

Long Term Management Options for Scrap Tires Generated in Connecticut

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Section I

Background: The Problem with Scrap Tires

Connecticut residents generate an estimated 3.5 million scrap tires annually.¹ Until 2013, virtually all of those tires and many from neighboring states were incinerated for energy value (tire derived fuel or TDF) in a plant in Sterling, Connecticut that burned about 10 million tires per year. That plant suspended operations in the fall of 2013. Subsequently, most of the tires generated in Connecticut headed to pulp mills in Maine to be burned for fuel. Tires burned at the pulp mills must first be processed into a shredded tire material thus adding both value and processing costs to scrap tires. While the plant in Sterling was simply incinerating tires to create electricity, pulp mills and cement kilns burn tires as a fuel in the production of paper or cement. This report does not differentiate between tires burned as a fuel for pulp or cement manufacturing, and tires burned for the generation of electricity, but rather categorizes each as TDF.

The regional market is oversupplied with scrap tires and revenues paid for TDF by the two Maine pulp mills have plummeted. Those pulp mills are accepting tires from as far away as Michigan. Connecticut scrap tire processors and generators have expressed their concern to the Connecticut Department of Energy and Environmental Protection (department) about maintaining profitability among current and projected market conditions; the price has reached the point that scrap tire processors in Connecticut can't afford to transport tires that distance and still make a profit. Due to the oversupply, they are being severely limited or shut out of this market. They are struggling to find any viable markets. Due to difficulty in finding outlets for tires, processors in Connecticut have been cited by the department for storing scrap tires and processed scrap tire chips in excess of permit limits. Generators of scrap tires in Connecticut have contacted the department indicating none of the Connecticut processors will accept their tires.²

Connecticut has never had a program dedicated to managing scrap tires. Tires are defined in the Connecticut Solid Waste Management regulations as a special waste, meaning they may legally be disposed of in Connecticut municipal solid waste facilities such as landfills and waste to energy plants but only with specific approval from the department. While the Sterling plant was operating, scrap tires generated in Connecticut had a legal and stable disposal option with high capacity, and little thought was given to long term planning for scrap tires. For the past two years, the pulp mills in Maine were able to absorb the tires generated in Connecticut and the northeast previously headed to Sterling. According to industry analysts and tire processors in Connecticut, the current oversupply is due to the closing of the Sterling plant.

Discussions with tire processors and an evaluation of markets shows there is very limited capacity for scrap tires as far south as North and South Carolina and as far west as Ohio. Competition for the remaining markets is driving prices for disposal significantly higher. Rhode Island Resource Recovery Corporation recently indicated their disposal cost for tires tripled in their most recent contract. Rising scrap tire prices and limited outlets create greater incentive to dump tires illegally. Illegally dumped tires are a breeding ground for mosquitoes, a fire hazard, a

¹ [Rubber Manufacturers Association](#)

² Internal discussions with Materials Management staff

blight issue and cause significant expense for property owners to remove. Frequently, the state and municipalities bear the responsibility to pick up and properly manage illegally dumped tires. The City of Hartford has reported an increase in illegal tire dumping activity recently.³

Section II

Overview: Exploring Solutions

With the current market situation for scrap tires likely to remain challenging for the foreseeable future, Connecticut, like other states, needs to develop a long term strategy for managing scrap tires. This paper looks at the three management options for scrap tires and the advantages and disadvantages of each considering three variables: (1) the ability to impact illegal dumping, (2) the ability to create private sector jobs, and (3) effect on recycling and the benefit to the environment. The three strategies currently used for managing tires in the United States and Canada are: the market-based system, a government run program and an Extended Producer Responsibility (EPR) program. These are the three most common/considered management programs.

This paper will also examine the costs for each alternative looking at current disposal costs, state-run programs in other states, and existing EPR programs in British Columbia and Ontario, Canada. The chart below sets out this analysis that is detailed in Sections III through V.

