



EURid Carbon footprint 2020

Assessment Period: 1st January 2020 – 31st December 2020

REVIEW	DATE	CHANGES	DRAFTING AND CHECKING
REV 00	30/05/2021		Giovanni Seppia

00. INDEX

- 01. EURid GOES EVEN MORE GREEN // 3
- 02. EURid COMPANY OVERVIEW// 3
- 03. ENVIRONMENTAL POLICY // 6
- 04. LEGISLATIVE FRAMEWORK // 7
- 05. QUANTIFICATION OF CARBON FOOTPRINT // 7
 - a. *Goal of the study // 7*
 - b. *Scope of the study // 8*
 - c. *Functional unit // 8*
 - d. *System boundaries // 8*
 - e. *Cut-off criteria // 9*
 - f. *Sensitive analysis // 10*
 - g. *Data quality // 10*
 - h. *Uncertainty level // 10*
 - i. *Allocation procedure // 12*
- 06. ANALYSIS OF LIFE CYCLE INVENTORY // 12
 - a. *Paper consumption // 12*
 - b. *Electricity consumption // 14*
 - c. *Heating and air conditioning // 15*
 - d. *Transport // 15*
 - e. *Losses of refrigerant // 16*
 - f. *IT equipment // 17*
- 07. INVENTORY RESULTS // 17
- 08. LIFE CYCLE IMPACT ASSESSMENT // 17
 - a. *Impact category // 17*
 - b. *Carbon footprint life-cycle // 18*
- 09. CONCLUSIONS // 19
- 10. ENVIRONMENTAL PROGRAMME 2021-2023 (ABSTRACT)// 20
- 11. ACRONYMS // 21

01. EURid GOES EVEN MORE GREEN IN 2020

Dear colleagues, business partners, and customers,

There is one element that continues to set us apart from our industry peers: our commitment to becoming a fully environmentally friendly company. Following our EMAS registration in 2012 and the compensation for our CO₂ emissions every year starting from 2013, we have assessed the CO₂ emissions in 2020 and plan to offset them in full.

Our actions are guided by specific principles which prove that even cyberspace can be managed in a sustainable manner. Our environmental policy is based on the principle of 'reduce, reuse and recycle' and a framework that promotes the value of making sustainable choices.

This is our commitment to the environment and our contribution to a greener Internet ecosystem.

Kind regards,

Marc Van Wesemael
EURid's General Manager

02. EURid COMPANY OVERVIEW

EURid, the European Registry of Internet Domain Names, manages the .eu top-level domain and its variants in other scripts, from now on .eu TLD, under contract to the European Commission.

The headquarters is located in Diegem near Brussels, Belgium. Local presences are in Prague, Pisa and Stockholm.

HEADQUARTERS	N. EMPLOYEES	Offices SQM
DIEGEM	44	860
LOCAL PRESENCE		
STOCKHOLM	2	8
PRAGUE	5	180
PISA	3	170 – 25,5
Total	55	1,218 – 1,073.5

EURid employees provide online and telephone support in all official EU languages.

HISTORY

In 1999, the European Council began discussing a single top-level domain for Europe. After several years of consideration, the European Commission appointed EURid as the operator of the .eu registry in May 2003. The .eu domain was added to the root zone of the Internet Domain Name System in March 2005. EURid began accepting applications for .eu domain names, on a limited basis, in December 2005. This introductory period was known as Sunrise. General registration began in April 2006. Following the response to an EU call for expression of interest, in April 2014 EURid was confirmed as the registry manager of the .eu top-level domain for the five years. The European Commission's Decision (2014/207/EU) is published in the Official Journal of the European Union (L109 of 2014). The Contract was renewed in 2019 until 13 October 2022.

STRUCTURE

EURid vzw is incorporated under Belgian law as a private not-for-profit company since 8 April 2003.

Below are its current members:

Member Name	Activity
Arnes	Academic Research Network of Slovenia ccTLD Registry for .si www.arnes.si
Business Europe	Organisation representing the industrial and employers' federations of 41 countries (incl. all EU countries) www.businesseurope.eu
CEPIS	Council of European Professional Informatics Societies https://www.cepis.org
CZ.NIC	ccTLD Registry for .cz www.nic.cz
DNS BE	DNS Belgium ccTLD Registry for .be www.dnsbelgium.be
ECOMMERCE EUROPE	Association representing 100,000+ companies selling goods and/or services online to consumers in Europe www.ecommerce-europe.eu
ECTA	European Communities Trademark Association www.ecta.eu
EUROCONSUMERS	Consumer Organisation in Europe https://www.euroconsumers.org/
IAB Europe	Interactive Advertising Bureau Europe www.iabeurope.eu
IIT-CNR	Istituto di Informatica e Telematica ccTLD Registry for .it www.nic.it
SME UNITED	SMEunited, formally known as UEAPME, is the association of crafts and SMEs in Europe https://smeunited.eu

The purpose of the company is to organise, manage, and control the .eu top-level domain (and its variants in other scripts) in the common interest, based on the principles of quality, efficiency, dependability, and accessibility on the basis of EC Regulations 2002/733, 2004/874 and their subsequent amendments.

