CERTIFICATE ■ ZERTIFICAT ■ СЕРТИФИКАТ ■ شهادة ■ BELGE

VERIFICATION OPINION STATEMENT

TÜV SÜD Türkiye
Industry Service Division

certifies that the GHG Assertion reported by

Arçelik A.Ş.

Arçelik A.Ş.
Sütlüce, Karaağaç Cd No:2-6, 34445 Beyoğlu/İstanbul

Please see appendix for included sites & scope.

Contract No: **23-IS-0520a-34-C / 712925629**

Report No: **24-GR-0283**

An audit was performed and has a demonstrated that the requirements laid down by

ISO 14064-1:2018

are fulfilled.

Certificate and Appendix Registration No.: **24-SER-03478-IS_VOS**

Issue Date: **25.07.2024**
Revision date / Rev. No: **29.07.2024 / 01**

TÜV SÜD Türkiye
Industry Service Division

24-SER- 03478

Ayazağa Mahallesi, Mimar Sinan Sokak, No:21 Kat:1, Seba Ofis Bulvar, B Blok, 34396 • Sarıyer / İstanbul / Türkiye

APPENDIX

Base Year: 2022

Application Year: 2023

Categories opted for Demonstration:

☒ Category 1 ☒ Category 2 ☒ Category 3 ☒ Category 4

☒ Category 5 ☒ Category 6

Reporting Period: January 2023 to December 2023

	Market-based emissions (tCO_2e)	**Location-based emissions (tCO_2e)**
Category 1 – Direct GHG emission and removals:	**78,559**	**78,559**
Category 2 – Indirect GHG emissions from imported energy:	**-**	**89,762**
Category 3 – Indirect GHG emissions from transportation:	**386,559**	**386,559**
Category 4 – Indirect GHG Emissions from products used by organization:	**4,989,990**	**4,989,990**
Category 5 – Category 5 – Indirect GHG Emissions associated with the use of organizations products:	**26,673,327**	**26,673,327**
Category 6 – Indirect GHG emissions from other sources:	**49,973**	**49,973**
Total:	**32,178,408**	**32,268,170**

Anthropogenic Non-Biogenic GHG Emissions	**32,268,084**
Non-Anthropogenic Biogenic GHG Emissions	**83**
Anthropogenic Biogenic GHG Emissions (biofuel mobile combustion outside of scopes)	**3**

Project title	Annual Final Verification of GHG Assertion – Arçelik A.Ş. as per ISO 14064-1: 2018 and ISO 14064-3:2019
Name of the Client	Arçelik A.Ş.
Location	Sütlüce, Karaağaç Cd No:2-6, 34445 Beyoğlu/İstanbul
Base year	2022
Inventory year	2023
Reporting Period	1st January 2023 to 31st December 2023
Criteria	ISO 14064-1:2018 Greenhouse gases Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals ISO 14064-3:2019 Greenhouse gases Part 3: Specification with guidance for the verification and validation of greenhouse gas statements

Objective: The objectives of this audit were to:

- To determine the extent of conformity of Arçelik A.Ş. GHG emissions report with the applicable verification criteria ISO 14064-3 – Category 1, Category 2, Category 3, Category 4, Category 5, and Category 6, including the principles and requirements of ISO 14064-1.
- To assess the completeness of the organization's GHG inventory of GHG emissions.
- Evaluate the organization's GHG information system and its controls/management in preparing emission report.
- Confirm whether the GHG assertion is without material and whether the verification activities provide the level of assurance agreed to at the beginning of the verification process.

Level of Assurance Achieved:

"Reasonable"

Conclusion on the GHG assertion, including any qualifications or limitations (hypothetical, projected and/or historical in nature):

Whether there is

☒ evidence that the GHG assertion is materially correct and fair representation of the GHG data and information or that it has been prepared in accordance with the related international standard on GHG quantification, monitoring and reporting or to relevant national standards or practices.

☐ no evidence that the GHG assertion is materially correct and fair representation of the GHG data and information or that it has not been prepared in accordance with the related international standard on GHG quantification, monitoring and reporting or to relevant national standards or practices.

Register Nr/Kayıt No

24-GR-0283

Date/Tarih

25 July 2024

Türkiye

Değer katar.
Güven verir.

