

Three scenarios for future employment

The circular economy has the potential to create jobs in both existing and emerging sectors.³⁶ Most growth in employment is expected in repair and maintenance activities in the short to medium-long term of the circular transition.³⁷

New York City Economic Development Corporation and Circle Economy developed three scenarios for the development of the circular economy in NYC. These scenarios include a business as usual, a moderate and an ambitious context. They are based on an analysis of the potential of the circular economy for Great Britain by WRAP and Green Alliance, and have been adapted to the current situation of NYC and the city's existing ambitions.

WASTE DIVERSION TO RECYCLING

Waste diversion to recycling rates of waste represent the share of materials diverted from the waste stream to recycling, averaged out for all waste streams. The current diversion rate for New York City is at 17 percent for residential waste.^{38, 39}

REPAIR

Repair consists of extending the lifetime of a product by reusing it for its original function, in the same state or after being restored or updated.⁴¹

SERVITIZATION

Servitization refers to business models that increase the effective use of resources, goods and products by means of financial incentives. When goods and products are rented or leased, the producer retains ownership over these assets, and is as such incentivized to keep them in circulation for as long as possible.⁴²

REMANUFACTURING

Remanufacturing consists of restoring end-of-life products to their original working condition, by using parts of a discarded product in a new product. Currently, remanufactured products make up 2 percent of all sales of the manufacturing sectors.^{43, 44}

POTENTIAL JOBS



BUSINESS AS USUAL

30%* DIVERSION RATE

The current ambition of the Solid Waste Management Plan, as adopted in 2006, is to achieve a 35 percent diversion rate by 2026, which was readjusted downward.⁴⁰ Reality trails back on the ambitions though, and continued efforts between 2020 and 2030 would be required to achieve a 30 percent diversion rate.

5% SLIGHT GROWTH

Current trends of reuse through repair, maintenance and second-hand trade continue into 2030, showing a slight increase in the repair of electrical equipment and machinery.

5% EXPERIMENTAL

Servitization is standard practice with current product groups such as automotive vehicles and heavy machinery. It remains experimental for other goods and services.

7% REMANUFACTURING RATE

The business as usual scenario constitutes a continuation of the current growth rate of remanufacturing activities in the manufacturing sector.⁴⁵

A slightly increased remanufacturing rate does not significantly impact New York City, as it mainly takes place in the metropolitan area and state.

2,874



SOME PROGRESS TOWARD CIRCULARITY

50-60% DIVERSION RATE

A moderate diversion rate entails an overall increase in recycling rates, among other things through increased composting.

Absolute tons of recycled waste will be lower due to a decrease in waste production (mainly packaging and single-use consumer goods).

15% MODEST GROWTH

Current trends of reuse through repair, maintenance and second-hand trade continue into 2030. More consumer goods show a modest increase in reuse rates, such as textiles and furniture.

Reuse rates in the manufacturing industry continue to grow.

15% COMMON

Servitization becomes more common in sectors related to the manufacturing industry and the B2B market, for heavy machinery and all equipment. It remains marginal for other goods and services.

15% REMANUFACTURING RATE

This constitutes a significant increase in remanufacturing rates in sectors with more immediate opportunities for remanufacturing, such as machinery, electronic products, electrical equipment and printing.

Remanufacturing does not yet transpire to all manufacturing sectors, overall remanufacturing rates remain low and the impact on New York City is limited.

6,990



CIRCULAR TRANSFORMATION

85% DIVERSION RATE

An overall high recycling rate is necessary to achieve the city's 2030 Zero Waste goals. Structural changes are required throughout the value chain, mainly in the design process, to enable better recycling.

Absolute tons of recycled waste will be lower, due to a decrease in waste production and an increase in high-value reuse such as remanufacturing and repair.

25% SUBSTANTIAL GROWTH

The transformative scenario shows greater reuse rates for all goods and products.

This entails a transformation of the retail landscape, which shifts toward online platforms that offer renting, leasing and sharing services over single sales.

25% MAINSTREAMED

Servitization is mainstreamed across industry, including chemical leasing for industrial cleaning and maintenance. It is also mainstreamed toward end consumers for household goods and equipment.

The transformative scenario requires a significant change in the financial and accounting sectors, requiring a shift in, among other things, risk calculations and balance sheets.

30% REMANUFACTURING RATE

Remanufacturing is mainstreamed in the high potential sectors, and transpires to other production sectors.

Remanufacturing of wood products, furniture, textiles, apparel and leather products increases. This results in an increase in the B2C market of remanufacturing and brings back such activities to the city.

This transformative scenario requires structural changes at the design stage of the value chain, as well as the retail stage, toward service-based business models (see servitization to the left).

11,634

*The percentages represent the expected growth under each scenario that will deliver the jobs increase for that scenario.

³⁶ Studies point to the anticipated net positive employment growth of the circular economy. See, for example: European Commission, *Impacts of Circular Economy Policies on the Labour Market* (2018); and Wrap and Green Alliance, *Employment and the Circular Economy: Job creation in a more resource efficient Britain* (2015)

³⁷ Bachus, K., et al., *Quicksan jobpotentieel van de circulaire economie* [Quicksan employment potential of the circular economy] (2015)

³⁸ NYC Open Data, *Recycling diversion and capture rates* (2019). Available online via: <https://data.cityofnewyork.us/Environment/Recycling-Diversion-and-Capture-Rates/gaq9-z3hz/data>

³⁹ The diversion rate of waste involves NAICS sectors 221310; 221320; 562219; 562991; 562998; 562111; 562119; 562112; 562212; 562213; 562219; 562211; 488390; 562920; 562910; 238910; 423930; 424990

⁴⁰ New York City Independent Budget Office, *Ten Years After: Assessing progress on the city's Solid Waste Management Plan* (2017). Available online via: <https://ib.o.nyc.ny.us/iboreports/ten-years-after-assessing-progress-on-the-citys-solid-waste-management-plan-2017.html>

⁴¹ Repair involves NAICS sectors 811310; 811490; 811212; 811219; 811310; 811411; 811490; 443142; 811211; 811212; 811213; 811219; 811310; 811310; 336611; 441222; 488390; 811490; 488190; 488210; 811310; 811490; 711510; 811310; 811490; 423110; 423910; 425110; 425120; 441110; 441120; 441228; 423110; 425110; 425120; 441110; 441210; 441228; 811111; 811112; 811113; 811118; 811121; 811122; 811191;

811192; 811198; 811310; 423110; 423120; 423130; 423140; 423730; 425110; 425120; 453310; 453998; 811212; 811211; 811213; 443142; 811211; 811213; 443141; 444210; 811411; 811412; 811490; 448320; 811430; 442291; 811420; 448310; 451110; 451140; 811490; 812990

⁴² Servitization involves NAICS sectors 236210; 238110; 238120; 238130; 238140; 238190; 238220; 238310; 238390; 238910; 238990; 561790; 532284; 532282; 532210; 532281; 532283; 532289; 532310; 532412; 238910; 532412; 532420; 532411; 532411; 532120; 532284; 532310; 532411; 532490; 561740; 812310; 812320; 812331; 812332

⁴³ United States International Trade Commission, *Remanufactured Goods: An overview of the U.S. and global industries, markets, and trade* (2012). Available online via: <https://www.usitc.gov/publications/332/pub4356.pdf>

⁴⁴ Remanufacturing involves NAICS sectors 31-33; 561990; 113310; 811121

⁴⁵ Wilkins, J., "The economic and environmental benefits of remanufacturing," *Industry Today* (February 2019). Available online via: <https://industrytoday.com/article/the-rise-of-remanufacturing/>