EURid HEADQUARTERS GENERAL INFORMATION	
NAME	EURID vzw
E-MAIL	INFO@EURID.EU
WEBSITE	WWW.EURID.EU
GENERAL MANAGER	MARC VAN WESEMAEL
EMS RESPONSIBLE	GIOVANNI SEPPIA

KEY CHANGES in 2020

On 1 July 2020 the Pisa local presence moved to a co-working space at "Officine Garibaldi", managed by PAIM, Cooperativa Sociale, Via Gioberti 39, 56124 Pisa. EURid Srl occupies an enclosed space for office use of 25.50 m³ located on the first floor, marked with the number 6.

The use of the office includes utilities relating to electricity, hot/cold air conditioning, office cleaning, and the Internet connectivity. The use of common toilets is also included, and the property manager is responsible for internal and external cleaning of the property and the office itself, complete ordinary and extraordinary maintenance, and the concierge service. The entire property consists of a total of 3,000 m³ distributed over two main floors, with common areas such as the library and auditorium featuring facades of high-performance windows, and is built based on the following environmental sustainability criteria:

- Class A energy certification;
- The presence of a geothermal heat pump;
- A mainly radiant air conditioning system;
- A photovoltaic system;
- A home automation system for managing and controlling the internal microclimatic and lighting settings.

Direct consumption of water and electricity cannot be quantified for the new Pisa site. Therefore, the consumption for the Pisa site shown in this report refers to the Borgo Stretto office till the 30th of June. In the new office, electricity, heating and refrigerants are included in the rent and it is therefore not possible to obtain specific consumption data. These data have been estimated, by doubling consumption of the first half-year.

EURid'S NUMBERS : 8 SENIOR MANAGERS

- General Manager
- External Relations Manager
- Finance Manager
- Human Resources Manager
- Legal Manager
- Technical Manager
- Security Manager
- Innovation Manager



OVER 3.6 MILLION REGISTERED .EU DOMAIN NAMES

03. ENVIRONMENTAL POLICY

'Twenty milligrams. That's the average quantity of carbon emissions generated in the time it takes to read the first two words of any webpage'.

(2009 Harvard University Study

<http://edition.cnn.com/2009/TECH/science/07/10/green.internet.CO2/>)

EURid, the European Registry of Internet Domain Names, manages the .eu TLD under a Service Concession Contract with the European Commission.

Since 2011 we have been working to reduce the environmental impact of our activities. We believe that even Internet companies must become greener and compensate their CO2 emissions. Our environmental policy is designed to support this objective by continuing past efforts and improving our own environmental performance through:

- *the adoption of energy and water saving measures at our headquarters;*
- *the implementation of a plan for the introduction of greener corporate cars;*
- *the reduction of waste and a careful management of its disposal, based on the principle of 'reduce, reuse and recycle';*
- *the efficient use of products and materials (such as paper) and the selection, wherever possible, of day-to-day items which exert minimal environmental impact in the extraction or sourcing of materials, their manufacture, use, and disposal;*
- *the reduction of our carbon footprint through the cutting down of our greenhouse emissions, the selection of green suppliers, and the use of the most environmentally friendly modes of transportation;*
- *the calculation of GHG emissions, which remain after the implementation of reduction measures, to estimate our carbon footprint (verified in accordance with the ISO 14067), and compensating for the total amount by purchasing emission reductions from high quality projects;*
- *the adoption of environmentally responsible criteria when organising events. The criteria are derived from the United Nations Environment Programme (UNEP) meeting guide to ensure that these events and associated travel are as environmentally sound as possible;*
- *the regular recycling of leftover event merchandise;*
- *the development of a communication strategy regarding our environmental goals, to inform internal and external stakeholders alike;*
- *the sharing of our environmental best practices with our industry peers.*

Since 2011 we have implemented the Environmental Management System (EMS) as proof of our commitment to the regular improvement of our environmental management philosophy. In the second half of 2014 we decided to extend the EMS and its goals to our local presence in Pisa, Italy, because we believe that the expansion of our environmental approach throughout the company can further contribute to making us a globally green company. In 2018 we extended the EMS to our local presence in Prague, Czech Republic.

