

**Carbon Footprint Report**

**Greenhouse Gas Emissions Resulting from  
Hosting the WBSC Youth Baseball5 World  
Cup 2023**

Compiled by Alibaba Cloud | Energy Expert  
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## About this Report

This report provides a detailed and comprehensive breakdown of the greenhouse gas emissions for preparing and hosting the WBSC Youth Baseball5 World Cup 2023. This report has been prepared following a review of internal and external documentation, public data and data collected from the event organizing committee. All data collected and analyzed in this report follow the World Resources Institute Greenhouse Gas Protocol principles of relevance, completeness, consistency, transparency and accuracy.

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## WBSC

Headquartered in Pully, Switzerland – adjacent to Lausanne, the Olympic Capital – the World Baseball Softball Confederation (WBSC) is the international governing body for baseball and softball. The WBSC has 191 (183 full Members, 8 provisional Members) National Federations and 16 Associate Members in 136 countries and territories across Asia, Africa, the Americas, Europe, and Oceania, which represent a united baseball/softball sports movement that encompasses over 65 million athletes and attracts approximately 150 million fans to stadiums worldwide annually. Amongst its responsibilities, the WBSC governs all international competitions involving official National Teams. The WBSC oversees the Premier12, the World Baseball Classic, the Baseball World Cups (U-12, U-15, U-18, U-23 and Women's), the Softball World Cups, (U-12 Mixed, U-15 Women's, U-18 Women's, U-18 Men's, U-23 Men's, Women's and Men's) and the official disciplines Baseball5 (Senior and Youth World Cups) and eSports as well as Baseball, Softball and Baseball5 events at the Olympic Games.

## Youth Baseball5 World Cup 2023

The inaugural WBSC Youth Baseball5 World Cup 2023 is awarded to the vibrant city of Ankara, Türkiye. This landmark event has marked the country's first international baseball/softball event in the country. Ankara hosted the tournament from 10 to 15 October at the Sports Complex in the Yenimahalle metropolitan district. Baseball5 programmes are featured in over 100 countries, and the WBSC has ranked 49 of them. Ever since launching the WBSC Baseball5 World Ranking for the first time in January this year, Baseball5 has provided the opportunity for some non-traditional baseball/softball countries to feature in the top 10 of a WBSC World Ranking for the first time.

## Executive Summary

The carbon footprint of Youth Baseball5 World Cup 2023 is accounted by using Alibaba Cloud Energy Expert. As the result, total greenhouse gas emissions for preparing and hosting the WBSC Youth Baseball5 World Cup 2023 were 263.61 tCO<sub>2</sub>e, among which Scope 2 (indirect emissions from purchased energy) and Scope 3 (other indirect emissions) accounted for 11.29% (29.75 tCO<sub>2</sub>e) and 88.71% (233.86 tCO<sub>2</sub>e) of, respectively. The main contributors to emissions by category were Business Travel (78.5%), Purchased electricity (11.29%) and Purchased Goods and Services (9.35%).

To further reduce emissions, the following recommendations are proposed:

- 1) Optimize locations for on-site competitions to minimize cross-regional travel for participants and spectators.
- 2) Choose a green site: Look for sites with renewable power sources, efficient energy systems and sustainable building design. This helps to reduce reliance on traditional energy sources.
- 3) Use energy-efficient equipment: Use energy-efficient appliances and equipment, such as energy-efficient computers, printers and cooling systems; use LED lighting with automatic control systems that adjust brightness as needed to reduce energy consumption.
- 4) Intelligent energy management: Use intelligent energy management systems to monitor and manage electricity consumption and ensure that unnecessary equipment is switched off during non-event periods of the competition.
- 5) Adopt sustainable modes of transport: Encourage participants to use public transport, cycle or walk to get here and reduce car use. Provide convenient transport options such as shuttle bus services or bicycle parking facilities.
- 6) Waste Reduction: Adopt biodegradable and recyclable tableware and packaging, set up waste recycling and composting stations to encourage waste separation and

recycling.

