



IC ENTERRA 2022 GREENHOUSE GAS CALCULATION

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Escarus - TSKB Sürdürülebilirlik Danışmanlığı A.Ş.

1 PURPOSE AND SCOPE

The greenhouse gas calculation report for IC Enterra covers the following 9 locations:

- Bağıstaş-1 Hydroelectric Power Plant (BGS)
- Kadıncık-1 Hydroelectric Power Plant (KAD-1)
- Kadıncık-2 Hydroelectric Power Plant (KAD-2)
- Çileklitepe Hydroelectric Power Plant (CLK)
- Üçharmanlar Hydroelectric Power Plant (UHR)
- Niksar Hydroelectric Power Plant (NKS)
- Yukarı Mercan Hydroelectric Power Plant (YKM)
- Üçhanlar Hydroelectric Power Plant (UHN)
- Kemerçayır Hydroelectric Power Plant (KMR)

Based on IC Enterra's 2022 operational data, Scope 1 and Scope 2 greenhouse gas emissions have been calculated (Scope 3 emissions are excluded from this assessment). This calculation has been carried out as part of the sustainability strategy of IC Holding and its relevant subsidiaries, with the aim of measuring and managing the company's impact on climate change.

2 GREENHOUSE GAS EMISSIONS ANALYSIS

Greenhouse gas (GHG) emissions are categorized into three sub-classes: Scope 1, Scope 2, and Scope 3.

Scope 1 (Direct Emissions): These are emissions released from sources owned or directly controlled by an organization. IC Enterra's Scope 1 calculation includes GHG emissions from company vehicles, generators, refrigeration systems, and HVAC and fire suppression systems.

Scope 2 (Energy Indirect Emissions): These are emissions resulting from the generation of purchased electricity, heat, or steam consumed by the organization. These emissions originate from externally sourced energy commodities, such as purchased electricity.

Scope 3 (Other Indirect Emissions): These are indirect emissions that occur in the value chain of the organization, arising from sources not owned or directly controlled by it and excluding energy. These emissions are generated from upstream or downstream activities. Scope 3 emissions are not included in this GHG calculation.

The most widely used methodological approach for GHG accounting involves collecting activity data for each scope and multiplying these data by appropriate emission factors that quantify emissions per unit of activity.

Accordingly, activity data are multiplied by emission factors to calculate the results as carbon dioxide equivalent (CO₂e). For other GHGs such as methane (CH₄), nitrous oxide (N₂O), chlorofluorocarbons (CFCs), and hydrofluorocarbons (HFCs), activity data are also multiplied by relevant emission factors, and each gas’s emission value is calculated as CO₂e.

2.1 Key Assumptions

For the 2022 reporting period, the activity data within the scope of the inventory were provided by IC Enterra. The greenhouse gas (GHG) emissions inventory calculations were carried out using references such as the Greenhouse Gas Protocol (GHG Protocol), IPCC Assessment Reports, and ISO 14064 standards. The key assumptions made in the GHG calculation are presented below:

- In addition to CO₂, other significant gases specific to the activities, such as CH₄ and N₂O, were also included in the emission calculations.
- The global warming potential (GWP) values used were: CH₄ = 28 CO₂e, and N₂O = 265 CO₂e, based on IPCC data.
- For electricity-related GHG emission factors, the national average emission factor presented in the “Turkey National Electricity Grid Emission Factor Information Form” published by the Ministry of Energy and Natural Resources was used as a reference.
- The sources included in the GHG inventory calculation and the corresponding greenhouse gases they produce are presented in the table below.

