CARE California Carpet Stewardship Program
MODEL TEAM UPDATE
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Summary

The Modeling Team has done an amazing job of sorting through a myriad of issues, obstacles and uncertainty to finally distill a degree of stability in this highly volatile moment in time. A large number of scenarios were evaluated before settling on 16 for detailed analysis in early July due to the swings seen in a number of key variables. While originally planning to submit a report by June 30th, it became abundantly clear that the rate of market gyrations were such that by the time a set of scenarios came back, the conditions had changed sufficiently as to render the results out of date and unusable. In recognition of this turbulence, CalRecycle agreed to move the submission back to September 1. The Model Team greatly appreciates this decision in light of the challenges faced.

Unlike the prior report of no change recommendations (September 1, 2019), the need for changes became abundantly clear. How to analyze those changes and when to implement them, were not easy. CARE has taken three COVID-19 actions to date and anticipates additional actions may still be necessary.

The Modeling Team has been monitoring the collapse of N6 and N66 market prices, as was projected in the September 2019 report. This development has been accelerated by the COVID-19 pandemic and the resolution of N66 supply issues. The projected N6 downward price drift resulted in an evaporation of the subsidy driven low cost 10 cent gap and now requires adjustment as prices collapsed.

Based on numerous model scenarios that have been analyzed, the current assessment level will be sufficient to maintain the projected subsidy payments needed to meet recycling rate expectations along with Program and administrative costs for the remaining life of the Plan. This can be attributed to the aggressive increase of the carpet assessment to 35 cents per square yard and an increase in the fund account as recycled output did not accelerate at the anticipated rate. In 2019, the lower than budgeted recycled output levels were directly attributable to the delayed grant cycles and several obstacles which were beyond the control of CARE. These obstacles were documented in the 2019 CARE Annual Report to CalRecycle and have been discussed on numerous occasions.

Included in the market gyrations impacting these analyses, one must also consider the continuing acceleration of the downward trend in new carpet sales. Sales are an important factor for two reasons: a) new carpet sales drive the revenue to fund this Program and b) because carpet sales are a key variable in the formula to calculate the overall discards and thus recycling rate.

The various models, and their integration, have been reviewed by Crowe LLP in 2019. Crowe made recommendations for improvements and the Model Team has responded to their input by making changes to the Cost Conversion Model which is a key contributor for support of the subsidy and assessment calculations. The main modification of the Cost Conversion Model was incorporation of a Carpet Access Model (CAM) to include an explicit transportation cost

parameter to account for the differences in the logistics costs for carpet in different regions in California and collected at CARE drop-off locations.

An effort has been launched by CARE to build collaboration among the Model, Differential Assessment, Highest Recyclability and Economic Study (Crowe) teams to facilitate better understanding and building on what is being learned in this complex endeavor.

In addition to the 2 cents per pound added to Collector Sorter Entrepreneur (CSE or Collector Sorter) subsidies for the period March through August, CARE increased the subsidies as shown here as a result of these model studies. The increases guided by the models are effective for Q3 and Q4 of 2020 and are not considered part of the base subsides in the approved Plan and thus are not subject to the one-year notification should decreases be anticipated.

<u>Effective Q3 & Q4 2020</u>

Nylon 6 Tier 2 was increased by	15 cents per pound (from 10 to 25 cents per pound)
Nylon 66 Tier 2 was increased by	3 cents per pound (from 10 to 13 cents per pound)
PET Tier 1 was increased by	5 cents per pound (from 10 cents to 15 cents per pound)
PP Tier 1 was increased by	5 cents per pound (from 10 cents to 15 cents per pound)

**Modeling Team Report – August 2020**

Methodology

The Economic Model (EM) is used to make price predictions for competitive Post-Industrial (PI) polymers and calibrated using actual market data input from Wood Mackenzie and Frank Endrenyi. The CARE proprietary Cost Conversion Model (CCM) is used to make estimates of the costs of recovering Post-Consumer Carpet (PCC) materials. The Subsidy Justification Model (SJM) is used to determine the required subsidies for the PCC materials that would make them economically attractive relative to the competitive PI materials.

The Financial Model (FM) brings together sales and outputs plus program and administrative expenses to develop budgets and cash flow analyses and projections. The FM offers the ability to run scenarios to examine a variety of parameters and their impact on financial performance while also tracking actual versus budgeted performance. Finally, the FM allows analysis and tracking of the fund balance and reserve level.

The SJM confirms that the subsidies satisfy the conditions to make PCC materials competitive in the marketplace and that the highest recyclable materials receive a subsidy that makes them the most attractive materials to recycle. This methodology remains unchanged from our previous report, but the extraordinary events of the past 6 months required that we modify recommended subsidies to account for short term stresses in the marketplace. Such changes will be on a temporary basis and are not permanent subsidy adjustments, which would require a 1-year change notification before any reductions could take place.

The modeling methodology serves to analyze a wide array of data from capacity surveys, sales projections, recycled output trends, Tier 1 and Tier 2 outputs, costs and estimates subsidies. It is the Financial Model (FM) which brings all the elements together to examine the cash flow, fund balance, reserve, and recycling rate. The central analytical role of the Financial Model is illustrated in Figure A below (and described in detail in Appendices 1.0 Figure A).