- 7) Digital publicity and information dissemination: Use digital means to disseminate race information, timetables and results, and reduce the printing and distribution of paper-based publicity materials.
- 8) Carbon Offsetting Scheme: Develop a carbon offsetting scheme for the carbon emissions of the competition, for example, through tree planting programs or supporting renewable energy projects to offset the carbon emissions generated by the competition.
- 9) Tracking and Reporting: Record the energy use and carbon emissions of the tournament and report and publicize this data on a regular basis for continuous improvement and transparency.

## Methodology

### Reporting period

The reporting period is October 2023, including the preparation stage (3 months of remote preparation and 4 days of on-sight duties) and competition stage (10 - 15 October 2023).

### Data collection and emission factors

Activity data was collected from the organizer of the WBSC Youth Baseball World Cup 2023. The data inventory process aimed to collect data on the emission sources of activities with the highest potential for emissions during the reporting period. Assumptions and emission factors were selected conservatively and based on credible sources such as Ecoinvent, DEFRA database (UK Government GHG Conversion Factors for Company Reporting), the database of International Olympic Committee (Carbon Footprint Methodology for the Olympic Games), etc.

### Acronyms and abbreviations

CO <sub>2</sub> e	Carbon Dioxide Equivalent
GHG	Greenhouse Gas
GWP	Global Warming Potential

## Carbon Footprint

This chapter presents the carbon accounting results during the WBSC Youth Baseball5 World Cup 2023. Overall, emissions are concentrated from Scope 2 and Scope 3, accounting for 11.29% and 88.71% of the total emissions, respectively. Among all categories, **Business Travel**, **Purchased electricity**, **Purchased Goods and Services** are the top three emission sources (accounting for 78.5%, 11.29%, and 9.35% of the total emissions, respectively). This chapter presents emissions per scope, category, and facility/activity in detail.

### Emissions per scope

The emissions recorded during the WBSC Youth Baseball5 World Cup 2023 were displayed in **Table 1**, which were estimated to be 263.61 tCO<sub>2</sub>e. The majority of emissions came from Scope 3 emissions, totaling 233.86 tCO<sub>2</sub>e, which accounted for 88.71% of the total emissions. The remaining emissions, 29.75 tCO<sub>2</sub>e, were from Scope 2 emissions, accounting for 11.29% of the total emissions. There were no Scope 1 direct emissions during the WBSC Youth Baseball5 World Cup 2023.

Table 1 | Emissions per scope.

Scope	Emissions (tCO <sub>2</sub> e)	Percentage (%)
Scope 1: Direct GHG emissions	-	-
Scope 2: Indirect GHG emissions from purchased electricity, heating and cooling	29.75	11.29%
Scope 3: Other indirect GHG emissions	233.86	88.71%
<b>Total</b>	<b>263.61</b>	<b>100.00%</b>

The breakdown of emissions by category of each scope was shown in **Fig 1**. For Scope 2, emissions all came from Purchased electricity. For Scope 3, emissions come from Business Travel (78.5%), followed by Purchased Goods and Services (9.35%) and Commuting (0.86%).

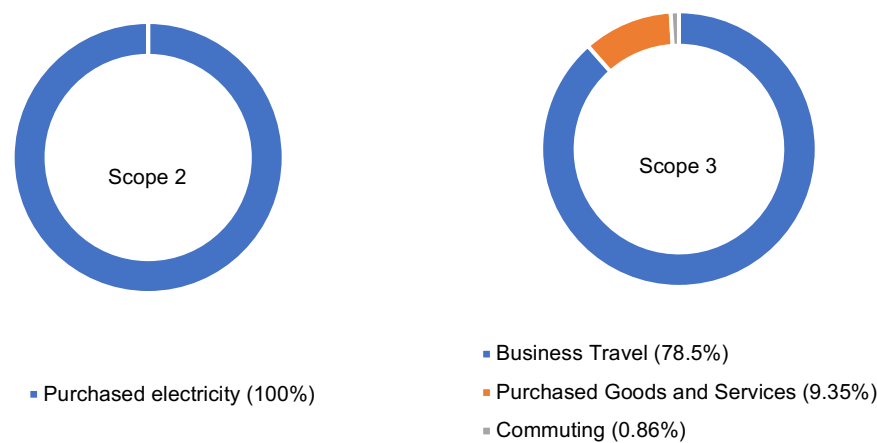


Figure 1 | Breakdown of emissions per scope<sup>1</sup>.