Table 1: Comparison of Tire Management Options

	Market-based	State Program	EPR
Impact on Illegal Dumping	None, may increase as cost of disposal increases	Little to no impact based on illegal dumping activity in states with programs	Virtual elimination based on Ontario, Canada model. Greatly reduced in British Columbia.
Private Sector Job Creation	limited to collection and processing, far fewer than recycling	Some job creation if state funds used for market development	50 -100 recycling jobs based on discussions with tire recyclers
Recycling	Minimal	Limited with state subsidy	Higher potential if the law promotes recycling
Program Cost	\$2.25 per passenger tire delivered. Disposal costs only, does not include illegal dumping or stockpile cleanup	\$1 - \$2 per tire not including disposal fees charged by the retailer which are typically another \$2 - \$4 per tire	\$3.05 - \$3.58 ⁴ per tire based on Ontario and British Columbia, includes recycling and market development
Environmental Benefits	Less than EPR because lower fee for TDF directs tires to that market instead of recycling. Currently little recycling in Connecticut	Better than market-based if a percent are directed to recycling but most states do not direct tires to recycling	Best environmental outcomes if it promotes recycling ⁵

³ [Hartford Courant, November 2, 2015](#)

⁴ Expressed in US dollars. Using current exchange rate the range would be \$4.25 - \$5.00 Canadian dollars

⁵ "Material Recycling vs. Tire Derived Fuel Combustion", Franklin Associates, 2010

Section III

Description of Management Options

A. Market-Based Program

One option for managing scrap tires is to continue the current market-based approach. Under this approach, generators of scrap tires pay the market rate to dispose of tires. Collectors and processors adjust prices to changing market conditions. New markets theoretically emerge if the cost of disposal goes higher than the cost of establishing new markets.

B. State-Run Scrap Tire Program

Currently there are 33 states that operate state scrap tire programs. These programs are funded most commonly by a uniform, visible fee on the sale of new tires, put into a fund controlled by the state. A few states finance their program through a fee on motor vehicle registrations. The state uses these funds to pay for grants to clean up illegally stockpiled or dumped tires, for market development, and for administration, which frequently includes a tracking or manifest system, registration of tire haulers, enforcement and staff salaries. In a few states, some of the funds are used for other programs not supporting the tire program. Connecticut has never had a state-run tire program although there was a tire fee which went to the general fund and which sunset in 1997. While many tire retailers in Connecticut charge a tire disposal fee, these fees are not mandate, collected or managed by the state. No state, as far as we have been able to determine, uses the tire fee to pay for routine disposal or recycling costs of currently-generated scrap tires outside the realm of illegal dumping or amnesty days. Generators continue to pay an additional fee at time of disposal, or else disposal costs for residential tires are included in the local tax base.

C. Extended Producer Responsibility

Under an EPR program, manufacturers would assume primary financial responsibility for managing scrap tires. The manufacturers, either individually or jointly through a stewardship organization, would contract with haulers, processors and end markets to manage scrap tires. Manufacturers would submit a plan to the department indicating how they would manage the scrap tires in a way that emphasizes recycling to the greatest extent technologically feasible and economically practical. The department would be responsible for approving the plan. The program would be financed at the point of sale to a Connecticut consumer, by including the cost of end-of-life management in the price of the product. This could be collected as a fixed, visible fee (externalized cost) that would then be remitted to the manufacturers or their stewardship organization(s), or it could be incorporated in the price (internalized cost) of the product and the manufacturers could fund the program, or their stewardship organization could determine how to assess its members. Connecticut currently has successful EPR laws for four products: electronics, thermostats, paint, and mattresses.

Section IV

Impact of Each Management Option on Key Indicators

A. Illegal Dumping

1. Overview

In 2015, the department reviewed dozens of national news accounts regarding illegal dumping and interviewed tire processors, state and municipal officials, and scrap tire industry experts. It is clear that the primary reason individuals or businesses engage in illegal dumping is to avoid tipping fees. In a common scenario, a hauler will accept the tires from a small generator for a fee and then illegally dump them. The generator may or may not be aware that the tires will be disposed of illegally. In some cases, the hauler will cull out useable tires for resale before dumping the unwanted tires. Individuals will sometimes abandon their own scrap tires, also generally to avoid tip fees, or through lack of convenient, legal disposal opportunities.

