

Closed Loop Partners Congressional Testimony
on the Value of Recycling and the Circular Economy.

2/5/20

Dear Chair..... and committee members. Thank you for inviting Closed Loop Partners to speak today. Launched in 2014, Closed Loop Partners is the first investment firm primarily focused on building the circular economy. Today, we have over 40 investments in companies and municipal projects in the United States, all focused on helping municipalities avoid landfill disposal fees and generating good jobs in the recycling and manufacturing sector. Personally, I have spent over 20 years as an executive in the recycling industry.

Recycling is big business in America. It has been for many years. In 2019, the recycling industry in America generated over \$110 billion in economic activity, \$13 billion in federal, state, and local tax revenue and 530,000 jobs. 2020 is shaping up to be a year of major innovations in the recycling industry as it becomes central to circular economy business models that major consumer goods companies and cities are deploying.

Recycling continues to be the most cost-effective option for the vast majority of American cities. The economics are simple. Cities have two choices when it comes to disposal: recycle or landfill. While the value of recycling is generally reported as the amount that a city can be paid for its recyclables, the core economic value of recycling is actually the opportunity for a city to avoid costly landfill disposal fees.

New York City, the largest market in the United States, is an example of how advanced recycling infrastructure and strong local markets create long term profits. New York City has a long-term public-private partnership with Pratt Industries that converts all of its recycled paper locally into new paper products sold back into the NYC market. Via its contract with Pratt, New York City is paid for every ton of paper its residents recycle, as opposed to a cost of over \$100 per ton to send paper, or anything else, to a landfill.

Minneapolis is another good example. Eureka Recycling and the City of Minneapolis invested in local community outreach focused on keeping their recycling stream clean of contamination, defined as non-recyclable material. The result is one of the lowest contamination rates of any municipal recycling program in the country. With a clean stream of valuable recyclables, Eureka consistently shares with Minneapolis the profits earned from the sale of their recyclables. In many other cities, unfortunately, approximately 15% of the material that arrives at the municipal recycling facility is considered contamination. Municipal recycling programs that keep contaminants out of the recycling stream via strong community outreach or enforcement realize lower costs and better revenue opportunities. Municipalities that recognize that recycling is part of the commodities industry, not the waste industry, generate value.

Along with the examples of Pratt Industries in New York City and Eureka Recycling in Minneapolis, Recology in San Francisco and Balcones in Austin, among others, continue to provide their municipal and commercial customers robust recycling service. In addition, municipalities like Pensacola, Florida and Davenport, Iowa that manage their own best in class recycling facilities consistently reduce landfill disposal costs and create local economic value for their constituents.

The value of recyclable commodities continues to have a wide range. The cost to process municipal recyclables at a recycling facility is, on average, \$70 per ton. That means that for a recyclable commodity to have value, it must have a market that pays the recycling facility over \$70 per ton. A sample of the commodities that are profitable to recycle include PET plastic (beverage containers), HDPE plastic (laundry detergent and soap containers), rigid polypropylene (bottle caps, some yogurt containers), cardboard and aluminum.

In 2020, three innovations are driving the increased profit potential of recycling in America and the development of a Circular Economy. First, the introduction of robotics and artificial intelligence. The future of the industry will be led by the facilities that produce the highest quality commodity bales. Companies like AMP Robotics have introduced robotics and artificial intelligence systems that enable the production of high-quality commodity bales, supply chain tracking and safeguards against contamination that were never before imagined in the industry.

Second, the emerging leadership demonstrated by a number of consumer brands. Leadership means designing products and packaging that are profitable for the recycling industry to recycle and that are manufactured with recycled content. Any product or package that is not recyclable is destined for a landfill (or even worse, a river or ocean). And that landfill cost is passed to the taxpayer. An example of two brands assuming leadership roles are Unilever and P&G. Unilever's Seventh Generation Brand uses mostly recycled HDPE plastic in its packaging and recycled paper in its paper products. P&G invented a technology and helped launch a company, PureCycle Technologies, that will significantly increase the value of recycled plastic.

