UAE ALLIANCE FOR CLIMATE ACTION
MEMBER SPOTLIGHT

JOHNSON CONTROLS

Zero Waste to Landfill Initiative

ABOUT JOHNSON CONTROLS

Johnson Controls is a world leader in smart buildings, creating safe, healthy and sustainable spaces.

For nearly 140 years, Johnson Controls has made buildings better and is transforming them again with their award-winning digital technologies and services.

Supported by a team of more than 100,000 dedicated employees working across 150 countries, Johnson Controls is helping customers achieve their sustainability goals and power their mission.[1]

Smart
Creating buildings that think and respond

Healthy
Nurturing wellness with healthy buildings

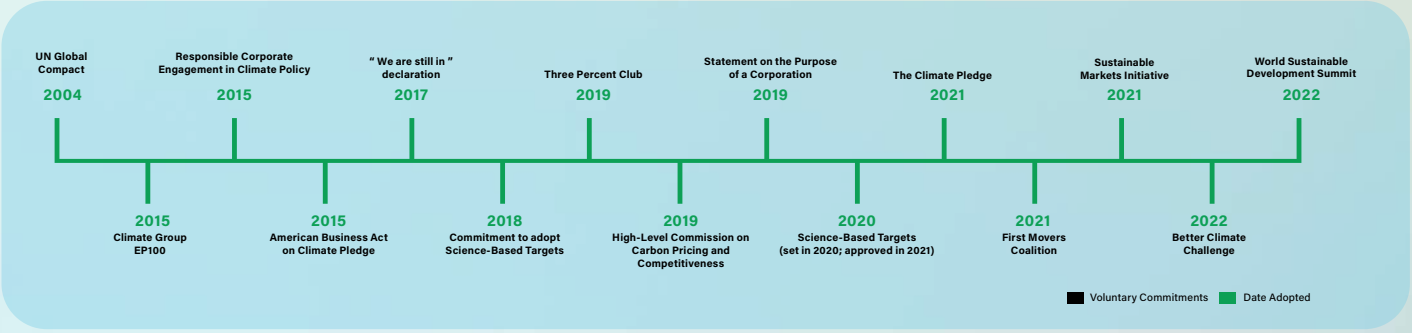
Sustainable
Accelerating the journey to net zero

SUSTAINABILITY AT JOHNSON CONTROLS

In 2021, Johnson Controls announced a new set of ambitious sustainability commitments including

- Set science-based targets consistent with the most ambitious 1.5°C IPCC scenario
- Reduce Johnson Controls's operational emissions by 55% and reduce customers' emissions by 16% before 2030
- Achieve net zero Scope 1 & 2 carbon emissions before 2040, in line with the UNFCCC Race to Zero and Business Ambition for 1.5°C criteria.[2]

JOHNSON CONTROLS'S VOLUNTARY COMMITMENTS ON SUSTAINABILITY [3]



Designed using information from source: Johnson Controls 2023 Sustainability Report

PROGRESS TOWARDS JOHNSON CONTROLS'S COMMITMENTS ON CLIMATE [3, 4]

Goals (2017 baseline)	Progress by the end of 2023	
25 percent reduction in GHG Intensity, Scope 1 & 2 by 2025	52.5 percent reduction in emissions intensity	0 52.5 100
Reduce water use by 10 percent at water-stressed locations by 2025	18.4 percent reduction	0 18.4 100
25 percent of manufacturing locations landfill free by 2025	Achieved this metric two years early: 23 manufacturing locations or 25 percent of their total manufacturing locations recognized as zero landfill	0 25 100
Scope 1 and 2 emissions: 55 percent absolute reduction by 2030	43.8 percent absolute reduction	0 43.8 100
Scope 3 emissions: 16 percent reduction from the use of sold products by 2030	27.1 percent absolute reduction	0 27.1 100
100 percent renewable electricity usage globally by 2040	42.1 percent electricity met or matched by renewables	0 42.1 100

Designed using information from source: Johnson Controls 2023 Sustainability Report and Johnson Controls 2024 Sustainability Report

MAKING THE BUSINESS CASE

ZERO WASTE TO LANDFILL INITIATIVE

GLOBAL APPROACH:

The primary driver of waste for Johnson Controls is waste generated during the manufacturing of building technology equipment.