Customer/Müşteri

Arçelik A.Ş.

Title/Başlık

ISO 14064-1:2018 Verification Report

Report/Rapor No

23-IS-0520a-34-C-001

Türkiye

Report Nr / Rapor No. 23-IS-0520a-34-C-001 Rev. 00

Offer Nr / Teklif No	TGK Order Nr / Sipariş No	Register Nr / Kayıt No
23-IS-0520a-34-C	712925629	24 - GR - 0283

Report Title/Rapor Başlığı

ISO 14064-1:2018 Verification Report

Subject/Konu

Annual Verification of GHG Assertion - as per ISO 14064 1:2018 and ISO 14064-3:2019

Client/Müşteri : Arçelik A.Ş.

Client's P.O. No./Contract No. Müşteri Sip. No./ Sözleşme No : 23-IS- 0520a-34-C / 712925629

Client's Address/Müşterinin Adresi : Head Office: Sütlüce, Karaağaç Cd No:2-6, 34445 Beyoğlu/İstanbul

Prepared by/ Hazırlayan : Elif Odabaş Yeşilot

Approved by/Onaylayan : Mehmet Kumru

Department/Unit/Bölüm/Birim : Industry Service

Date of Report Issued/Raporun Yayın Tarihi : 25/07/2024

Revision Revizyon	**Date of Revision** Revizyon Tarihi	**Done by** Yapan	**Related Section** İlgili Kısım	**Reason** Nedeni
00	-	-	-	-

Table of Contents
İçindekiler Tablosu

Report Nr / Rapor No. 23-IS-0520a-34-C-001 Rev. 00

SUMMARY OF VERIFICATION

This report has been prepared regarding Arçelik's 2023 GHG inventory verification project.

Criteria: ISO 14064-1, ISO 14064-3

Inventory Period: 2023 (01.01.2023 - 31.12.2023)

Base year: 2022 (01.01.2022 - 31.12.2022)

Level of Assurance: "Reasonable"

Materiality threshold: 7%

Uncertainty level of inventory: 3.51%

Summary of Verification

Total emission verified: **32,268,170 tCO_2e**

Category	Market-based emissions (tCO_2e)	Location-based emissions (tCO_2e)
Category 1 – Direct GHG Emission and Removals:	78,559	78,559
Category 2 – Indirect GHG Emission from Imported Energy:	0	89,762
Category 3 – Indirect GHG Emission from Transportation:	386,559	386,559
Category 4 – Indirect GHG Emissions from Products used by Organization:	4,989,990	4,989,990
Category 5 – Indirect GHG Emissions associated with the use of Organizations Products:	26,673,327	26,673,327
Category 6 – Indirect GHG Emissions from Other Sources:	49,973	49,973
Total	**32,178,408**	**32,268,170**

Anthropogenic Non-Biogenic GHG Emissions	32,268,084
Non-Anthropogenic Biogenic GHG Emissions	83
Anthropogenic biogenic GHG emissions (biofuel mobile combustion outside of scopes)	3

☒ Qualified Verification

☐ Adverse verification opinion (due to non-conformance with regulation and/or material misstatement)

☐ Disclaimer of opinion.

Changes in the organization since last assessment

There is no significant change of the organization structure and key personnel involved in the audited management system.

No change in relation to the audited organization's activities, products or services covered by the scope of certification was identified.

There was no change to the reference or normative documents which is related to the scope of certification.

Next Steps

NCR close out process

There were no outstanding nonconformities to review from previous assessments.

No new nonconformities were identified during the assessment. Enhanced detail relating to the overall assessment findings is contained within subsequent sections of the report.

Verification objective, scope and criteria

Objective

The objectives of this audit were to:

- Confirm whether the GHG assertion is without material and whether the verification activities provide the level of assurance agreed to at the beginning of the verification process, and
- Determine the extent of conformity of Annual Final Verification of GHG Assertion –Arçelik A.Ş. as per ISO 14064-1:2018 and ISO 14064-3:2019.

Scope

The scope of the assessment is the documented management system with relation to the requirements of ISO 14064 and the defined assessment plan provided in terms of locations and areas of the system and organization to be assessed.