Tires are dumped in many different locations. They are dumped in abandoned properties in the city, along our interstate highways, in watercourses, and in remote areas in the woods. The Connecticut DOT reported picking up 16,000 tires off state roads in 2014. If the tires are dumped on private property, the land owner is ultimately responsible.

There is a difference between illegal dumping and illegal stockpiling. Historically, junkyards and other property owners would accept tires from generators for a fee without moving those tires on to a processor. Property owners took in millions of dollars in tipping fees in some cases and then couldn't afford to have them removed. In Connecticut's most infamous case of illegal stockpiling, the Tire Pond in Hamden and North Haven took in millions of scrap tires and placed them in a pond (a former clay pit). Nationally, the number of tires in stockpiles has decreased dramatically primarily through civil action or when state programs use state tire fees to pay to clean up these stockpiles. When this document discusses illegal "dumping", as an ongoing issue, it is not including the concept of illegal stockpiling.



Example of illegal stockpiling at Tire Pond, North Haven



Example of illegal dumping off I-95 in Westport, DOT photo

2. Impact of Each Management Option on Illegal Dumping

a. Market-based System and the Impact on Illegal Dumping

The current market-based system of managing scrap tires encourages illegal dumping. As long as there is a fee associated with scrap tire disposal, there will be an incentive to dump illegally. When the cost of disposal gets higher, it logically follows that the occurrence of illegal dumping rises. Under this existing system, recourse is criminal or civil prosecution, if the violators can be identified, and the use of state and local police resources to increase surveillance and enforcement or to institute a state licensing and manifesting program for haulers to track the movement of tires. Such a licensing program would require funding and hiring of state employees to oversee the program.

b. A State Scrap Tire Fee Program and the Impact on Illegal Dumping

States that operate tire programs address illegal dumping. Some of the fees collected at the point of sale and remitted to the state are used for various strategies to combat illegal dumping. These strategies include; grants to regions, counties or municipalities to clean up illegally dumped tires, amnesty days where residents can bring in tires for free, and registration of tire haulers.

Most states that run their own program require tire haulers to register with the state. The threshold for most state programs is 10 tires. In California, there are 1440 registered haulers and 7500 vehicles. In addition to registering haulers, most states use funds for a tire manifesting system.⁶ A manifest system tracks tires from their point of origination to the point of disposal and is intended to deter illegal dumping because there is a paper trail for tracking tires. The state of California currently employs 69 staff to run their tire program with plans to increase the size of the program.

While a state-run program may lessen the incidence of illegal dumping, some of the states with the worst illegal dumping problems have state-run programs. Texas, for example, requires registration of tire haulers carrying more than ten tires and generators with more than 500 tires and has a manifest system, yet illegal dumping is persistent and pervasive. The City of Houston estimated spending \$1 million per year to pick up and dispose of illegally dumped tires⁷ in 2011 and recently enacted new regulations to deal with illegal dumping.⁸

Based on the experience of other state-run programs, Connecticut would need to assess a fee of approximately \$1 per tire to establish, maintain, and fund a state-run program. This would generate about \$3,500,000 per year. At a minimum, it would require 4-6, full time employees to run such a program. This staff would be responsible for registering tire haulers, administering a manifest system, inspections and enforcement, and education. The Department of Motor Vehicles, and state and local police would be responsible for identifying violations on the roads. The experience of other states suggests that this would not significantly decrease illegal

⁶ [Cal Recycle Scrap Tire Management Program](#)

⁷ [Miya Shay, ABC Eyewitness News, Houston, TX January 19, 2011](#)