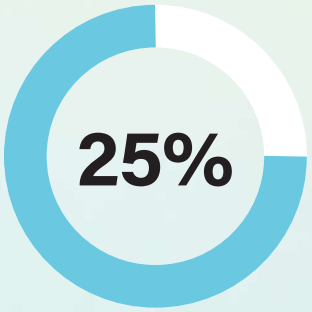
To be recognized as zero landfill, a site must participate in an independent review and demonstrate to the senior Environmental Health and Safety (EHS) Leadership team that 100% of the waste generated is either recycled, reused or converted to energy.

Other non-manufacturing sites have also taken on the ambitious objective of becoming landfill-free, with a total of 29 locations that are landfill-free throughout the company and every location is encouraged to eliminate the disposal of waste sent to landfill.[3]

TAKING GLOBAL APPROACH TO LOCAL LEVEL-BUSINESS CASE:

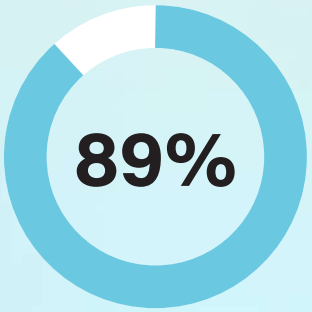
"Zero Waste to Landfill" initiative has been established in the Johnson Controls manufacturing facility, contributing towards sustainability goals by lowering Net Carbon emissions.

This case study aims to show their journey from 2021 to date towards this goal. Johnson Controls has achieved positive progress towards their goal but there are a few barriers to their progress that Johnson Controls is yet trying to overcome.



Their goal is that 25% of their manufacturing locations will be landfill-free by 2025.

In 2023, 23 manufacturing locations, representing 25% of their total manufacturing locations, had a 100% diversion rate and were recognized as zero landfill.



Their manufacturing facilities globally have an overall diversion rate of 89%.[3, 4]

Designed using information from source: Johnson Controls 2023 Sustainability Report and Johnson Controls 2024 Sustainability Report

THE DECARBONIZATION CHALLENGE

REDUCING, DIVERTING AND SEGREGATING WASTE

TOP 3 CHALLENGES

1

WASTE REDUCTION AND EMPLOYEE ENGAGEMENT

Reducing waste generated and ensuring buy-in of employees into the "Zero Waste to Landfill" goal.

2

DIVERTING WASTE FROM LANDFILLS AND SEGREGATION

Diverting waste from landfills to recycling, reuse or repurposing; increasing segregation at source practices.

3

CONTRACTING RECYCLING SERVICE PROVIDERS

Establishing contracts with additional service providers for recycling of more types of material.

Achieving the "Zero Waste to Landfill" goal would help Johnson Controls to:

- Eliminate landfill-bound waste generation at their facility thus enhancing their contribution towards sustainability & reduce cost
- Achieve increased waste diversion rate, reduction in the associated CO2e emissions
- Align with Johnson Controls Zero Harm initiative to champion zero waste to landfill strategies.

At the Manufacturing Facility, the most amount of waste generated in order of magnitude are:

- **Wood** – Pallets and Packaging
- **Metal** – Fabrication Material and Waste Metal
- **Paper & Cardboard**
- **General Waste** – Food, Packaging, Sweep Waste.

SOLUTIONS

DETAILED WASTE ANALYSIS FOR GENERATION/SEGREGATION/RECYCLING AND CREATING AWARENESS ON THE REDUCE, REUSE, RECYCLE (3R) PRINCIPLES

Till 2021, Johnson Controls had provided separate skips for

- Metal Waste
- Packing/Cardboard Waste
- Paint Waste
- Landfill Waste.

After adopting the Zero Waste to Landfill goal, Johnson Controls worked with their waste suppliers and provided 5 more skips for further segregation, namely

- Plastic
- Glass
- Aluminum
- Paper
- Wood.

