

U.S. Market Report: Business Opportunities for European Vendors of Recycling and Waste Conversion Technology

Simply for its sheer size, the American waste management market is a worthwhile target for export-oriented manufacturers and know-how providers. Yet, there's uncertainty with regards to the nation's willingness to invest in an infrastructure which still heavily relies on landfilling. The United States generate 254 million tons of municipal solid waste (MSW) annually, of which 53% are disposed. Recently, President Trump's announced slash 30% of the Environmental Protection Agency's budget. What does this mean for the recycling business?

This paper shows that state legislators are showing great resilience. Not only are they not rolling back their landfill diversion programs, they are moving forward even more vigorously. Landfills troubled with environmental and legal issues, along with an understanding that millions of dollars in valuable recyclables are wasted by dumping, have made communities pivot for good. At the same time, private initiative is growing stronger, making million-dollar investments into recycling infrastructure available.

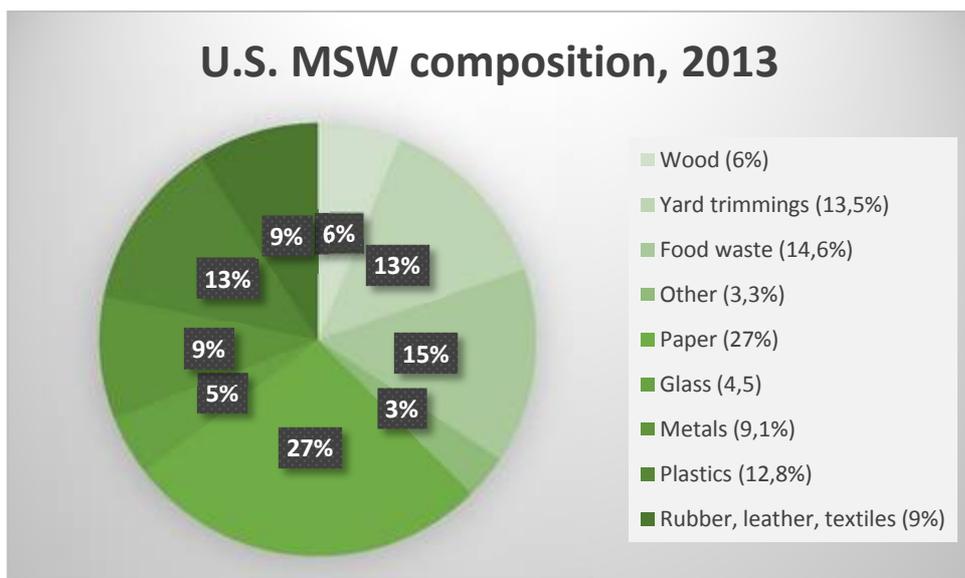
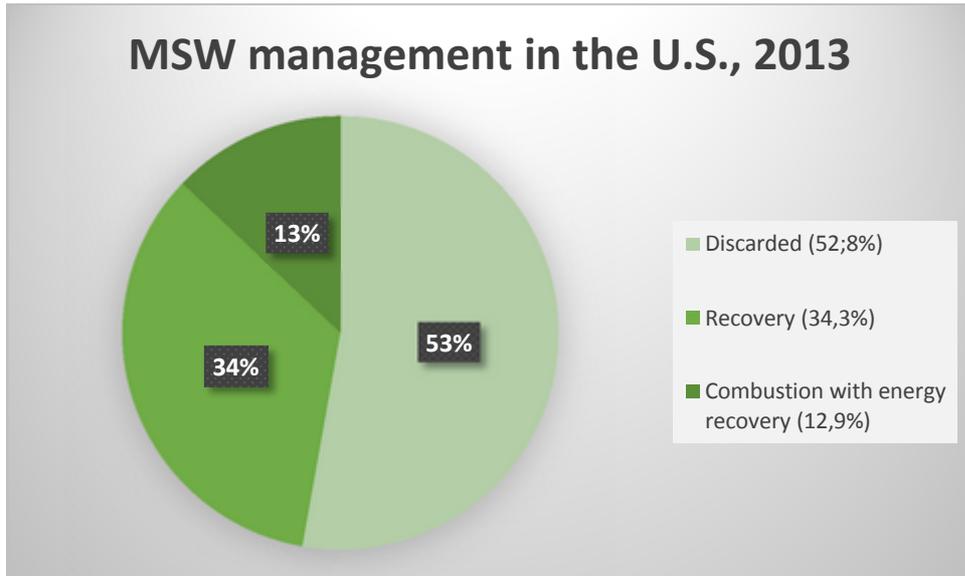
Landfilling is no longer the easy way out