Table 1: Sources Included in the Greenhouse Gas Inventory Calculation

Scope	Emission Sources	Greenhouse Gases
Scope 1	Company Vehicles (Diesel – Gasoline)	CO ₂ , CH ₄ , N ₂ O
	Generator (Diesel)	CO ₂ , CH ₄ , N ₂ O
	Cooling Systems and Air Conditioning (Refrigerant Gas)	HFC (s)
	Fire Extinguishers (Suppressant Gas)	HFC (s), FM200, CO ₂
Scope 2	Electricity Purchased from the Grid	CO ₂ , CH ₄ , N ₂ O

2.2 Greenhouse Gas Emissions

IC Enterra’s greenhouse gas emissions are presented in Table 2 and Table 3 for Scope 1 and Scope 2, respectively. Scope 1 (direct) emissions from mobile combustion (company vehicles), cooling systems and air conditioning, and fire extinguishers (suppressant gases) were calculated as 136.225 tons of CO₂e in 2022. Scope 2 emissions resulting from electricity consumption were calculated as 1,622.511 tons of CO₂e in 2022. As a result, the total greenhouse gas emissions for the year 2022 were calculated to be 1,758.736 tons of CO₂e.

Table 2: Greenhouse Gas Emissions by Source

Scope	Activity Data	BGS (ton CO₂e)	KAD-1 (ton CO₂e)	KAD-2 (ton CO₂e)	CLK (ton CO₂e)	UHR (ton CO₂e)	NKS (ton CO₂e)	YKM (ton CO₂e)	UHN (ton CO₂e)	KMR (ton CO₂e)	Total Emission (ton CO₂e)
Scope1	Private Vehicle	13,785	7,775	6,029	18,293	11,659	10,324	7,978	8,528	2,742	87,114
Scope1	Generator	1,074	4,640	2,685	5,639	2,323	0,846	0,671	9,251	11,112	38,241
Scope1	Refrigerant Gas	6,610	0,785	0,183	0,336	0,140	0,421	0,097	0,618	0,264	9,460
Scope1	Fire extinguishers	1,293	0,043	0,053	0,003	0,003	0,016	0,003	0,004	0,002	1,410
Scope2	Electricity	374,484	175,071	263,527	35,396	7,261	122,485	54,471	292,038	297,778	1,622,511
TOTAL		397,240	188,321	272,490	59,667	21,385	134,091	63,220	310,438	311,888	1,758,736

Table 3: Distribution of Greenhouse Gas Emissions by Source

Scope	Activity Data	BGS (%)	KAD-1 (%)	KAD-2 (%)	CLK (%)	UHR (%)	NKS (%)	YKM (%)	UHN (%)	KMR (%)	Total Emission (%)
Scope1	Private Vehicle	3,470	4,129	2,220	30,659	54,517	7,700	12,619	2,747	0,870	4,953
Scope1	Generator	0,270	2,464	0,985	9,451	10,861	0,631	1,062	2,980	3,563	2,174
Scope1	Refrigerant Gas	1,664	0,417	0,067	0,564	0,656	0,314	0,153	0,199	0,085	0,538
Scope1	Fire extinguishers	0,325	0,023	0,020	0,004	0,012	0,012	0,005	0,001	0,001	0,080
Scope2	Electricity	94,271	92,964	96,720	59,323	33,953	91,344	86,170	94,073	95,476	92,254
TOTAL		100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000