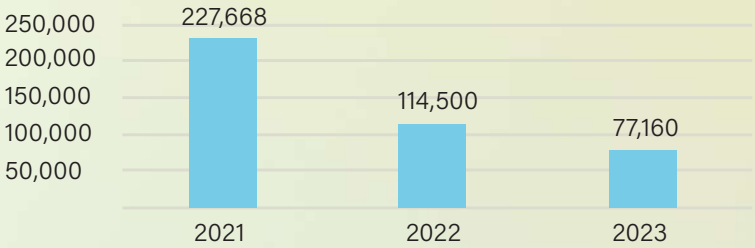
- **Enhanced fabrication testing methods were adopted and the frequency of tests also increased** to reduce metal scrap generated by rejected pieces during quality testing.
- **Color-coded waste skips for segregation** of waste were provided.
- **E-waste handling providers were brought on board** and the IT team dispose all e-waste generated through them only.
- **Wooden pallets that were received from suppliers began to be extensively reused.** Damaged pallets were repaired/refurbished internally and reused within their operations to reduce allocation of pallets and related material to waste.
- **Campaigns on waste segregation and sustainable waste disposal** requirements were conducted.
- **More awareness sessions** conducted by the Environmental Health and Safety (EHS) Team with involvement of senior management at the facility. This further cemented **the importance of the Zero Waste to Landfill goal and the roles the facility workers played to achieve it.**

OVERVIEW OF GENERATED WASTE AND RECYCLING

66%
Reduction in total waste generated.

Year	2021	2022	2023 (till date)
Waste Generated	227.66 tons	114.5 tons	77.16 tons

100%
of recyclable waste were diverted away from landfills.



Waste Generated (kg)

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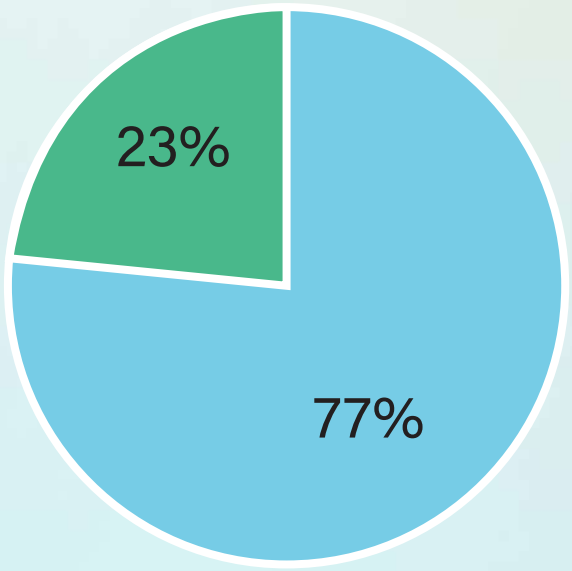
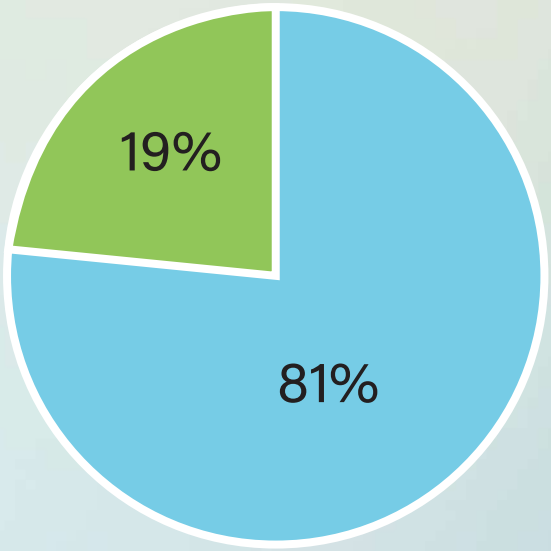
81%
In 2023, 81% of waste generated has been recycled till date compared to 67% in 2021.