Figure A: Integration Role of the Financial Model
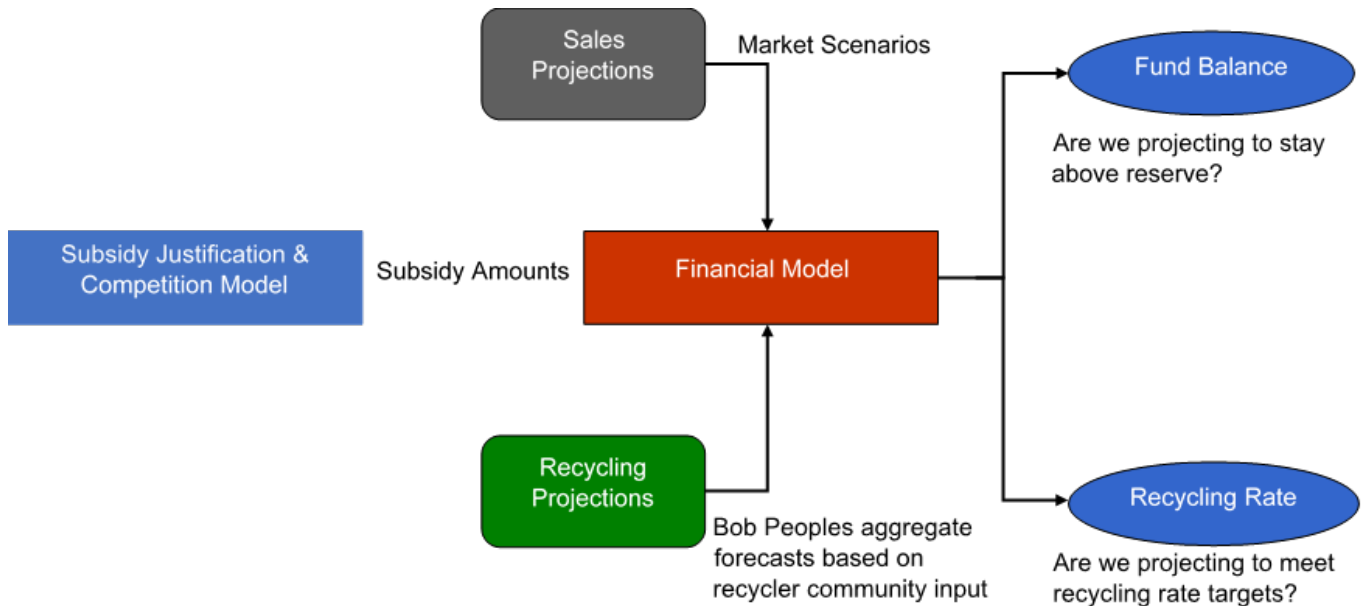
Methodology - Recommendations Implemented

The modeling approach has been reviewed by Crowe LLP and, after consideration and dialog, we have implemented recommendations for improving the modeling methodology. One of their recommendations was to improve the representation of the costs of carpet collection and transportation in California. This was previously handled in the Cost Conversion Model (CCM) with a uniform cost of carpet acquisition.

In the future, we will use an explicit cost of Carpet Acquisition Model (CAM) component that will enable us to examine how logistics and collection costs change the conversion costs. A flexible CAM has been developed, rather than a uniform payment for carpet acquisition. This change is being made to the CCM to reflect carpet acquisition cost differences between rural sites as opposed to urban centers. This method also takes into account regional logistics cost differences. The CCM will now reflect the various methods of collections.

It should be noted that the vast majority of carpet (>85%) that is currently processed does not come from CARE drop-off sites and therefore the CCM is not significantly biased by its exclusion in the earlier version for this source of material.

Economic Model Results

The 2019 report predicted "slow to moderate economic growth with little change in oil prices from those of today". No one foresaw the economic crisis arising from COVID-19.

Table 1 (Wood Mackenzie) depicts the expected cost of crude oil August 2019 through June 2020 as projected in CARE's September 2019 Model Report. Table 2 is now updated to show actual prices of crude oil from August 2019 through June 2020 and provides for a direct comparison. Finally, Table 3 (Wood Mackenzie) represents the model forecasts for oil prices through May of 2021. Pricing is based on dollars (USD) per barrel.

Table 1: 2020 Crude Oil Prices as Projected in August 2019

Spot/Contract	Unit	Aug 2019	Dec 2019	Mar 2020	Jun 2020
OPEC	Dollar per barrel	69.0	67.0	63.0	63.0
WTI	Dollar per barrel	64.2	64.5	61.6	62.8
BRENT	Dollar per barrel	72.0	70.0	66.0	67.0

Table 2: Actual cost of crude Oil in 2020

Spot/Contract	Unit	Dec 2019	Mar 2020	Jun 2020
OPEC	Dollar per barrel	63.8	28.7	37.1
WTI	Dollar per barrel	59.8	29.9	38.3
BRENT	Dollar per barrel	66.8	31.7	40.0

Table 3: Forecast Crude Oil Prices in 2021

Spot/Contract	Unit	Sep 2020	Dec 2020	May 2021
OPEC	Dollar per barrel	34.0	40.0	46.4
WTI	Dollar per barrel	33.8	40.3	46.2
BRENT	Dollar per barrel	37.0	43.0	49.0

There are many factors that affect commodity prices; one of the main influences is the price of oil. Additionally, other influences abound, and those additional influences are captured by CARE's EM (Economic Model) presented below.