⁸ Ibid

dumping. Note that this enforcement program, as described, would not include the cost to dispose of tires, or encourage recycling markets.

c. EPR and the Impact on Illegal Dumping

There is evidence that EPR can virtually eliminate illegal dumping of tires. In an EPR system, the disposal fees are accounted for in the purchase price, thereby eliminating the primary reason for illegal dumping – avoiding tipping fees. The program costs can be either internalized, that is, built into the purchase price, or externalized, assessed as a fee in addition to the purchase price. The mattress and paint EPR programs in Connecticut have an externalized fee, the electronics and thermostat programs have an internalized cost. While not an EPR program, the voluntary product stewardship program for rechargeable batteries, Call2Recycle, also utilizes an internalized cost approach.

The province of Ontario, Canada implemented an EPR program for tires in 2009 called Ontario Tire Stewardship. According to the Director, Andrew Horsman, the stewardship program has virtually eliminated illegal tire dumping. Mr. Horsman attributes the elimination of illegal dumping to the stewardship program. Tire retailers, garages and drop sites offer free disposal with costs assumed at the point of sale by the purchaser.

British Columbia also implemented a tire stewardship program in 2007. According to Rosemary Sutton, the Director of Tire Stewardship British Columbia, EPR has greatly reduced illegal dumping and virtually eliminated the typical illegal dumping as done by generators in the United States trying to avoid tipping fees.⁹

B. Creating Private Sector Jobs

1. Overview

It is well understood that recycling creates more jobs than landfilling or incineration.¹⁰ A study conducted for the Western Product Stewardship Collaborative looked specifically at EPR and job creation and concluded that:

“The adoption of EPR or any other kind of product stewardship program, increased recycling and increased material throughput might have some minor negative impact on jobs in the waste collection and disposal sector, but these job losses will almost assuredly be more than offset by a growth in jobs in the collection of a greater number of waste streams, more processing for recycling and more jobs in the use of the secondary materials recovered.”¹¹

Connecticut’s existing stewardship programs have created private sector jobs as well. The electronics program, which began in 2011, has created 78 jobs, and the paint program, 21 jobs.¹²

⁹ Phone conversation with Rosemary Sutton, Tire Stewardship BC, January 2016

¹⁰ [“US Recycling Economic Information Study” RW Beck, July 2001](#)

¹¹ OVERVIEW OF STEWARDSHIP AND EXTENDED PRODUCER RESPONSIBILITY JOB AND ECONOMIC IMPACT STUDIES, Duncan Bury Consulting, August, 2012

¹² Product Stewardship Institute report to Connecticut DEEP, January 2016

The mattress stewardship program supports two recycling facilities employing about 20-25 people.

By increasing the recycling of tires, Connecticut can create private sector jobs. Companies that make products from tires, such as paving material and stamped products, have a hard time competing with Tire Derived Fuel (TDF). When a company produces a product from a scrap tire, it needs to charge a tipping fee to make that product cost-competitive on the back end. As a result, generators of scrap tires choose to send their tires to less expensive markets, primarily TDF.

Transporting and processing tires into chips are not counted in job creation numbers because they are the same regardless of the program. Whether the tires go into new products or TDF, they will still need to be collected and processed.

2. Impact of Each Management Option on Job Creation

a. Market-based Program and Job Creation

The current market-based system creates the fewest private sector jobs. Scrap tires flow to the lowest cost legal option, currently pulp mills in Maine. This market is contracting and fewer Connecticut tires are going there. Some Connecticut tires are going to a crumb rubber plant in New York, but this has little impact on creating jobs: none in Connecticut.