In Billings, Montana, trash in every variety covered the streets around the local landfill on March 8, 2017. High winds from recent storms in the U.S. Midwest had blown it there. This was not an isolated incident. These types of wind occur several times a year in the area, typically in the spring and fall, each time requiring an army of workers to clean up the debris. The recent developments will make it even harder for the city seeking permission to expand the Billings landfill. This shows that dumping waste is no longer the easy way out for communities in the United States.

One does not have to look very far for more examples. The Pennsylvania Department of Environmental Protection is questioning earthquake safety at its landfills. In Pennsylvania seismic activity has become more frequent with the state's extensive fracking for oil and gas. The state of New York is facing a 2.4 billion dollar suit over its landfill in Niagara. Residents say that harmful chemicals are migrating from the landfill, causing health issues. The Environmental Protection Agency (EPA) currently lists 154 complaints against new landfills or requests to increase capacity.

The state of recycling in the U.S.

In the U.S. total annual Municipal Solid Waste (MSW) generation has increased by 68% since 1980, currently amounting to 254 million tons per year. Per capita MSW generation has increased by 20% over the same period of time, from 3.7 pounds (1,67 kg) to 4.4 pounds (1,99 kg) per person each day, or 1,606 pounds (728 kg) per person per year. For comparison, MSW (residential waste) generation per capita in Germany amounted to 618 kilograms in 2014. The EU average was at 474 kg.



U.S. definitions for the treatment of waste differ from what we are used to in Europe. Recovery or recycling typically includes materials recovery, as well as composting and waste conversion technologies such as anaerobic digestion and gasification/pyrolysis. It does not include waste-to-energy in the traditional sense of combustion with energy recovery. Accordingly, one has to differentiate between waste diversion in general, which often also refers to diverting waste from incinerators, and, more specifically, landfill diversion.

Diversion targets, "zero waste"

Some progress has been made in the recovery of paper and paperboard, glass, metals and yard trimmings. With regards to plastics and food waste in particular, the recovery rates seem almost negligible. This is due to aging waste treatment infrastructure and a lack of sophisticated curbside

collection programs. Yet, recently municipalities large and small are looking for ways to up their diversion rates, and they're doing it because it makes business sense. Elected officials such as Baltimore, MD mayor Catherine Pugh have come to understand that landfilling is the worst option, not just environmentally but also economically. Or, to put it positively, recycling puts materials worth millions of dollars back into the cycle and creates jobs locally. According to a report put together for the city of Baltimore by The Institute for Local Self-Reliance (ISLR), investing in state-of-the-art processing facilities and diverting more waste will generate significant savings and create almost 600 new jobs.

The state of Michigan, according to three different reports, will need a major reset of state waste policy in order to increase its diversion rate. The state's Solid Waste and Sustainability Advisory panel (SWSAP) proposes increasing funds of up to 10 million US dollars, predominantly for changing the way organics are processed and for exploring new waste conversion technologies. This typically refers to gasification/pyrolysis. The Governor's Recycling Council (GRC) aims at developing new materials markets within the state, expanding curbside collection and funding new recycling facilities, the total cost for all of GRC's recommendations amounting to US\$ 17 million. Last but not least, the Michigan Recycling Coalition (MRC) focuses on more organics processing as the best means to increase the state's diversion rates. Estimates have it that up to US\$ 368 million worth of recyclable materials are wasted in the state every year. Diverting all of this could lead to a large economic boost, creating more than 2.600 jobs.

Generation, recovery and discards of materials in MSW, 2013

(in millions of tons and percent of generation of each material), U.S. EPA

Material/ type of waste	Weight generated	Weight recovered	Recovery as percent of generation	Weight discarded
Paper and paperboard	68,60	43,30	63,30%	25,20
Glass	11,54	3,15	27,30%	8,39
Metals	23,06	7,87	34,10%	15,19
Plastics	32,52	3,00	9,20%	29,52
Rubber and leather	7,72	1,24	16,10%	6,48
Textiles	15,13	2,30	15,20%	12,83
Wood	15,77	2,47	15,70%	13,30
Food waste	37,06	1,84	5,00%	35,22
Yard trimmings	34,20	20,60	60,20%	13,60

Consequently, zero waste to landfill is the new buzzword, as the concept of a circular economy has become popular among American communities. The individual states' responses to the waste challenge differ as much as they do among the members of the European Union. Yet, government officials, manufacturers and recyclers from West Coast to East Coast have been moving in the same direction. Landfill diversion mandates as ambitious as 75% by the year 2020, issued by the state of California, are in place, along with landfill bans for organics and electronic waste, for example in California, Oregon, Arizona, Pennsylvania, Illinois, Wisconsin and New York.