Historically, in an average economy, oil prices play a large role in determining plastic commodity prices. Oil largely determines Prime Virgin prices, which then determines Post-Industrial prices, which in turn, sets Post-Consumer prices. There will always be mitigating circumstances such as Force Majeures, natural disasters, etc., that may skew prices, but those events are very unpredictable and are typically short term in nature.

Oil prices have hit historic lows, but because of the COVID-19 pandemic, these historic low oil prices have been completely overshadowed by an economy that has been shuttered in various degrees since March 2020. Demand for all products are at lows not seen since the Great Depression. Demand for commodities that are the constituents of carpets have been reduced by as much as 80% to 90% during the Pandemic. The Auto/Transportation Sector, which utilizes the majority of high value plastics in the U.S., was closed for 2 months. Other sectors/industries were relegated to the same fate. Although the Auto Sector has opened

again as of Mid-July 2020, the pace of production is dramatically slower than pre-Pandemic levels. New procedures and processes due to safety and health concerns have resulted in slower production levels. This situation has been exacerbated due to parts of the country still in partial lockdowns and new unknowns due to surging virus infections. Additionally, the high levels of unemployment created by the Pandemic have impacted demand for all transportation (cars, Sport Utility Vehicles, etc.).

Historic low oil prices combined with unprecedented lack of demand due to the Pandemic have driven prices down to historic lows. It is currently anticipated that "normal levels" will not return until mid-2021.

Economic Model Price Predictions: 2020

There were exceptional economic and political events in early 2020 that resulted in the price of oil falling outside of forecasted levels. The spread of coronavirus (COVID-19) resulted in a worldwide pandemic, triggering mandated lockdowns and stay-at-home orders. These regulatory measures, intended to curb the spread of the disease, disrupted supply chains and reduced the demand for oil for both consumers and businesses as travel restrictions increased worldwide. To compound the reduction in demand of oil, an economic war between Russia and Saudi Arabia over the price of oil, occurred in the spring of 2020, resulting in an accelerated drop in the price of oil worldwide. A combination of these factors resulted in oil futures going into a negative price range during April 2020. The price of oil has seen a modest recovery in May and June 2020 and observed less volatility during July and early August. However, the magnitude of these events has required extrapolating the Economic Model beyond the statistical evidence typically relied upon by the model.

Based on these oil prices and forecasts for low economic growth we have the following ranges for the prices of virgin, Post-Industrial and then Post-Consumer prices.

Table 4 below uses the Economic Model (EM) to predict prices of commodities from a low oil price of $28 per barrel to a high price of $52 per barrel. The median expected in 2020 is $40 per barrel. Midrange of $40 per barrel is used in the models. The Post-Industrial Median Forecast value for each commodity is highlighted in bold outline as a means to draw the reader's attention to this reference.

Table 4: Commodity Prices Expectations for the Current Year based on Oil as of August 13, 2020

Commodity	Unit of Measure	Type	Low Forecast	Median Forecast	High Forecast
Oil	*Dollar per barrel*	*WTI Crude*	*28*	*40*	*52*
Nylon 6,6	Cents per pound	Virgin	92	100	107
Nylon 6,6	Cents per pound	Post Industrial	57	62	66
Nylon 6,6	Cents per pound	Post-Consumer	51	52	53
Nylon 6	Cents per pound	Virgin	70	75	80
Nylon 6	Cents per pound	Post Industrial	45	48	51
Nylon 6	Cents per pound	Post-Consumer	34	37	40
PET	Cents per pound	Virgin	29	40	50
PET	Cents per pound	Post Industrial	15	20	25
PET	Cents per pound	Post-Consumer	9	10	11
Polypropylene	Cents per pound	Virgin	32	40	47
Polypropylene	Cents per pound	Post Industrial	18	22	26
Polypropylene	Cents per pound	Post-Consumer	11	12	13

Cost Conversion and Subsidy Justification Model

The proprietary CCM is the backbone of estimating costs associated with processing PCC. CARE is the only source for such information at this time. CARE CCM estimates will be compared to those obtained by the Crowe Economic Study due mid-year 2021. The CCM is a robust cost analysis tool and has been upgraded to further reflect PCC acquisition geographic operational costs.

The SJM (Subsidy Justification Model) was developed by CARE in order to accurately subsidize Recyclers according to 1) Type of product recycled, 2) The cost of recycling the various types of products, and 3) The price of competing materials in the marketplace. The SJM integrates these 3 main elements.

The SJM reflects the constant changes in commodity prices of raw materials (PET, Nylon 6, Nylon 66 and PP) that compete against Post-Consumer Carpet (PCC) materials. Those

competing materials are typically Post-Industrial materials in each material category. For a complete explanation of the calculation methods, refer to Appendices 2.0.