The possibility of reopening the Sterling plant for tire incineration, or of a cement kiln in upstate New York coming online, is enough to discourage investors from establishing tire recycling businesses in the state. TDF has consistently been a lower priced management option to recycling. If TDF were reestablished, any existing tire recyclers would have difficulty competing for tires.¹³

b. State Scrap Tire Fee Program and Job Creation

Perhaps no state has been more aggressive in using their state tire program to create and support recycling jobs than California. In July 2015, CalRecycle approved [a plan](#) to increase their tire fee with a goal of increasing tire recycling. The current California recycling rate for tires is 40% with the rest going to TDF, landfilling, export and alternative daily cover. This new plan would provide incentive payments to support recycling markets. In order to finance the incentive payments, the state is proposing to raise the state tire fee at purchase from \$1.75 per passenger tire to \$3.75 - \$4.00 per tire. The proposal doesn't preclude tire dealers from continuing to charge their own disposal fee above the state fee, as neither the old nor the new fee is intended to cover ongoing disposal or recycling costs.

While a state program can increase private sector recycling jobs, it requires a large state bureaucracy to do so. California has 69 state employees dedicated solely to scrap tires and implementing the new plan would require many more.

¹³ Phone conversations with Barry Takallou, CRM Rubber 12/17/2015 and Denise Kennedy, DK Enterprises, 12/21/2015

c. EPR and Job Creation

To the extent that an EPR program favors recycling over energy recovery, as evidenced by the Connecticut ewaste and mattress programs, EPR would create the highest number of private sector jobs. Under an EPR program, a tire stewardship organization submits a plan to the oversight agency, the DEEP, and indicates which markets it intends to use for scrap tires collected. The agency then, through the review and approval of the plan, decides which markets are acceptable. By limiting or completely restricting incineration, entrepreneurs are motivated to commit resources to recycling businesses.

Andrew Horsman, Executive Director of [Ontario Tire Stewardship](#) (OTS), indicated to the department that their EPR program has created 200 private sector jobs in the processing and recycling of tires¹⁴. This does not include the transportation and collection of tires. In the OTS program, the government has prohibited tires from going to incineration, which creates the incentive to develop recycling markets. OTS uses some of its funding to provide grants for research and development that “have the potential to increase the amount of Ontario crumb used in high-value products”; and have “the potential to increase the market for products made with Ontario crumb.”¹⁵ This grant money has been used in Ontario, to increase markets for scrap tires.

According to a report conducted in 2008 for the Tire Stewardship British Columbia program, 166 private sector jobs were created as a result of the tire stewardship law and all the stewardship programs created 1600 jobs.¹⁶

Since the Sterling plant suspended operations in 2013, the department has had conversations with businesses that can recycle scrap tires. The biggest obstacle for establishing these types of business is the competition from the pulp mills in Maine and the potential to expand TDF in the region. Based on these conversations, and the knowledge of the OTS program, using scrap tires in paving material or rubber modified asphalt, or other markets, would result in the creation of an estimated 50-100 jobs in Connecticut.¹⁷ Neighboring states are also experiencing similar market pressures as Connecticut. If they also pursue EPR for tires, the number of processing jobs could grow.

Barry Takallou, owner of CRM, a national crumb rubber manufacturer, indicated that an EPR program in Connecticut would be a strong draw for companies such as his. He projected a facility processing 2 million tires annually in Connecticut into crumb rubber would bring about 100 jobs.¹⁸ Note that if a tire stewardship organization in Connecticut was prohibited from or required to minimize the use of TDF, the creation of new TDF capacity in a neighboring state would no longer be a threat to those investing in Connecticut tire recycling infrastructure, despite such out-of-state capacity not being under the state’s control.

¹⁴ Conversation with Andrew Horsman, 12/9/2015

¹⁵ [Ontario Tire Stewardship web site](#)

¹⁶ Ibid

¹⁷ Email from Brian Wong, Crumb Rubber Manufacturers Association, 8/12/2015 and from Henri Hillman, Flexipave, 7/23/2015

¹⁸ Phone conversation with Barry Takallou, 12/18/2015

C. Benefit to the Environment

1. Overview

Connecticut is reexamining its materials management strategy. Public Act 14-94 reaffirmed one of the primary goals of this strategy is to increase the diversion rate to 60% by 2024. The alternatives to recycling are waste-to-energy incineration and landfilling. The overall environmental benefits for recycling in terms of energy use and greenhouse gas reduction are well understood. How specifically does each management option benefit the environment?