Implementing the Policy

Preamble

We are aware of the impact of our services and policies, the enforcement of laws and regulations, and the choices we make when selecting goods and services on the environment.

Environmental Management

We carefully assess the environmental impact of our activities and monitor the compliance of our policy and procedures with the Eco-Management and Audit Scheme (EMAS) which we embraced six years ago. We fulfil our environmental responsibilities and ensure that all our activities, including those carried out on our behalf, comply with or exceed legal and voluntary environmental requirements. We are committed to setting yearly targets in order to make our activities greener in the short, medium, and long term.

Company engagement

In order to maximise our efforts, we will ensure the full and adequate involvement of all EURid staff by informing them of our actions regarding the environment and providing training whenever appropriate to enhance their individual environmental responsibility. We will continue to work with our suppliers to help them improve their environmental performance and ensure that, when working for us, they adopt adequate environmental standards as far as possible.

Accountability

We remain accountable to all our stakeholders for the management of the .eu TLD. We are striving to become a driving force in establishing and putting into operation standards for corporate environmental accountability. The results we achieve within the EMAS framework are published in the 'Environmental Statement' that will be available to all interested parties as required by the EMAS.

Diegem, 24 January 2018

The policy has been *confirmed in January 2021, while waiting for the outcome of the 2021 EC Call for Tender.*

EURid's General Manager, Marc Van Wesemael

04. LEGISLATIVE FRAMEWORK

WHY GO GREEN?

'We do believe that even companies that are working in cyberspace can contribute to the environment. In our case, several policies and procedures were already in place to lower the environmental impact of our activities. The objective for us is to refine and eventually change our daily practices, to make them fully compliant with environmental standards and exceed them in the long term'.

In 2012 EURid decided to carry out a carbon footprint (CF) study as a method of identifying and quantifying greenhouse gas emissions relating to the main activities in the four offices - Brussels (Diegem), Stockholm, Pisa, and Prague. The study will be updated periodically through the collection of the data and information necessary to quantify the extent of EURid's carbon footprint.

The present study was carried out with data collected during 2020, updating the previous version of the carbon footprint study.

EURid's carbon footprint has been quantified - unless otherwise specified - in accordance with the requirements of ISO 14067:2018. The LCA study - necessary to quantify our CF - was conducted in accordance with ISO 14040:2006 and ISO 14044:2006.

The preparation of this document and its subsequent validation/verification is carried out in accordance with ISO 14067:2018.

05. QUANTIFICATION OF CARBON FOOTPRINT

The quantification of the carbon footprint has been carried out in agreement with the international ISO 14067 standard using ISO 14040 as a methodological basis for the study.

IPCC 2013 was the method used to determine the characterising factors.

a. Goal of the study

The aim of carrying out this CFP study is to calculate the potential contribution of EURid's activities to global warming expressed as CO₂eq, by quantifying the GHG emissions over the activities' life cycle.

In defining the goal of a CFP study, and according to the ISO 14067 standard, the following items are defined:

- the intended scope of the study is the calculation of the CO₂eq associated with one (1) domain name registered by EURid;
- the reason for carrying out the CFP study is to reduce the CFP itself, when possible, through direct measures of emission reduction and/or off-settings measures;
- the intended audience for the study is comprises customers, authorities, local communities, suppliers, and the general public.

b. Scope of the study

The scope of the study is the definition of the CFP associated with one (1) domain name managed by EURid in a reference year. Unless otherwise specified, the data refers to figures relating to 2020.

According to the ISO 14067 standard, in defining the scope of the CFP study, the following items were considered and clearly described in the following paragraphs:

- the product system to be studied and its functions;
- the functional unit;
- the system boundary, including the geographical scope of the product system;
- data and data quality requirements;
- data time limits;
- allocation procedures.

According to the ISO 14067 standard, the two most important limitations of the CFP study that should be considered are:

- *focus on a single environmental issue;*
- *limitations related to methodology.*

The consequences of these limitations shall be reflected in the communication of the CFP study.

This CFP reflects the sum of GHG emissions and GHG removals, expressed as net GWP in CO₂eq which are associated with the production, use, and end-of-life treatment of a domain name.

While CFP can be an important environmental aspect of the life cycle of the product, affecting the safeguard subject 'climate', stakeholders should be advised that the product's life cycle can have other concerning environmental social and economic impacts (e.g. on resource depletion, air, water, and soil, as well as ecosystems, health, and employment).