Emissions per category

The emissions per category are presented in **Fig 2**. Four categories were included in the WBSC Youth Baseball5 World Cup 2023, by descending order, which were Business Travel (206.93 tCO<sub>2</sub>e, accounting for 78.5% of the total emissions during the event), Purchased electricity (29.75 tCO<sub>2</sub>e, accounting for 11.29%), Purchased Goods and Services (24.65 tCO<sub>2</sub>e, accounting for 9.35%) and Commuting (2.26 tCO<sub>2</sub>e, accounting for 0.86%).

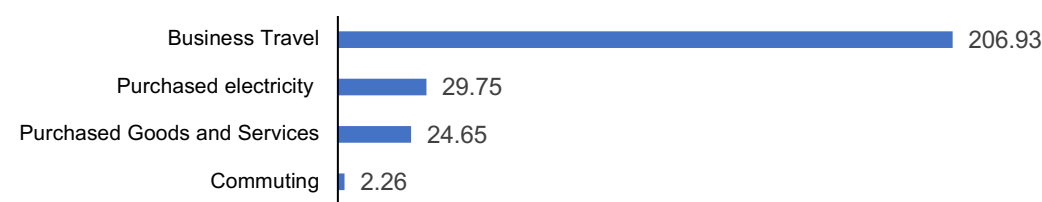


Figure 2 | Emission per category (Unit: tCO<sub>2</sub>e)

Hotspot emissions

The breakdown of emissions by emission source (facility/activity) is provided in **Table 2**. Emissions from the Participants Plane(long-haul) during the WBSC Youth Baseball5 World Cup 2023 contributed the highest emissions (181.2 tCO<sub>2</sub>e), accounting for 68.74% of the total emissions. Additionally, the Purchased electricity and Meal resulted in 29.75 tCO<sub>2</sub>e and 10.32 tCO<sub>2</sub>e emissions, respectively, accounting for 11.29% and 3.92% of the total

<sup>1</sup> As some figures are considerably small, they may be presented as “0.00” due to rounding. Figures may not add up to the totals due to rounding.



emissions.

### **Emissions reduction recommendation**

To further reduce the emissions, consider the following recommendations:

- a. Optimize locations for on-site competitions to minimize cross-regional travel for participants and spectators.
- b. Choose a green site: Look for sites with renewable power sources, efficient energy systems and sustainable building design. This helps to reduce reliance on traditional energy sources.
- c. Use energy-efficient equipment: Use energy-efficient appliances and equipment, such as energy-efficient computers, printers, and cooling systems; use LED lighting with automatic control systems that adjust brightness as needed to reduce energy consumption.
- d. Intelligent energy management: Use intelligent energy management systems to monitor and manage electricity consumption and ensure that unnecessary equipment is switched off during non-event periods of the competition.
- e. Adopt sustainable modes of transport: Encourage participants to use public transport, cycle or walk to get here and reduce car use. Provide convenient transport options such as shuttle bus services or bicycle parking facilities.
- f. Waste Reduction: Adopt biodegradable and recyclable tableware and packaging, set up waste recycling and composting stations to encourage waste separation and recycling.
- g. Digital publicity and information dissemination: Use digital means to disseminate race information, timetables, and results, and reduce the printing and distribution of paper-based publicity materials.
- h. Carbon Offsetting Scheme: Develop a carbon offsetting scheme for the carbon emissions of the competition, for example, through tree planting programs or supporting renewable energy projects to offset the carbon emissions generated by the competition.
- i. Tracking and Reporting: Record the energy use and carbon emissions of the tournament, report and publicize this data on a regular basis for continuous improvement and transparency.