Table 5 shows the subsidy level that existed in August 2019. (For data explanation refer to Appendices 2.1 Table 5)

Table *5*: SJM Projections as of August 2019 (for comparative purposes)

	Subsidy Justification Model (August 2019)								
	B	C	D	E	F	G	H	I	J
	Competitive	PCC	PCC	PCC Carpet	15%	Conv. Cost	Subsidy Required	PCC Materials	Subsidy
	Materials	Discount	Materials	Conversion	Return	Plus	to Incentivize	Subsidy[6]	Difference [4]
	Market Price		Market Price	Cost[2]	Conv. Cost[3]	Return	PCC Materials	Table 8A	
Formula >>			B-C		E*0.15	E+F	G-D		I-H
Nylon 6 pellets	$0.70	$0.10	$0.60	$0.72	$0.11	$0.83	$0.23	$0.25	$0.02
Nylon 6 Fiber	n/a	n/a	$0.25	$0.30	$0.05	$0.35	$0.10	$0.15	$0.06
Nylon 66 pellets	$1.00	$0.10	$0.90	$0.72	$0.11	$0.83	-$0.07	$0.25	$0.32
Nylon 66 Fiber	n/a	n/a	$0.25	$0.30	$0.05	$0.35	$0.10	$0.15	$0.06
PET Pellets	$0.47	$0.10	$0.37	$0.72	$0.11	$0.83	$0.46	$0.35	-$0.11
PET Fiber[1]	n/a	n/a	$0.25	$0.30	$0.05	$0.35	$0.10	$0.35	$0.26
PP Pellets	$0.35	$0.10	$0.25	$0.45	$0.07	$0.52	$0.27	$0.35	$0.08
PC4	$0.02	$0.10	-$0.08	$0.05	$0.01	$0.06	$0.14	$0.17	$0.03

Table 5 notes:

1. PET Fiber - Prices for PET PI based on Bottle Flake.
2. Conversion Costs exclude shipping.
3. Use 15% ROCC based on reasonable return and shipping negotiations.
4. Numbers greater than 0 mean subsidy is justified as sufficient to subsidize
5. Green cells (Nylon 6 and Nylon 66 pellets and Fiber) represent highest recyclability materials per Table 6 of the Plan
6. PCC materials subsidy is total of Processor plus Manufacturer
7. All costs are dollar per pound of finished goods (yielded)

In CARE's 2019 report to CalRecycle we predicted that: "It is expected that prices will fall between August 2019 and March 2020 under anticipated global market/business conditions. Specifically, the N66 price margin over N6 will decline from its current 30 cents to 13 cents". CARE's prediction was very accurate as the price difference between N66 and N6 is now 14 cents as demonstrated by the SJM and EM. Obviously, COVID-19 has exacerbated the predicted economic slowdown.

Based on the changes in market prices that have been experienced due to both oil price changes, and the COVID-19 impacts on market demand and supply, the SJM and EM recommend an increase in subsidies. Below are actual and projected market prices and the accompanying proposed subsidies going forward over the next six months.

Note: There is no Table 6 in this report, the number 6 was skipped. The numbering was set so that the new SJM remains Table 7, consistent with its designation in the Plan as Table 7 in hopes of avoiding confusion.

The next Table 7 shows the actual approved subsidies that went into effect as of July 1, 2020. Data from the 3rd week July 2020 was employed to create the latest update to the SJM. Market dynamics and the demand destruction due to COVID-19 have impacted all carpet recyclable materials; however, the two most impacted materials are Nylon 6 pellets and PET Pellets. The mitigation of available supply of Nylon 66 has had very little impact on potential subsidy changes as Nylon 66 was over subsidized in the past.

CARE ran a large number of CCM and EM scenarios to feed the SJM (16 after initial runs were evaluated). The impact of those scenarios was subsequently examined via the FM. The scenarios also included a range of carpet sales assumptions down to "worst case". This series of options was then taken to the SPC. The SPC suggested additional factors to model, after which the recommendations in SJM Table 7 were finalized.

After thorough analysis and discussions with the SPC, the final approved total subsidies are shown below in Table 7, column L. There was one minor variation from the original recommended subsidy changes. In the case of Nylon 6 Tier 2, the SJM calculated a delta of negative 18 cents per pound. However, based on additional dialog and market understanding the subsidy was set at an additional 15 cents.

(For data explanation refer to Appendices 2.2 Table 7)

Table 7: Current SJM Results (3rd week July 2020)