Private Investment in Recycling Infrastructure

While the new administration under President Trump has created uncertainty about the nation's future course in the environmental arena, state legislators and corporate decision-makers alike are showing great resilience. Google's Senior Vice President of Technical Infrastructure, Urs Hölzle, in a recent post stated: "We're more committed to the environment than ever and believe that businesses, governments, and citizens all have critical roles to play to ensure that we all have clean air, water, and soil."

Google goes zero waste

Google's offices in Mountain View, CA make up 8% of all business in the bustling area. After a waste audit undertaken by local waste service provider Recology, compost and recycling containers were introduced throughout the Google campus and educational programs for its employees were rolled out. The company now has more recycling bins than it has trash bins and achieved a waste diversion rate of 68% compared to 37% in 2011. "Our goal is to embed circular economic principles into the fabric of Google's infrastructure, operations, and culture," Kate Brandt, Head of Sustainability at Google, said in an interview with the U.S. magazine Fast Company.

Closed Loop Fund invests in recycling infrastructure

In the United States, private initiative has a long history of acting as a strong driver in areas where government falls short. The Closed Loop Fund, founded in 2014, is a great example of environmental stewardship with a bottom-line approach. Through private investment of 100 million dollars the Fund provides zero-interest loans to municipalities and below market interest loans to companies for recycling infrastructure. The investment categories include collection systems to expand curbside programs for a wide range of materials, sorting infrastructure and processing technology to create marketable commodities from waste. Corporate investors of the Fund include the Walmart Foundation, Coca-Cola, Pepsico, Johnson & Johnson, Procter & Gamble, Unilever, 3M and Goldman Sachs. Last week, the Closed Loop Fund issued another request for proposals on projects at material recovery facilities (MRFs) or plastic recovery facilities that can collect, sort or process post-consumer polypropylene plastics. Through this program projects can receive up to 5 million dollars each.

In 2016, Scott County in Iowa received a US\$ 2,7 million loan from Closed Loop for a US\$ 10,75 million project to upgrade their recovery facility and collection system. This resulted in a 61% increase in recycling volumes, says a case study issued by the Fund. According to this, Scotty County now provides 95 gallon (359 liter) carts with RFID chips to 48.500 households. After the upgrade, the waste commission of the county can handle up to 70 tons per days at its municipal recycling facility (MRF), as compared to 27 tons before. The investment also had a positive effect on the waste haulers transporting the refuse to the MRF, which now splits revenues with the haulers evenly. Scotty County is said to be projecting sizable savings from landfill diversion as well as creating additional jobs at the facility.

ReFED focuses on food waste

Reducing food waste is another field which attracts private investment. The San Francisco-based collaboration ReFED is a cross-sector effort of over 40 businesses, non-profits, foundations, investors and policymakers. ReFED developed a roadmap to reduce food waste by 50% by 2030

and is actively seeking philanthropic and investment capital to spur technology, business and policy innovation throughout the United States. Current supporters include the National Resources Defense Council, the Rockefeller Foundation, several other family foundations, and once again the Walmart Foundation.

Conclusion

Regardless of where the Administration in Washington, DC moves, private initiative and state legislation to divert waste from landfills will not falter. Always the pioneer, California hosts the first International Circular Economy Conference and Exhibition on November 7-8, 2017 in Santa Clara, CA, www.ice-con.com. Landfilling, according to a growing number of proponents, makes little sense, neither environmentally nor economically. This creates an unparalleled opportunity for vendors of state-of-the-art recycling and waste conversion technology. Accordingly, the conference focuses on forward thinking solutions for sustainable waste management, providing a forum for an international exchange of ideas and a showcase for technologies to make zero waste to landfill happen. For European participants this means an opportunity to get in touch with state legislators, municipal buyers and corporate decision-makers who will be looking for technology that is hard to find in the U.S.

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