Criteria

ISO 14064-1:2018, ISO 14064-3:2019, Arçelik GHG management system documentation

List of Participants

Date: 13/05/2024
Location: Sütlüce/İstanbul

Name	Department/Position	Opening Meeting	Closing Meeting	Interviewed (processes)
Zeynep Özbek	Environment Manager	x	x	x
Elif Özkan	Technical Leader-Environmental Sustainability	x	x	x
Atahan Eyicil	Specialist-Environment	x	x	x
Şevval Turan	Engineer-Environment	x	x	x
Buğra Arslan	Engineer-Environment	x	x	x
Cansu Duman Öztürk	Senior Specialist -Environment, Production (Arçelik Eskişehir)			x

Assessment Conclusion

TÜV SÜD Assessment Team

Name	Position
Mehmet Kumru	Team Leader
Elif Odabaş Yeşilot	Team Member

Assessment conclusion and recommendation

As a result of the verification process, the opinion of TÜV SÜD with "reasonable" assurance is as follows:

Greenhouse gas emission is **32,268,170** tons CO_2 equivalent between 01/01/2023 and 31/12/2023.

Direct greenhouse gas emission is **78,559** tons CO_2e, Indirect greenhouse gas emission is **32,189,611** tons CO_2e.

DIRECT GREENHOUSE GAS EMISSIONS		
Category 1 – Direct GHG emission and removals:	78,559	tCO_2e
INDIRECT GREENHOUSE GAS EMISSIONS		
Category 2 – Indirect GHG emissions from imported energy*: *Market-based: 0* tCO_2e *Location-based:* 89,762 tCO_2e	89,762	tCO_2e
Category 3 – Indirect GHG emissions from transportation:	386,559	tCO_2e
Category 4 – Indirect GHG Emissions from Products used by Organization:	4,989,990	tCO_2e
Category 5 – Category 5 – Indirect GHG Emissions associated with the use of Organizations Products:	26,673,327	tCO_2e
Category 6 – Indirect GHG Emissions from Other Sources:	49,973	tCO_2e
TOTAL	**32,268,170**	**tCO_2e**

**According to Arçelik's Category 2 calculation methodology, emissions for locations where energy consumption is certified as being sourced from renewable sources are reported as '0' under 'Category 2-market-based.' Besides, emissions resulting from energy supplied from the grid that is not certified as renewable are reported under 'Category 2-location-based.*

Anthropogenic Non-Biogenic GHG Emissions	32,268,084	tCO_2e
Non-Anthropogenic Biogenic GHG Emission (1.4 + 6.2)	83	tCO_2e
Anthropogenic biogenic GHG emission (biofuel mobile combustion outside of scopes)	3	tCO_2e

Verification Opinion: Verified as Satisfactory

The audit objectives have been achieved and the certificate scope remains appropriate. The audit team concludes based on the results of this audit that the organization does fulfil the standards and audit criteria identified within the audit report and it is deemed that the management system continues to achieve its intended outcomes.

Based on the process and procedures conducted, there is no evidence that the GHG report 2023 produced by Arçelik A.Ş.:

- is not materially correct and is not a fair representation of GHG data and information;
- has not been prepared in accordance with ISO14064-1:2018

Verification Activities:

The following were the verification activities undertaken:

- Evaluation of the monitoring and controls systems through interviewing employees observation & inquiry
- Verification of the data through sampling recalculation, retracing, cross checking, reconciliation

The quantification and reporting of the carbon footprint have been independently verified by TÜV SÜD against the specifications defined in ISO 14064-1:2018. The verification activity has been carried out in accordance with ISO 14064-3:2019.

Assurance level:

"Reasonable"

Materiality threshold:

The materiality required of this verification was considered by TÜV SÜD to be below 7% for direct and indirect emission coverage.

Uncertainty level of inventory: 3.51%

Findings from this assessment

Organizational boundaries

Within the scope of the Greenhouse Gas Inventory, Arçelik has adopted a control approach to combine greenhouse gas emissions and removals.

Within this scope, 25 campus areas under the operational control of ARÇELİK, including headquarter in Turkey and production facilities in Turkey, Romania, Pakistan, South Africa, Thailand, China, India and Bangladesh are included. Arçelik's GHG inventory covers its joint ventures as of 2022.

Reporting Boundaries

Emissions generated during the operations are examined in 6 categories.