Third, chemical recycling, defined as the depolymerization of plastic back to the base monomer in order to remanufacture a new plastic. Some plastics, like PET, HDPE and rigid polypropylene have significant value and are very profitable for the recycling industry, but they can degrade after a number of recycling cycles while some other plastics currently have limited value or are challenging to recycle. Chemical recycling has the potential to create an infinite circular economy value loop for all plastics. Some of the leading innovators are backed by major consumer goods companies. In 2020, we expect a number of emerging companies to move from pilot to commercialization phase.

These advancements are attracting private capital from leading investors. The industry saw investments from leading investors across asset classes. Google and Sequoia invested in AMP Robotics, Goldman Sachs is now the largest shareholder in Lakeshore Recycling Systems, Citi was is largest investor in rPlanet Earth, a bottle-to-bottle plastics recycling facility in California and SJF Ventures invested in TemperPack, an advanced packaging technology that uses recycled cardboard to keep packaged food cold, replacing a significant amount of low value plastics.

We are also seeing a major trend amongst consumer goods companies looking to increase their use of recyclable material in the packaging and products they sell. It makes sense. At scale, along with the considerable environmental benefits, it should be less expensive for companies to manufacture using recycled material. That is why most major beverage companies including Coca-Cola, Keurig Dr. Pepper, PepsiCo, Nestle and Danone as well as the world's largest consumer goods companies such as P&G, Unilever and Colgate Palmolive are publicly communicating aggressive goals for the use of recycled materials in their products and packaging.

For Americans, recycling is a matter of economic self-interest. Recycling our cardboard, paper, beverage bottles, rigid plastics containers, and aluminum cans has three important outcomes. First, it reduces the cost to manufacture the products we buy. Second, it reduces the amount of our taxpayer dollars used every year to pay landfills. Third, it generates revenue for our communities via the sale of recyclable commodities. The average cost to landfill a ton of material in the United States is \$50 and over \$100 per ton in major population centers.

Despite these economic incentives, large parts of the United States still have little or no recycling collection or processing infrastructure. Much of the economic activity generated by recycling is accomplished by long standing recycling programs on the West and East Coast as well as the upper Mid-West of America. For those who live in parts of the country with limited or no recycling infrastructure, their tax dollars are wasted on the cost of sending valuable commodities to landfill that could otherwise be sold. While the 90m tons currently recycled in the United States saves American taxpayers and businesses over \$3 billion annually in landfill disposal fees, over 180 million tons of recyclable materials are landfilled, costing American taxpayers and businesses over \$5 billion annually in landfills fees. We are literally throwing money in the garbage.

Another challenge is that too many products, such as plastic bags, plastic straws and styrofoam, are not recyclable, leading to confusion among consumers that causes contamination of the recycling stream resulting in a major cost to the system. The good news is that a number of municipalities are banning these products, sending an important message to industry that taxpayers will not subsidize the cost of sending products that are not recyclable to landfill. Additional good news is that beverage containers, clear plastics containers, carboard and aluminum cans are currently very profitable to recycle. Furthermore, we are seeing the development and introduction of

robotics and artificial intelligence technologies that will improve the sortation and recovery of these high value items.

It is also important to recognize how China, which has received much press as of late for their role in the American recycling ecosystem, impacts the industry. For much of the past 20 years, the U.S. recycling industry was dependent on China as the leading export market. As consumption and waste has increased in China, the Chinese government has decided to develop their own domestic recycling infrastructure. This may cause some short-term pain in some parts of the United States' recycling industry, but leading companies in the recycling industry, consumer goods and packaging industry, as well as a number of investors, see this as an opportunity to further develop and profit from domestic recycling and manufacturing infrastructure.

These are exciting times in the recycling industry as the development of the circular economy continues to expand. Major innovations are entering the industry ranging from robotics to supply chain mapping to advanced technologies that recycle plastics. Like any major industry analysis in the U.S., there is no one or two cities that should be extrapolated to define the industry. There are cities where recycling is profitable and a major economic engine and there are cities where the recycling program is struggling. What is clear is that the cities that focus on limiting contamination in their recycling program and who contract with best in class recycling companies benefit from recycling programs that are profitable and produce local jobs.

Leading municipalities, recyclers, manufactures and brands are starting to partner together to establish, and profit from, a circular economy in the United States where goods are continually manufactured using recycled material from local recycling programs. This partnership in developing a circular economy will result in one of the largest investment opportunities in the United States over the next decade.