Landfill vs Recycle in 2022



Landfill vs Recycle in 2023 (till date)

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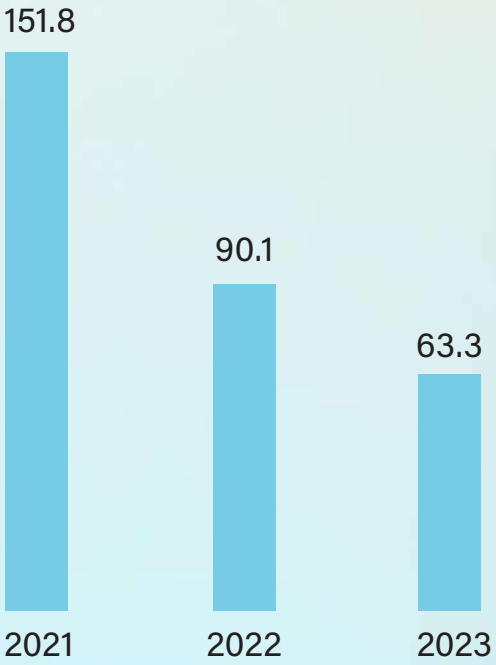
IMPACT OF ZERO WASTE TO LANDFILL INITIATIVE ON EMISSIONS

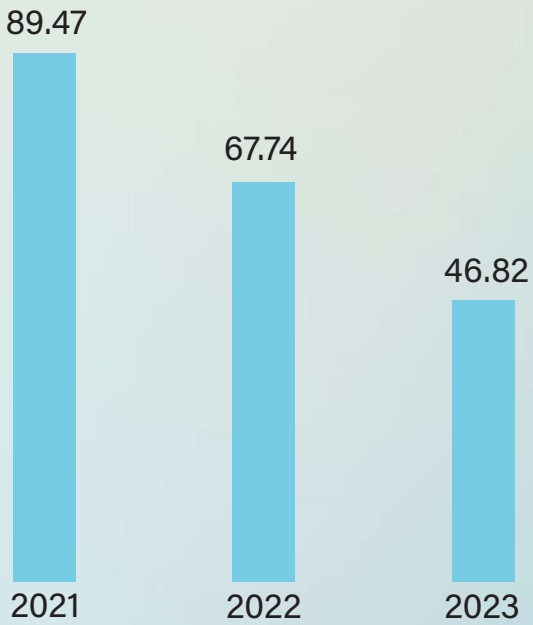
LESSONS LEARNED

- While aligning with the Zero Waste to Landfill goal, Johnson Controls was apprehensive of how much improvement could actually be made, but after two years of focussed discussions, awareness sessions and close monitoring, Johnson Controls has now managed to achieve 100% direction of all recyclable waste away from landfills.
- With an organization wide focus on waste prevention and extensive implementation of recycling practices, a significant potential for reducing greenhouse gas emissions has been offered. It reflects on the waste generation statistics showing a steadily decreasing trend in the actual waste generated from 2021 to 2023.
- The increase in waste recycling has cut the cost of waste disposal and improved the bottom line. Parallels between waste generated and CO2e emissions from recycling can be seen from 2021 through 2023 and the increased recycling rates would aid in further reducing the associated CO2e emissions.

Total Recyclable Waste in Tons



CO2e Savings in Tons



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NEXT STEPS FOR THE FUTURE

LOOKING AHEAD TO THE FUTURE

- The waste that Johnson Controls send to landfill now mainly consists of food waste and sweep waste.
- Johnson Controls is looking to explore further options offered by waste disposal/recycling facility providers and options on waste diversion facilities like digesters, incinerators, etc. for food waste/inert waste.
- Implementation of these better practices have helped Johnson Controls get as close as possible, with the currently available facilities in the region, to their goal of achieving Zero Waste Diverted to Landfill.
- Johnson Controls will strive to maintain this achievement till there is a chance to divert the inert waste to other facilities like digesters or incinerators.
- Johnson Controls teams are keenly keeping a watch on improvements with regards to waste diversion in the region and once further options are available, Johnson Controls will ensure that it is adopted, and Johnson Controls may then achieve their goal.

Raising ambition

100%
Recycling of all generated waste including food waste.

5%
Reduction in general waste generated.

100%
Maintaining 100% recycling of all recyclable material that Johnson Controls has achieved now.

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