Category 1 – Direct GHG Emission and Removals:

- Stationary combustion
- Mobile combustion
- Chemicals
- Biological wastewater treatment plant

Category 2 – Indirect GHG Emission from Imported Energy:

- Purchased energy & renewable energy certificates

Category 3 – Indirect GHG Emission from Transportation:

- Product transportation (Downstream transportation)
- Raw material- Material transportation
- Business travels
- Employee commuting
- Downstream leased assets (warehouses)

Category 4 – Indirect GHG Emissions from Products used by Organization:

- Raw Materials and Materials Used in the Product
- Capital Goods

Category 5 – Indirect GHG Emissions associated with the use of Organizations Products:

- Product use phase

Category 6 – Indirect GHG Emissions from Other Sources:

- Biological wastewater treatment plant (not own WTP)
- Product end of life
- Product packaging waste
- Production wastes
- Investments
- Fuel and Energy-related activities not included in Scope 1 or Scope 2

Calculation Methodology

Calculation methodologies are mainly based on the IPCC Standard (2006 and 2019 versions).
The emission factors of main GHGs are taken from IPCC AR6.

Since the "m3" values in the invoices are taken into account for natural gas consumption translations, the lower heating values of the energy sources are used. Natural gas and Fuel Oil No:4 sub-thermal values are taken from the Regulation on Increasing Efficiency in the Use of Energy Resources and Energy / Annex-2, Table of Sub-thermal Values of Energy Resources and Conversion Coefficients to Oil Equivalent.

Electricity emission factor is taken from "IEA 2022" data set. CO2, CH4 and N2O emission factors for enterprises using renewable energy were entered as "0" (zero) after confirmation from suppliers. Emissions for locations where energy consumption is certified as being sourced from renewable sources are calculated with an emission factor of “0” under "Category 2-market-based." Emissions resulting from energy supplied from the grid-where renewable certification is not provided- are reported under "Category 2-location-based" using the emission factor from the IEA.

The methodologies selected for Arçelik greenhouse gas emission sources, greenhouse gas emission calculations for each campus and campus-specific emission amounts have been prepared and consolidated on a campus basis.
The method of determining greenhouse gas emission sources on a campus basis, data collection systematics, protection, consolidation, and review of information are specified in the campus greenhouse gas inventory instructions.
The activity data of all campuses within the scope of the GHG emission inventory are digitally reported through the Qlik Sense Atlas Platform and GHG emissions are digitally calculated through the same platform. Emission factors and calculations are embedded in this digital platform.

Greenhouse gases covered include the six (6) greenhouse gases covered by the Kyoto Protocol ISO 14064-1:2018, which are;

CO2 carbon dioxide

CH4 methane

N2O nitrous oxide

HFCs hydrofluorocarbons

PFCs perfluorocarbons

SF6 sulphur hexafluoride

Excluded Emission Sources:

- Emissions from food and beverage vending machines, soft drink cabinets, water dispensers, bank branches, helicopter building, equipment not belonging to Arçelik within the campus area are excluded.
- Cafeteria, canteen services, bank branches and cleaning subcontractor services are excluded.

These activities use electricity from the same grid within the campus boundaries and their natural gas consumption is included in the campus consumption, but not invoiced separately. Since it is not possible to separate the consumption, greenhouse gas emissions from the energy consumed in these areas are included in the campus-wide greenhouse gas emissions.

GHG Emissions by subcategories & locations

Total GHG emissions by subcategories is given below.