Table 2 | Breakdown of GHG emissions during the WBSC Youth Baseball5 World Cup 2023

Facility / Activity	Emission Source	Emission (tCO <sub>2</sub> e)	Percentage (%)
<b>Scope 2: Purchased energy indirect GHG emissions</b>		29.75	11.29%
<b>Category: Purchased electricity</b>		29.75	11.29%
Electricity	Ecoinvent-electricity, low voltage-TR	29.75	11.29%
<b>Scope 3: Other indirect GHG emissions</b>		<b>233.86</b>	<b>88.71%</b>
<b>Category: Business Travel</b>		<b>206.93</b>	<b>78.5%</b>
Participants Plane(long-haul)	IOC-Air Travel - Long Haul-Economy	181.2	68.74%
Participants Plane(short-haul)	IOC-Air Travel - Short Haul-Economy	10.24	3.88%
Flight<5h	IOC-Air Travel - Short Haul-Economy	8.76	3.32%
Flight>5h	IOC-Air Travel - Long Haul-Economy	6.73	2.55%
<b>Category: Purchased Goods and Services</b>		<b>24.65</b>	<b>9.35%</b>
Meal	IOC- Food and beverage	10.32	3.92%
Hotel - medium hotel	Defra 2023, Hotel stay - Turkey	8.03	3.04%
Metals	IOC-Materials and waste	4.73	1.79%
FOOD	DEFRA-Food and drink	0.37	0.14%
Temporary structure	IOC-Materials and waste	0.27	0.10%
Cold or hot snack	IOC- Food and beverage	0.19	0.07%
non-alcoholic beverage	IOC- Food and beverage	0.16	0.06%
alcoholic beverage	IOC- Food and beverage	0.15	0.06%
Printed material - Polypropylene	Ecoinvent - polypropylene, granulate	0.11	0.04%
Printed material - Fabrics	Ecoinvent - fibre, polyester	0.06	0.02%
Plastics	IOC-Materials and waste	0.05	0.02%
Wood	IOC-Materials and waste	0.04	0.02%
Uniform	IOC-Materials and waste	0.04	0.01%
water	DEFRA-Water supply	0.04	0.01%
Temporary cover	IOC-Materials and waste	0.03	0.01%
Coffee and tea	IOC- Food and beverage	0.03	0.01%
Cabling	IOC- Food and beverage	0.03	0.01%
paper(virgin)	IOC-Materials and waste	0.01	0.00%
paper(recycled)	IOC-Materials and waste	0.01	0.00%
<b>Category: Upstream transport and distribution</b>		<b>0.02</b>	<b>0.01%</b>
Baseball equipment	DEFRA	0.02	0.01%
<b>Category: Commuting</b>		<b>2.26</b>	<b>0.86%</b>
Bus (45 seats)	DEFRA-Bus	2.13	0.81%
Organizer commuting	DEFRA-Cars	0.09	0.03%
Passenger van	DEFRA-Van	0.04	0.01%
Passenger Car	DEFRA-Cars	0.01	0.00%
<b>Total Emissions</b>		<b>263.61</b>	<b>100.00%</b>

**Annex I: Data Inventory**

Scope	Category	Facility / Activity	Emission source	Activity data		Emissions factor		
				Value	Unit	Value	Unit	Source
Scope 2: Direct GHG emissions								
Scope 1	Purchased electricity	Electricity	Ecoinvent-electricity, low voltage-TR	48600	kWh	0.61218	kgCO <sub>2</sub> e/kWh	Ecoinvent
Scope 3: Other indirect GHG emissions								
Scope 3	Business Travel	Participants Plane(long-haul)	IOC-Air Travel - Long Haul-Economy	1208000	Person*km	0.15000	kgCO <sub>2</sub> e/Person*km	IOC
Scope 3	Business Travel	Participants Plane(short-haul)	IOC-Air Travel - Short Haul-Economy	64000	Person*km	0.16000	kgCO <sub>2</sub> e/Person*km	IOC
Scope 3	Business Travel	Flight<5h	IOC-Air Travel - Short Haul-Economy	54720	Person*km	0.16000	kgCO <sub>2</sub> e/Person*km	IOC
Scope 3	Business Travel	Flight>5h	IOC-Air Travel - Long Haul-Economy	44880	Person*km	0.15000	kgCO <sub>2</sub> e/Person*km	IOC
Scope 3	Purchased Goods and Services	Meal	IOC- Food and beverage	2196	Item(s)	4.70000	kgCO <sub>2</sub> e/Item(s)	IOC
Scope 3	Purchased Goods and Services	Hotel - medium hotel	Defra 2023, Hotel stay - Turkey	780	l	0.20000	kgCO <sub>2</sub> e/l	IOC
Scope 3	Purchased Goods and Services	Metals	IOC-Materials and waste	250	unit	32.10000	kgCO <sub>2</sub> e/unit	IOC
Scope 3	Purchased Goods and Services	FOOD	DEFRA-Food and drink	250	kg	18.91000	kgCO <sub>2</sub> e/kg	DEFRA
Scope 3	Purchased Goods and Services	Temporary structure	IOC-Materials and waste	200	kg	0.17700	kgCO <sub>2</sub> e/kg	IOC
Scope 3	Purchased Goods and Services	Cold or hot snack	IOC- Food and beverage	100.27	kg	3.70100	kgCO <sub>2</sub> e/kg	IOC
Scope 3	Purchased Goods and Services	non-alcoholic beverage	IOC- Food and beverage	100	kg	2.65200	kgCO <sub>2</sub> e/kg	IOC