New Table 7	Subsidy Justification Model - Effective July 1 2020										
	B	C	D	E	F	G	H	I	J	K	L
	Competitive Materials	PCC Discount	PCC Materials	PCC Carpet Conversion	15% Return	Conv. Cost Plus	Subsidy Req'd to Incentivize	PCC Materials Subsidy[6]	Subsidy Difference [4]	New Subsidy Total	New Subsidy Total
	Market Price		Market Price	Cost[2]	Conv. Cost[3]	Return	PCC Materials	Table 8A		SJM Proposed	APPROVED
			B-C		E*0.15	E+F	G-D	Actual Present Subsidies	I-H (Indicated by CCM and SJM)	Indicated by CCM & SJM	Approved by SPC 7-20-20
Nylon 6-Tier 2	$0.48	$0.10	$0.38	$0.70	$0.11	$0.81	$0.43	$0.250	-$0.18	$ 0.43	$ 0.40
Nylon 6-Tier 1	n/a	n/a	$0.25	$0.33	$0.05	$0.38	$0.13	$0.15	$0.02	$ 0.15	$ 0.15
Nylon 66-Tier 2	$0.62	$0.10	$0.52	$0.70	$0.11	$0.81	$0.29	$0.25	-$0.03	$ 0.29	$ 0.28
Nylon 66-Tier 1	n/a	n/a	$0.25	$0.33	$0.05	$0.38	$0.13	$0.15	$0.02	$ 0.15	$ 0.15
PET - Pellets	$0.20	$0.10	$0.03	$0.43	$0.06	$0.49	$0.46	$0.35	-$0.11	$ 0.46	$ 0.51
PET- Tier 2	$0.20	$0.10	$0.10	$0.70	$0.11	$0.81	$0.71	$0.35	-$0.36	$ 0.35	$ 0.40
PET - Tier 1	n/a	n/a	$0.20	$0.30	$0.05	$0.35	$0.15	$0.10	-$0.05	$ 0.15	$ 0.15
PP - Tier 2	$0.22	$0.10	$0.12	$0.45	$0.07	$0.52	$0.40	$0.35	-$0.05	$ 0.40	$ 0.40
PP -Tier 1	$0.15	$0.10	$0.05	$0.30	$0.05	$0.35	$0.30	$0.10	-$0.20	$ 0.30	$ 0.15
PC4	$0.02	$0.10	-$0.08	$0.05	$0.01	$0.06	$0.14	$0.17	$0.03	$ 0.17	$ 0.17

Table 7 notes:
1. Prices for PET based on Bottle Flake.
2. Conversion Costs exclude shipping.
3. Use 15% Recovery on Cost of Conversion based on reasonable return and shipping negotiations.

4. Numbers greater than 0 mean subsidy is justified as sufficient to subsidize.
5. Green cells (Nylon 6 and Nylon 66 – Tier 2) represent highest recyclability materials.
6. PCC materials subsidy is total of Process and Manufacturer.
7. All costs are in dollar per pound of finished goods (yielded).
8. Model analysis based on data from week 3 July 2020.

Table 8 Synopsis: August 2019 vs. July 2020 Approved Subsidies

Material	August 2019	July 2020
Nylon 6 pellets	$ 0.25	$ 0.40
Nylon 6 Fiber	$ 0.15	$ 0.15
Nylon 66 pellets	$ 0.25	$ 0.28
Nylon 66 Fiber	$ 0.15	$ 0.15
PET Pellets	$ 0.35	$ 0.51
PET Fiber	$ 0.10	$ 0.15
PP Fiber	$ 0.10	$ 0.15
PP Pellets	$ 0.35	$ 0.40

Economic Model

The Economic Model (a higher-level macro model) and the prices used in the SJM for July 2020 are compared in Table 9. CARE believes the SJM, which is based on actual market intelligence for PCC value and accounts for market demand conditions as well as oil supply, offers a more realistic result over the EM forecasts.

Table 9: Economic vs Subsidy Justification Model Price Comparisons

Material	SJM Prices	Economic Model Predictions
Nylon 6 pellets	$0.48	$0.62
Nylon 66 pellets	$0.62	$0.79
PET Pellets	$0.51	$0.52
PP Pellets	$0.15	$0.26

CARE Financial Model Results

The projected pounds of recycled output and recycling rates for the revised model are shown below in Figure B. The Projected Fund Balance is shown in Figure C. (Data tables for these figures can be found in the Appendices section following this report.)

In general, it is the opinion of the Model Team that the Revised Model is now the best estimate of the likely trajectory over the next 6 months. However, given the major

uncertainties that still exist around the rate of economic recovery, the potential for instability in oil markets and the potential for continued virus hot spots, confidence remains relatively low in trying to forecast the next 6 to 12 months.