Regarding the possible limitations relating to the applied methodology, § 5 e-h should be considered.

c. Functional unit

Any CFP study shall clearly specify the functions of the product system being studied. The functional unit shall be consistent with the goal and scope of the CFP study. The primary purpose of a functional unit is to provide a reference to which the inputs and outputs are related. Therefore, the functional unit shall be clearly defined and measurable. Results of the quantification of the CFP shall be documented in the CFP study report as mass of CO₂eq per functional unit.

The defined functional unit is one (1) domain name. The reference flows used to compile the inputs is one (1) domain name managed by EURid.

d. System boundaries

The system boundaries determine which unit processes shall be included within the CFP study. With regard to EURid's activity, no specifically applicable CFP-PCR are available, and for this reason the definition of the system boundary has been consistent with the goal of the CFP study.

The criteria used in establishing the system boundary take into consideration all the relevant processes to be included in the CFP study, as well as the level of detail to which these unit processes shall be studied.

No life cycle stages were omitted. The use phase and the end-of-life phase are included in the study.

The use phase includes all activities that are carried out over the course of the existence of a given domain name: EURid staff design, implement, and maintain the databases and technical infrastructure needed for .eu to be present on the Internet. They also place Domain Name System (DNS) information into a centralised database and transmit it to Internet zone files, so that .eu domain names can be found by people on the World Wide Web and via email. EURid staff work closely with registrars, in their own languages and markets, to understand how best to meet their and their customers' needs, and improve the .eu experience.

The end-of-life phase means that, when deleted, a domain name spends 40 days in quarantine. This quarantine period functions as a cooling-off period, so that it is possible to retrieve the domain name if required. After the quarantine period the domain name is released for registration. This means that it can be registered by someone else on a first-come, first-served basis. While a domain name is in quarantine, any websites or emails attached to it no longer work. In addition, it cannot be registered by anybody else.

For more information about EURid's activities follow the link below to find the EURid annual report for 2020: <https://eurid.eu/en/welcome-to-eurid/publications/>

Both phases, use and end-of-life, are considered in the Life Cycle Inventory even if it is not possible to calculate their contributions to the CFP separately because paper and energy consumption, transport, heating, and air conditioning are not activities belonging to a single phase of the life cycle, but rather their individual impacts contribute to the whole lifetime of a domain name, from its registration to its deletion.

Processes not included in the system boundaries make no significant contribution to the overall conclusions and results of the CFP study. Any exclusion from the system boundaries is clearly stated and justified in paragraphs e and f below.

In the present study, the boundaries of the system considered include the following activities, analyzed from the perspective of the life cycle, considering all life cycle stages:

A. PAPER CONSUMPTION

- Paper consumption for office use

B. ENERGY CONSUMPTION

- Energy consumption (directly related to the organization)

C. HEATING AND AIR CONDITIONING

- Fuel for heating and/or cooling
- Electricity for heating and/or cooling

D. TRANSPORT

- Company cars
- Train
- Air travel outside the EU

E. REFRIGERANTS

- Losses of refrigerants for air conditioning

F. IT EQUIPMENTS

- Indirect emissions of the equipments production

The geographical scope of the product system is the European Union.

e. Cut-off criteria

Consistent cut-off criteria that allow the omission of certain processes of minor importance shall be defined within the goal and scope definition phase. The effect of the selected cut-off criteria on the outcome of the study shall also be assessed and described in the CFP study report.

In the present study report, cut-off criteria were applied to all processes with a total contribution to the final CO_{2eq} emissions less than 1%, excluding from the system boundaries the water consumption, the waste treatment and the use of print cartridges. Given the applied cut-off, in 2020 the GHG emissions relating to losses during the periodic maintenance at the air conditioning plants were included on the basis of the following sensitive analysis.

f. Sensitive analysis

In 2015, 2016, 2017, 2018, 2019 and 2020 the cut-off criteria of 1% applied in the CFP calculation lead to the inclusion of the GHG emissions relating to losses during the periodic maintenance at the air conditioning plants, while in the previous version from 2012-2014, this process was excluded.

HEADQUARTERS	Offices SQM
DIEGEM	860
LOCAL PRESENCE	
STOCKHOLM	8
PRAGUE	180
PISA	170 – 25,5
Total	1,218 – 1,073.5

The Diegem office at Telecomlaan has 1 airco unit of 10kW, using 2,6 kg of R32 refrigerant gas. Pisa has a unit of a total nominal power of 5,19 kW and 3,5 kg of R410A refrigerant gas. No specific data are for Prague site, but on the basis of the total area Prague is assumed similar to Pisa site. Stockholm site is neglected as from 2020 it consists of a coworking space of only 8 square meters

According to the Ecolife Guideline “towards a CENTR model for sustainability metrics” (§4.5), a 10% of annual loss of refrigerant gas is considered.