GHG Emission Category	Arçelik Global Total	AHHA	Arcelik	ArcelikLG	Arctic	BekoLLC	BekoThai	Dawlance	Defy	IHP	Singer	Voltbek
Category 1.1 – Stationary Combustion	**48,736**	2,718	24,789	1,020	3,201	8,124	1	4,321	1,603	2,143	793	23
Category 1.2 – Mobile Combustion	**8,938**	548	4,330	185	1,430	768	281	328	820	79	98	70
Category 1.3 - Chemicals	**20,850**	151	3,769	8,293	798	19	409	6,161	249	545	217	240
Category 1.4 own WTP	**35**	12	17	-	0	5	-	0	-	-	-	1
Category 2 – Purchased Energy	**89,762**	19,174	-	-	-	8,776	3,012	7,902	21,194	19,480	1,067	9,156
Category 3 – Downstream Transportation	**163,945**	4,421	105,960	1,391	7,493	9,253	12,024	6,801	784	8,960	293	6,565
Category 3 - Raw Material-Material Transportation	**101,539**	406	61,042	13,162	9,906	4,149	676	438	5,038	5,064	730	929
Category 3 – Business Travels	**3,758**	317	2,008	112	77	237	28	298	296	78	29	278
Category 3 – Employee Commuting	**87,018**	867	52,443	2,820	8,146	10,950	8,472	3,217	-	-	34	69
Category 3 – Downstream Leased Assests	**30,299**	-	-	-	-	-	-	-	-	-	-	-
Category 4 - Raw Materials and Materials Used in the Product	**4,726,308**	456,432	2,812,766	253,192	454,682	200,609	25,883	98,829	113,729	224,285	47,130	38,770
Category 4 - Capital Goods	**263,682**	-	-	-	-	-	-	-	-	-	-	-
Category 5 – Product Use Phase	**26,673,327**	2,926,028	15,233,539	-	1,538,952	952,807	282,322	1,232,423	1,974,230	1,283,066	579,928	670,032
Category 6.1 Not own WTP	**48**	1	37	1	1	-	1	-	2	4	-	-
Category 6.2 – Product end of life	**22,345**	955	15,424	841	2,812	682	67	355	310	702	129	69
Category 6.3 - Product	**1,593**	52	1,140	63	113	32	12	56	42	48	17	17

Packaging Waste												
Category 6.4 - Production Wastes	**5,152**	346	3,324	215	-	358	16	194	388	220	53	37
Category 6.5 - Investments	**2,361**	-	-	-	-	-	-	-	-	-	-	-
Category 6.5 - Fuel- and Energy-Related Activities Not Included in Scope 1 or Scope 2	**18,474**	-	-	-	-	-	-	-	-	-	-	-
Total emission (ton CO2e)	**32,268,170**	**3,412,431**	**18,320,588**	**281,294**	**2,027,611**	**1,196,769**	**333,203**	**1,361,321**	**2,118,685**	**1,544,674**	**630,518**	**726,257**

GHG Emission Category	**Arçelik Global Total**	**AHHA**	**Arcelik**	**ArcelikLG**	**Arctic**	**BekoLLC**	**BekoThai**	**Dawlance**	**Defy**	**IHP**	**Singer**	**Voltbek**
Anthropogenic Non-Biogenic GHG Emissions	**32,268,084**	3,412,418	18,320,535	281,292	2,027,610	1,196,764	333,200	1,361,321	2,118,683	1,544,671	630,518	726,256
Non-Anthropogenic Biogenic GHG Emission (1.4 + 6.2)	**83**	13	54	1	1	5	1	0	2	4	-	1
Anthropogenic biogenic GHG emission (biofuel mobile combustion outside of scopes)	**3**	-	-	-	-	-	2	-	-	-	-	-
Total (ton CO2e)	**32,268,170**											

Renewable energy certificates:

Organization Name	Adress	Source	Consumption Volume (MWh)	Consumption Start Date	End Date
Arçelik A.Ş. Beylikdüzü Kampüs	Beylikdüzü / Istanbul-Avrupa	Hydropower	3,881	1.01.2023	31.12.2023
Arçelik A.Ş. Beylikdüzü Kampüs	Beylikdüzü / İstanbul-Avrupa	Hydropower	520	1.01.2023	31.12.2023
Arçelik A.Ş. Buzdolabı İşletmesi	Odunpazarı / Eskişehir	Hydropower	71,147	1.01.2023	31.12.2023
Arçelik A.Ş. Çamaşır Makinası İşletmesi	Tuzla / Istanbul-Asya	Hydropower	46,366	1.01.2023	31.12.2023
Arçelik A.Ş. Elektrik Motorları İşletmesi	Çerkezköy / Tekirdağ	Hydropower	4,350	1.01.2023	31.12.2023
Arçelik A.Ş. Elektronik İşletmesi	Çerkezköy / Tekirdağ	Hydropower	10,056	1.01.2023	31.12.2023
Arçelik A.Ş. Kurutucu İşletmesi	Çerkezköy / Tekirdağ	Hydropower	7,538	1.01.2023	31.12.2023
Arçelik A.Ş. Manisa Kampüs	Manisa Merkez / Manisa	Hydropower	19,050	1.01.2023	31.12.2023
Arçelik A.Ş. Pişirici Cihazlar İşletmesi	Bolu Merkez / Bolu	Hydropower	28,061	1.01.2023	31.12.2023
Arçelik A.Ş. Sütlüce Genel Müdürlük	Beyoğlu / Istanbul-Avrupa	Hydropower	2,089	1.01.2023	31.12.2023
Arçelik A.Ş. Bulaşık Makinası İşletmesi	Sincan / Ankara	Hydropower	16,992	1.01.2023	31.12.2023
Arçelik-LG Klima San. ve Tic. A.Ş	Gebze / Kocaeli	Hydropower	10,079	1.01.2023	31.12.2023
Arçelik Pazarlama A.Ş.	Beyoğlu / İstanbul-Avrupa	Hydropower	1,353	1.01.2023	31.12.2023
Artic Gaesti 2023			2,474.27		
Artic Ulmi 2023			1,045.81		