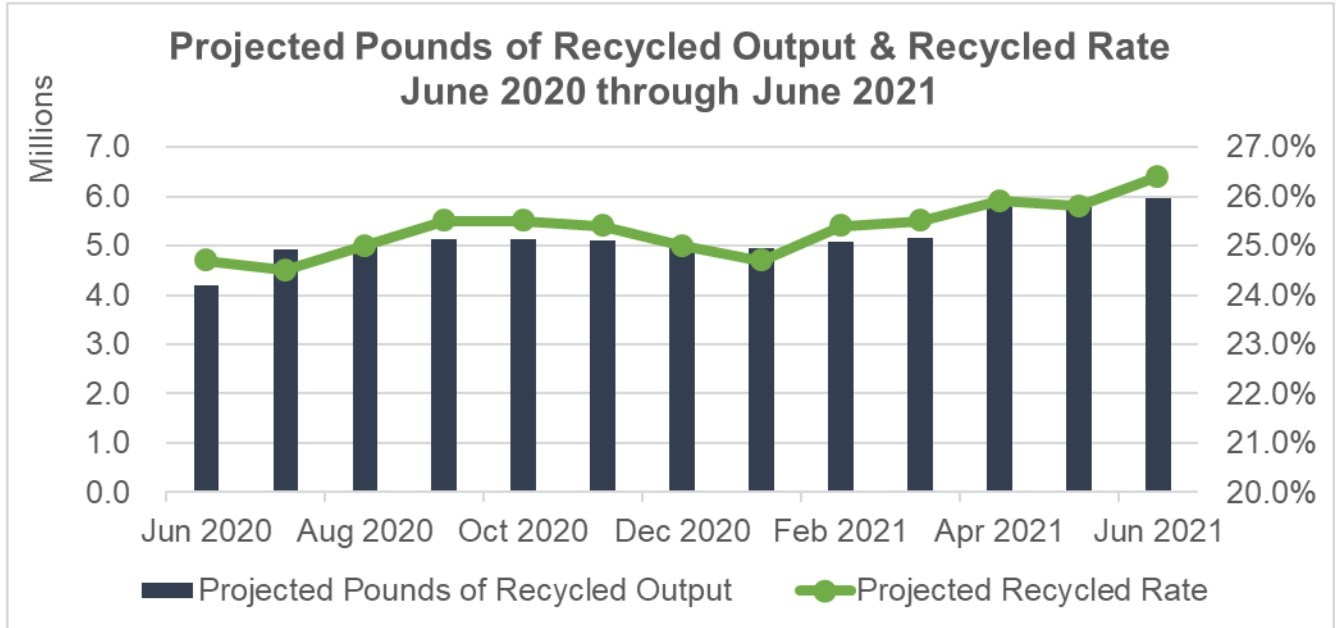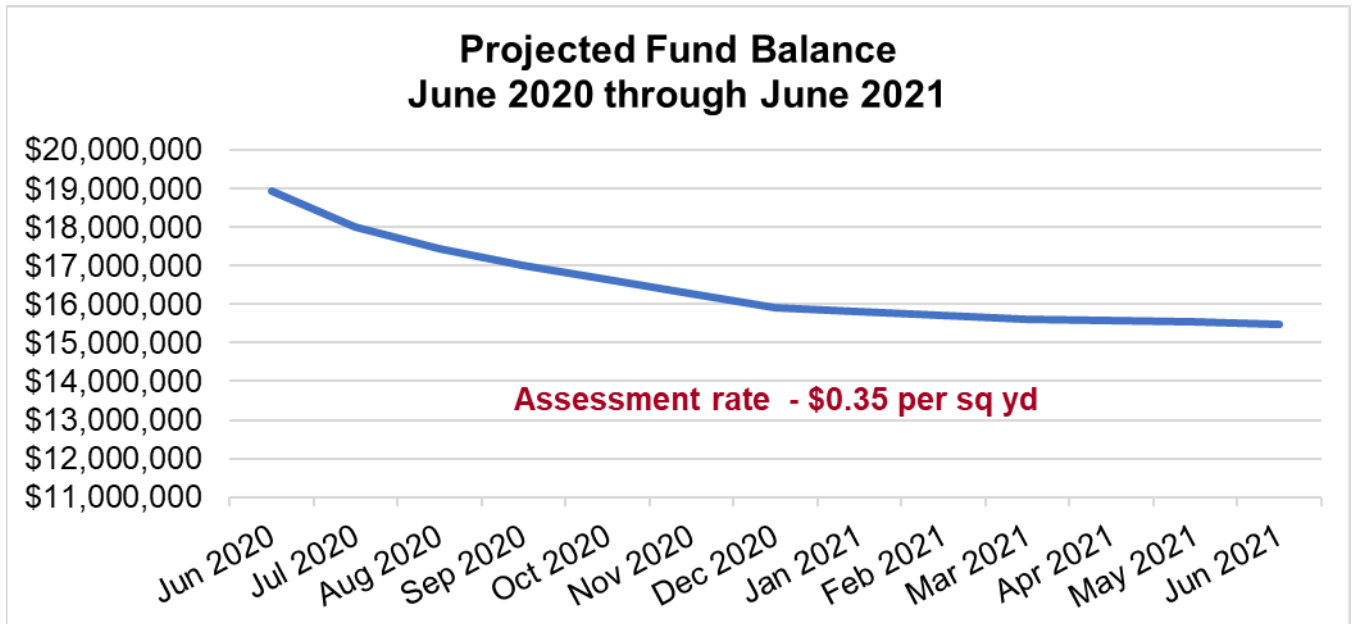**Figure B: Recycled Output & Recycling Rate Projections**

Figure C: Projected Fund Balance

Independent Analysis for Perspective (Wood Mackenzie)

CalRecycle is aware that CARE subscribes to Wood Mackenzie proprietary petrochemical update services. Below is a verbatim excerpt from the August 2020 Coronavirus and polymers Q3 outlook report. [Note: This report comes out of Europe so in this case fibre means fiber.]

"What do these sectorial impacts mean for key polymer and fibre markets?

To understand how these sectorial impacts roll back into polymer and fibre demand, our model applies the sectorial impact directly to the polymers and fibres that go into each sector (in each region), and then compare the output to our pre-coronavirus forecast for 2020 demand in each of these segments.