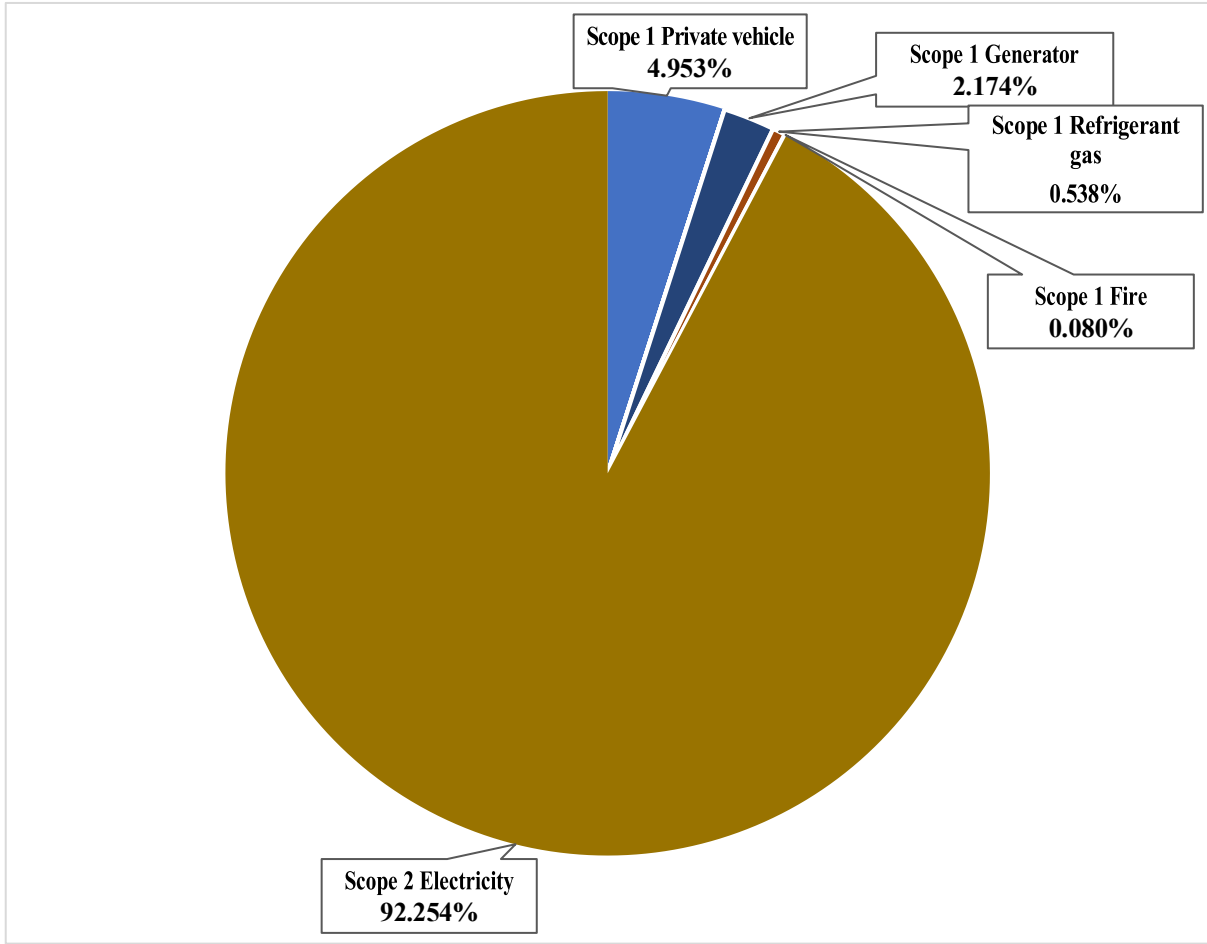


Figure 1: Distribution of Greenhouse Gas Emissions

3 CONCLUSION

The total emissions for IC Enterra during the 2022 operational period were calculated as 1,758.736 tons of CO₂e.

The emissions for each individual power plant are summarized in the table below.

Table 4: Greenhouse Gas Emissions by Power Plant

Power Plant	Total Emission (ton CO ₂ e)
Bağıştaş-1 Hydroelectric Power Plant (BGS)	397,240
Kadıncık-1 Hydroelectric Power Plant (KAD-1)	188,321
Kadıncık-2 Hydroelectric Power Plant (KAD-2)	272,490
Çileklitepe Hydroelectric Power Plant (CLK)	59,667
Üçharmanlar Hydroelectric Power Plant (UHR)	21,385
Niksar Hydroelectric Power Plant (NKS)	134,091
Yukarı Mercan Hydroelectric Power Plant (YKM)	63,220
Üçanlar Hydroelectric Power Plant (UHN)	310,438
Kemerçayır Hydroelectric Power Plant (KMR)	311,888