Findings

No new nonconformities were identified during the assessment. One area for improvement has been identified. The methodology used for distinguishing between location-based and market-based emissions in Category 2 can be reviewed in accordance with the GHG Protocol Scope 2 guidance.

Appendix 1 – Verification Plan

Contract No.	23-IS-0520a-34-C / 712925629
Audit Type:	**Verification:** Annual Verification of GHG Assertion - as per ISO 14064 1:2018 and ISO 14064-3:2019
Criteria:	ISO 14064-1:2018 ISO 14064-3:2019
Customer / Client:	Arçelik A.Ş.
Project Name:	Annual Verification of GHG Assertion - as per ISO 14064 1:2018 and ISO 14064-3:2019
Project Contact Person:	Elif Özkan elif.ozkan@beko.com
Project Team:	Team leader/ Lead Verifier: Mehmet Kumru Val/Verifier: Elif Odabaş Yeşilot
Audit Date:	13/05/2024
Language:	Turkish

Appendix 2 – Emission Factors Reference List

Category	EF Reference
Stationary combustion (Diesel, Fuel Oil, Natural Gas, LPG, Motor Gasoline)	• IPCC 2006, Energy- SC- Table 2.3.
Mobile combustion (Diesel, Gasoline/Petrol, LPG, LNG, CNG, Biodiesel, Bioethanol, Diesel (comes from Biodiesel content), Gasoline/Petrol (comes from Bioethanol content), Lawn movers Diesel&Gasoline/Petrol, Bobcat Gasoline/Petrol&Diesel)	• IPCC 2006, Energy- MC Table 3.2.1, Table 3.2.2 • DEFRA 2022
OD(Acetylene, Propane, CO2=(Argoshield), CO2-fire extinguisher, R134a ,R407a, R406a R407c, Butane, R404a, R410a, R227ea, R290, R22/HCFC22, R32/HFC32, R600, R600a, SF6 R450a, Industrial Oil	• Aceytylene Stoiciometric Hesap:3.38 • https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter07_SM.pdf • DEFRA 2022 v.2.0 • Annex 4, Table 1, r450a, http://documents.worldbank.org/curated/en/867801484560191841/pdf/SFG2842-V2-EA-P152232-Box402872B-PUBLIC-Disclosed-1-12-2017.pdf
Electricity	• IEA 2022
Heat & steam	• Heat and Steam, Onsite&District, DEFRA 2022 v.2.0
Renewable electricity production at site, Solar	• Solar Renewable, Emission Factor=0
Raw Materials and Materials Used in the Product	• Ecoinvent, Simapro • DEFRA 2022 v.2.0 • EPA 2022, Table 8
Downstream export & import logistics	• EPA 2022, Table 8
Upstream export &import logistics	• EPA 2022, Table 8
Business travels	• DEFRA 2022 v.2.0
Employee Commuting	• DEFRA 2022 v.2.0

Appendix 3 – Verification Protocol – corrective action requests, clarifications, reporter's response and verifier's conclusions

Clarifications and corrective action requests by verification team	Reference criteria	Response by project/facility owner	Conclusion by Verification Team
-	-	-	-