The chart (on Page 5 of the report) shows the outcome of the (Wood Mackenzie) model. The most salient points that we would highlight include:

• Polymers and fibres that are heavily exposed to either the automotive or textiles and apparels sector have been hardest hit. PA66 (Nylon 66) – a key engineering plastic – is facing the biggest challenge, forecast to lose 16% of 2020 demand as a result of its exposure to the automotive sector. PET fibre and PA6 (Nylon 6) are heavily exposed to both sectors. [CARE note: this is a big outlet sector for PCC polymers]

• Diversification can be a real benefit. While polypropylene is the single biggest plastic going into the automotive sector, its exposure to other sectors means it avoids the scale of the problem faced by PA66 (Nylon 66) producers.

• Flexible packaging is the 'winner'. The data show it rises slightly above the '0.00%' line in the chart below and consists of packaging polymers (PP) that have flexible applications. LDPE (Low Density Polyethylene), LLDPE (Linear Low Density Polyethylene) and PA6 (Nylon 6) all go into film and flexible packaging applications; PET (Polyethylene Terephthalate), PS (Polystyrene) and HDPE (High Density Polyethylene) primarily go into rigid applications, and are seeing more negative outcomes."

[CARE notes: LDPE, LLDPE, PS and HDPE are not relevant to PCC polymer consideration. Transportation and Apparel are most relevant to PCC market outlets.]

Conclusions

CARE anticipates continued economic pressures to exist thru mid-2021. As a result, market volatility makes projections much more problematic. Layered upon this is the uncertainty of the unknown trajectory of virus spread and the current surges being seen around the world and their concomitant impact on the global economy.

1. CARE believes the Revised Model is the best case that represents the highest probability for the next 12 months.
2. Current subsidies were found to be less than required in most cases to support the sale of PCC materials – thus additional increases were made under the COVID-19 Action Plan effective July 1, 2020 (Q3).
3. Changes recommended are short-term adjustments and not meant as permanent or long-term changes to Plan approved guaranteed subsidies.
4. Given higher than budgeted fund balance, the current assessment is sufficient to see the Plan through the end of term, December 2022.
5. Barring any unforeseen changes, CARE anticipates being able to achieve Plan Recycling Rates in 2021 and beyond.
6. Prior statements of no expected excursions in the price of oil, virgin or PI materials turned out to be incorrect – volatility has been extreme.
7. Modifications to the CCM have been made to account for Crowe feedback, especially as it relates to cost of acquisition of PCC.
8. CARE remains the leading authoritative source of PCC materials intelligence on flows, pricing, and technology evaluations.

Thus, CARE recommended subsidy adjustments as outlined in Table 7, column L. These subsidy changes were implemented effective Q3, July 2020, and will run through December 2020. Future adjustments up, down or elimination will be determined in Q4 2020. These subsidy adjustments are the 3rd action in a series taken by CARE in response to the COVID-19 pandemic. CARE will target the next Model update for April 2021.

End Report

Appendices

1.0 Figure A: Description of the Integration Role of the Financial Model Flowchart

Figure A is a visual flowchart of the central analytical role of the Financial Mode. A rectangular box titled Financial Model is placed in the center of the space. There are three boxes and two ovals (Fund Balance and Recycling Rate) surrounding this box. Each box includes connector lines that highlight informative text. The first three boxes show what elements are used to analyze a wide array of data from capacity surveys, sales projections, recycled output trends, Tier 1 and Tier 2 outputs, costs and estimates subsidies which make up the Financial Model. This then used to examine the Fund Balance, the reserve and the Recycling Rate which are represented by oval shapes located to the right of the Financial Model box.

Located to the left of the Financial Model box is a rectangular box titled "Subsidy Justification and Competition Model". There is a straight connector line with a right facing arrow indicating the data feeds the Financial Model box. This includes the text "Subsidy Amounts".

Next, located above the Financial Box, is a rounded box titled "Sales Projections". An elbow connector, with a downward pointing arrow indicates the data feeds the Financial Model box. This includes the text "Market Scenarios".

Located below is a rounded square box titled "Recycling Projections".   An elbow connector with an upwards pointing arrow, indicates the data feeds the Financial Model box. This includes the text "Bob Peoples' aggregate forecast based on recycler community input".

Finally, the rectangular box titled "Financial Model" shows a right facing split elbow connector with one connector feeding into the Oval titled "Fund Balance". This includes the text "Are we projecting to stay above reserve?". The secondary elbow connector feeds the oval titled "Recycling Rate" and includes the text "Are we projecting to reach recycling rate targets?".

2.0 Table 5 and Table 7

To arrive at the New Subsidy Total (SJM Proposed), a series of calculations are made beginning with the Discounted Materials Market price (Competitive Materials Market Price less a PCC Discount).

The PCC Carpet Conversion Cost is then multiplied by 15 percent (based on reasonable return and shipping negotiations). The product is then added back into the PCC Carpet Conversion Cost resulting in a Convenience Cost plus Return value. That value is then subtracted from the PCC Materials Market Price to arrive the Subsidy Required to Incentivize PCC Materials value. To arrive at the difference between the two figures: PCC Material Subsidy (Actual Present Subsidies) versus Subsidy Difference (as indicated by the CCM and SJM), the Subsidy Difference is subtracted from the Actual Present Subsidies. This figure is used to evaluate proposed changes as the New Subsidy Total and is identified as the SJM Proposed (as indicated by CCM & SJM).