A 2010 study by Franklin Associates¹⁹ compared the environmental impacts/benefits of two scrap tire management options – material recycling and tire derived fuel combustion. The study concluded that:

“For both methodological approaches, the material recycling scenario provides greater savings than the energy recovery scenario in terms of the examined environmental impact potentials: energy demand, iron ore consumption, global warming potential, acidification, eutrophication, smog formation, and respiratory effects. The additional savings from material recycling are significant and the establishment of new infrastructure required for a shift to material recycling incurs relatively insignificant burdens.”

2. Impact of Each Management Option and Benefit to the Environment

a. Market-based Program and Benefit to the Environment

A market-based system will divert tires to the lowest priced, legal disposal option. Currently that is TDF for most of the northeast. TDF has less environmental benefit than material. As the regional markets for TDF continue to diminish, there will be pressure to allow tires to go to landfill or to open another tire incinerator. While the price and market options may make recycling markets more possible, the threat of a new TDF option will likely keep those businesses on the sidelines.

The state could intervene in the market with a commitment to utilize rubber modified asphalt in road paving. Roughly 1,000 tires are used per vehicle mile. In 2015, Connecticut DOT paved 330 two lane miles of highway. The average is 225 – 250 miles per year.²⁰ If all 330 miles (660 lane miles) used 1000 tires in the paving mix, then it would consume 660,000 tires or roughly 20% of the tires generated annually. The nearest plant that mixes scrap tires into rubber modified asphalt is in Albany, New York. They would be able to get the tires from local sources so there is no guarantee that this commitment by Connecticut to use rubber modified asphalt for state paving projects would have any significant impact on Connecticut generated scrap tires.

b. State Scrap Tire Fee Program and Benefit to the Environment

Most state scrap tire programs do not emphasize recycling but rather want to ensure that there are acceptable markets for tires, TDF being the most prevalent. The market dictates where tires are managed and TDF has for decades been the cheapest legal disposal option. States can also use

¹⁹ “Material Recycling vs. Tire-Derived Fuel Combustion” Franklin Associates, 2010

²⁰ Connecticut DOT Press release, 11/23/2015

money collected for the state program for market development, including supporting markets for recycled products.

State programs can promote recycling by providing incentives in the form of ongoing subsidies to companies that recycle scrap tires instead of incinerate or landfill them. California is attempting to do this in their latest plan. However it will require a significant increase in the fee attached to the sale of tires and an increase in the staff needed to implement the plan.

c. EPR and Benefit to the Environment

EPR as a strategy, more so than the state and market-based programs, will promote recycling to the greatest extent technologically feasible and environmentally practical. This is a key component of the paint and mattress programs, both of which favored recycling. There was virtually no paint and minimal mattress recycling before the EPR programs because the market didn't support it. The mattress program is now recycling 10,000 units per month in Connecticut and the paint program has collected over 500,000 gallons of paint in its first two years.

The tire EPR program in Ontario by law does not allow TDF or landfilling. As a result, all of the tires collected under the program are recycled. A similar program in Connecticut could support recycling markets by sending a signal to businesses that tires will only be recycled and they will not have to compete with TDF. If the state needs time for those markets to develop, it can start with a limit for allowable TDF and then lower that limit over time until TDF is unnecessary.

The British Columbia program recycles around 75% - 80% of tires collected, with the remainder going to a cement kiln within the province. The program director, Rosemary Sutton, indicated that TDF for the cement kiln is beneficial to the environment because it replaces less efficient fossil fuels such as coal and oil. However she also said that if directed to recycle 100% of the tires they could do so albeit at a slightly higher cost.