Scope 3	Purchased Goods and Services	alcoholic beverage	IOC- Food and beverage	100	kg	0.41000	kgCO <sub>2</sub> e/kg	IOC
Scope 3	Purchased Goods and Services	Printed material - Polypropylene	Ecoinvent - polypropylene, granulate	96	Item(s)	2.02000	kgCO <sub>2</sub> e/Item(s)	Ecoinvent
Scope 3	Purchased Goods and Services	Printed material - Fabrics	Ecoinvent - fibre, polyester	80	kg	0.36389	kgCO <sub>2</sub> e/kg	Ecoinvent
Scope 3	Purchased Goods and Services	Plastics	IOC-Materials and waste	78	l	1.87000	kgCO <sub>2</sub> e/l	IOC
Scope 3	Purchased Goods and Services	Wood	IOC-Materials and waste	50	kg	2.27146	kgCO <sub>2</sub> e/kg	IOC
Scope 3	Purchased Goods and Services	Uniform	IOC-Materials and waste	25	kg	2.16000	kgCO <sub>2</sub> e/kg	Ecoinvent
Scope 3	Purchased Goods and Services	water	DEFRA-Water supply	15	kg	4.23670	kgCO <sub>2</sub> e/kg	DEFRA
Scope 3	Purchased Goods and Services	Temporary cover	IOC-Materials and waste	15	kg	2.16000	kgCO <sub>2</sub> e/kg	IOC
Scope 3	Purchased Goods and Services	Coffee and tea	IOC- Food and beverage	9	kg	4.23871	kgCO <sub>2</sub> e/kg	IOC
Scope 3	Purchased Goods and Services	Cabling	IOC- Food and beverage	8.27	kg	3.70100	kgCO <sub>2</sub> e/kg	IOC
Scope 3	Purchased Goods and Services	paper(virgin)	IOC-Materials and waste	3.13	kg	1.62000	kgCO <sub>2</sub> e/kg	IOC
Scope 3	Purchased Goods and Services	paper(recycled)	IOC-Materials and waste	3.13	kg	1.62000	kgCO <sub>2</sub> e/kg	IOC
Scope 3	Upstream transport and distribution	Baseball equipment	DEFRA	121.77	t*km	0.13205	kgCO <sub>2</sub> e/t*km	DEFRA
Scope 3	Commuting	Bus(45 seats)	DEFRA-Bus	400	km	5.32000	kgCO <sub>2</sub> e/km	DEFRA
Scope 3	Commuting	Organizer commuting	DEFRA-Cars	640	km	0.14080	kgCO <sub>2</sub> e/km	DEFRA
Scope 3	Commuting	Passenger van	DEFRA-Van	133.33	km	0.27224	kgCO <sub>2</sub> e/km	DEFRA
Scope 3	Commuting	Passenger Car	DEFRA-Cars	66.67	km	0.14080	kgCO <sub>2</sub> e/km	DEFRA

Notes:

- 1) DEFRA database --- UK Government GHG Conversion Factors for Company Reporting
- 2) IOC database --- Carbon Footprint Methodology for the Olympic Games (International Olympic Committee)