Approved New Subsidy Totals are approved by the SPC and may be greater or less than the SJM proposed subsidy total. Tables 5 and 7 show the summary data of the calculations for the years 2019 and 2020. Table 5 is provided as a comparison.

2.1 Table 5

Material	Competitive Materials Market Price	PCC Discount	PCC Materials Market Price	PCC Carpet Conversion Cost	15% Return on Conversion Cost	Conversion Cost Plus Return	Subsidy Required to Incentivize PCC Materials	PCC Materials Subsidy (Actual)	Subsidy Difference
Nylon 6 pellets	$0.70	$0.10	$0.60	$0.72	$0.11	$0.83	$0.23	$0.25	$0.02
Nylon 6 Fiber	n/a	n/a	$0.25	$0.30	$0.05	$0.35	$0.10	$0.15	$0.06
Nylon 66 pellets	$1.00	$0.10	$0.90	$0.72	$0.11	$0.83	-$0.07	$0.25	$0.32
Nylon 66 Fiber	n/a	n/a	$0.25	$0.30	$0.05	$0.35	$0.10	$0.15	$0.06
PET Pellets	$0.47	$0.10	$0.37	$0.72	$0.11	$0.83	$0.46	$0.35	-$0.11
PET Fiber	n/a	n/a	$0.25	$0.30	$0.05	$0.35	$0.10	$0.35	$0.26
PP Pellets	$0.35	$0.10	$0.25	$0.45	$0.07	$0.52	$0.27	$0.35	$0.08
PC4	$0.02	$0.10	-$0.08	$0.05	$0.01	$0.06	$0.14	$0.17	$0.03

2.2 Table 7

Material	Competitive Materials Market Price	PCC Discount	PCC Materials Market Price	PCC Carpet Conversion Cost	15% Return Conversion Cost	Conversion Cost Plus Return	Subsidy Required	PCC Material Subsidy (Actual Present Subsidies)	Subsidy Difference (Indicated by CCM and SJM)	New Subsidy Total / SJM Proposed (Indicated by CCM & SJM)	New Subsidy Total Approved by SPC 7-20-20
Nylon 6-Tier 2	$0.48	$0.10	$0.38	$0.70	$0.11	$0.81	$0.43	$0.25	-$0.18	$0.43	$0.40
Nylon 6-Tier 1	n/a	n/a	$0.25	$0.33	$0.05	$0.38	$0.13	$0.15	$0.02	$0.15	$0.15
Nylon 66-Tier 2	$0.62	$0.10	$0.52	$0.70	$0.11	$0.81	$0.29	$0.25	-$0.03	$0.29	$0.28
Nylon 66-Tier 1	n/a	n/a	$0.25	$0.33	$0.05	$0.38	$0.13	$0.15	$0.02	$0.15	$0.15
PET - Pellets	$0.20	$0.10	$0.03	$0.43	$0.06	$0.49	$0.46	$0.35	-$0.11	$0.46	$0.51
PET- Tier 2	$0.20	$0.10	$0.10	$0.70	$0.11	$0.81	$0.71	$0.35	-$0.36	$0.35	$0.40
PET - Tier 1	n/a	n/a	$0.20	$0.30	$0.05	$0.35	$0.15	$0.10	-$0.05	$0.15	$0.15
PP - Tier 2	$0.22	$0.10	$0.12	$0.45	$0.07	$0.52	$0.40	$0.35	-$0.05	$0.40	$0.40
PP -Tier 1	$0.15	$0.10	$0.05	$0.30	$0.05	$0.35	$0.30	$0.10	-$0.20	$0.30	$0.15
PC4	$0.02	$0.10	-$0.08	$0.05	$0.01	$0.06	$0.14	$0.17	$0.03	$0.17	$0.17

3.0 Figure B: Projected Pounds of Recycled Output & Recycled Rate

Month / Year	Projected Pounds of Recycled Output	Projected Recycled Rate
June 2020	4,188,331	24.7%
July 2020	4,927,265	24.5%
August 2020	5,029,767	25.0%
September 2020	5,122,256	25.5%
October 2020	5,123,774	25.5%
November 2020	5,116,674	25.4%
December 2020	5,026,251	25.0%
January 2021	4,942,279	24.7%
February 2021	5,086,154	25.4%
March 2021	5,145,228	25.5%
April 2021	5,838,383	25.9%
May 2021	5,816,907	25.8%
June 2021	5,953,150	26.4%

4.0 - Figure C: Projected Fund Balance Forecast

Month / Year	Projected Fund Balance Forecast
June 2020	$ 18,948,787
July 2020	$ 17,999,391
August 2020	$ 17,456,474
September 2020	$ 17,012,142
October 2020	$ 16,648,458
November 2020	$ 16,264,606
December 2020	$ 15,905,163
January 2021	$ 15,815,967
February 2021	$ 15,703,213
March 2021	$ 15,611,338
April 2021	$ 15,582,830
May 2021	$ 15,555,230
June 2021	$ 15,492,440

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