to 2013 levels, the goal would be just 52,000 lbs of reuse.

The fact that the goal is not fully articulated as a target quantity (in lbs), makes one suspicious that 2016 has actually seen relatively low levels of reuse, which have not yet been reported on.

A.1.4 Increase the Recycling of Post-consumer Carpets

The associated performance goal is to increase the recycling rate to 24% by 2020, and to 26% by 2021. Recycling performance to date is shown in Table A - 3

[18] Carpet America Recovery Effort (2017) California Carpet Stewardship Plan 2017-2021, Version 19, February 2017, available at http://www.calrecycle.ca.gov/carpet/Plans/2017Revised.pdf

Table A - 3: Recycling of Post-consumer Carpets (2011-2015)

Year	Baseline (2011/12)	Year 1 (2012)	Year 2 (2013)	Year 3 (2014)	Year 4 (2015)
Recycling Rate	8%	10%	12%	12%	10%

To achieve a recycling rate of 24% by 2020 would appear to be very ambitious given the rate dropped to 10% in 2015, down from 12% the previous year, and was reported to be circa 11% in 2016. However, it may simply be that the intention is to sound ambitious. Given the apparent lack of understanding of the relationship between financial incentives and scheme performance, it is hard to imagine that CARE has any great confidence in the ability of the 2020 target to be met, especially in the absence of any further meaningful incentives.

A.1.5 Increase the Diversion of Post-consumer Carpet from Landfill

The performance goal is to divert 60% of discards from landfill by 2021. Diversion to date is shown in Table A - 4. In 2015, only 23% of all post-consumer carpet discards were diverted from California landfills, and indeed the average has been 23% since the Program began. However, somewhat oddly, and contradicting the data it presents in tabular form, the revised plan states that:[19]

> *In 2015, 30% of all post-consumer carpet discards were diverted from Californa landfills; the average has been 30.8% since the Program began.*

The Plan anticipates that the diversion rate will increase over time as the recycling rate increases, and this Plan also adopts a new performance metric assessing progress toward this goal defined as diversion as a percentage of gross collections.

Table A - 4: Diversion from Landfill (% of Discards)

Year	Baseline (2011/12)	Year (2013)	Year (2014)	Year (2015)	Goal (2021)
Diversion Rate	22%	19%	29%	23%	60%

[19] Carpet America Recovery Effort (2017) California Carpet Stewardship Plan 2017-2021, Version 19, February 2017, available at http://www.calrecycle.ca.gov/carpet/Plans/2017Revised.pdf

A.1.6 Provide for Reasonably Convenient Collection Opportunities in each County

In the baseline year, there were no Program supported drop-off locations in California. In 2015, the Program expanded to support 23 drop-off sites in 22 of California's 58 counties. The performance goal is to establish a minimum of one site per county by mid-2017. It is not known how many drop-off sites are in place in 2016.

In addition it is stated that:[20]

> *Once the target is reached, the Program will conduct a convenience study to determine how far people, on average, are willing to travel to recycle carpet and if additional drop-off sites are justified*

This issue, of a convenience study, has been addressed in our analysis in Section 2.3

[20] Carpet America Recovery Effort (2017) California Carpet Stewardship Plan 2017-2021, Version 19, February 2017, available at http://www.calrecycle.ca.gov/carpet/Plans/2017Revised.pdf