Section V

Program Costs

a. Market-Based Program

The costs associated with a market-based program are the costs of transporting and processing tires minus the revenue generated from the sale to the end user. The collection, transportation and processing costs exceed revenues from the sale of processed tires therefore processors must charge a fee to scrap tire generators. In Connecticut, the costs are rising due to the shrinking of available markets. Although some existing contracts are in the \$1.50 to \$2.00 per tire range, the current price is expected to increase to roughly \$3.00 or more per passenger tire and more for truck and commercial tires. Rhode Island Resource Recovery Corporation, which manages the state's only landfill, saw its cost to dispose of tires triple over the previous contract.²¹ Most

²¹ Phone conversation with Sarah Kite Reeves, Rhode Island Resource Recovery Corporation, February, 2016

generators of scrap tires, including tire retailers and garages, will pass this fee on to the customer.

b. State-Run Program

While Connecticut doesn't have a state scrap tire fee, most states do. The typical charge for passenger tires is \$1 - \$2 per tire. The fee is usually assessed at the point of retail and remitted to the state. In addition, the retailer or garage assesses a disposal fee on the customer because the state fee doesn't finance disposal. The fees in most state-run programs do not support recycling to any significant degree and most tires will go to TDF. California is proposing the highest state tire fee at \$3.75 - \$4.00 with the higher fee supporting an 85% recycling goal. This is in addition to what the retailer may charge.

c. EPR Program

The Canadian provinces of Ontario and British Columbia have established EPR programs for scrap tires. The cost of operating the Ontario program, known as [Ontario Tire Stewardship](#) (OTS) is covered through a fee at the point of sale remitted to OTS. OTS is made up of tire and automobile manufacturers. The fee recently dropped to \$4.25 per tire (\$3.06 in US dollars). Because this fee covers recycling, tire retailers and garages do not charge customers an additional fee for disposal. The OTS program requires 100% recycling and prohibits TDF.

The British Columbia tire stewardship program known as [Tire Stewardship BC](#), charges \$5.00 (\$3.60 in US dollars) per passenger tire. It is similar to the OTS program but allows 15% use of TDF for a cement kiln within the region. There is no additional fee for disposal assessed by the retailer.

Table 2: Cost and Recycling Comparison of EPR and State-run Programs²²

Location	Consumer Fee	Annual Budget	Rate of Recycling
California	\$1.75 / tire	\$44,000,000	38%
New York	\$2.50/tire	\$24,000,000	25%
Ontario	\$4.75/tire ^{23 24}	\$57,000,000	100%
British Columbia	\$5.00/tire	\$17,500,000	60%

²² Presentation by Barry Takallou, CRM at Recycling BC conference, May 2015

²³ The fee has since been reduced to \$4.25, Canadian dollars, email from Andrew Horsman, February 10, 2016

²⁴ The fee is expressed in Canadian dollars. With the exchange rate of .72 US dollars per one Canadian dollar the fee in Ontario would be \$3.06 USD and the British Columbia fee would be \$3.60 USD. The annual budget for Ontario is \$41,400,000 USD and the annual budget for British Columbia is \$12,600,000 USD

Section VI

Conclusions

Of the three discussed management options for scrap tires, EPR is the most likely to achieve the best outcomes for illegal dumping, job creation and recycling/environmental benefit. Based on the experiences of Ontario and British Columbia, EPR is comparable in costs when factoring in fees paid for disposal and fees to support a state tire program. The current market-based program for disposal of tires fosters illegal dumping by reacting to increased disposal fees caused by shifting market conditions. By placing a mandate to recycle to the greatest extent possible, EPR will create private sector jobs by providing a secure feedstock to businesses that recycle tires. Creating a state program specifically for tires would require establishing a tire fee to provide funding yet without the efficiencies of an EPR program. Programs in Ontario and British Columbia demonstrate that EPR can effectively and efficiently manage scrap tires through recycling at a reasonable cost, and eliminate illegal dumping while creating private sector jobs. Existing EPR programs for ewaste, paint and mattresses in Connecticut have been enthusiastically embraced by most municipalities for relieving financial burdens, facilitating collection and reducing illegal dumping.