The final contribution of refrigerants losses to the GWP can be estimated to be approximately 1,4 ton of CO_{2eq}, about 1,1% of the final emissions. For this reason also in 2020 the cut-off criteria were not applied to the losses of refrigerant.

g. Data quality

The qualitative and quantitative data for inclusion in the Life Cycle Inventory shall be collected for all unit processes that are included in the system boundaries. The collected data, whether measured, calculated or estimated, is utilized to quantify the inputs and outputs of a unit process. Significant unit processes shall be documented. When data has been collected from public sources, the sources shall be referenced in the CFP study report. For those data which may be significant to the conclusions of the CFP study, details of the relevant data collection process, the timeframe in which data have been collected, and further information about data quality shall be referenced. If such data does not meet the data quality requirements, this shall be stated.

In the present study, the data collection is described in the Life Cycle Inventory (§06) for each process included (paper, electricity consumption, heating and conditioning, IT equipment and

transport) and for each site involved in the analysis (Diegem, Prague, Stockholm, and Pisa). Unless otherwise specified, the data refers to 2020 figures.

The data used for the definition of the LCI is all specific data, processed through the calculation model Sima Pro vers. 8 and the included database Ecoinvent vers 3.

h. Uncertainty level

According to § 6.3.5-point j, any uncertainty in the information should be addressed in a quantitative and/or qualitative way.

Uncertainty can include, for example:

- parameter uncertainty, e.g. emission factors, activity data;
- scenario uncertainty, e.g. use stage scenario or end-of-life stage scenario;
- model uncertainty.

In the context of this CFP study, no scenario uncertainty was found because the service is supplied by in-house activities: all the activities related to manufacturing, use and end-of-life scenarios are under the direct control of EURid.

In the context of this CFP study no model uncertainty was found, because all the direct manufacturing processes selected from the Ecoinvent database refer to specific operations and specific (national) energy mixes. However, the following assumptions were made:

- in the definition of the energy mix of the Pisa site, 0.3% of liquid biomass was included in the 1% of solar energy in the model for simplification. Considering the contribution of all renewable energy used at the Pisa site is less than 0.01% of the final result, this estimate has little impact;

Uncertainty in the results can be related to parameter uncertainty:

- emission factor uncertainty: only EF according to IPPC 2013 were used in this study;
- activity data: possible uncertainty relating to data collection and data quality.

Data collection

Primary data is vulnerable to possible mistakes, specifically in the collection process.

In the context of this CFP study, all the primary data shall be considered validated not only by the independent CFP review process, but also by the annual verification of the EMAS Statement. All the data were collected according to the verified and approved procedures also used in the EMAS validation.

Moreover, as stated in the final results, the company cars have contributed approximately 50%. For this reason, possible mistakes in data collection could be significant, particularly if related to transport by car. The inputted data takes into consideration the kilometers travelled by vehicles and number of passengers transported. This number is collected not only for the EMAS and CFP certification process, but also for the annual communication to the car rental company. For this reason, the risk of possible mistakes is considered very low.

Data quality

The ISO 14067 states that a CFP study should use data that reduce bias and uncertainty as far as is practical by using the best quality data available. Primary and secondary data should be selected to enable the goal and scope of the CFP study to be met.

According to the ISO standard, data quality has been assessed both quantitatively and qualitatively, addressing the following:

- a) *time-related coverage*: age of data (2020) and the minimum length of time over which data should be collected (1 year);
- b) *geographical and technological coverage*: the geographical area considered is Europe, and specific national energy mixes and production were used when available on the Ecoinvent database;
- c) *completeness and representativeness*: for all the flows included in the system boundaries the percentage is 100%. No data was missing within the collection process.

Concerning points a) and b) the following assumptions have been made:

- the percentages declared by the energy supplier at the Pisa site, from a generic 'renewable' source, was assumed to be hydropower (73%), wind energy (26%), and solar energy (1%), according to the mix declared by the provider (Edison). The contribution of 0.3% liquid

biomass was estimated to be from solar energy. Considering that the contribution of all renewable energy used at the Pisa site is less than 0.001% of the final result, this estimate is of little consequence.

- the percentage of the mix defined by the suppliers as 'other' has always been traced back to electricity provided by the national network;
- at the Pisa site the heating/air conditioning system is autonomous and powered by gas. A calorific value for the fuel of 35.281 MJ/Nm³ was assumed (PCI value of the Italian natural gas distribution network used for EU-ETS in 2020) for the natural gas consumption at the Pisa site;
- regarding the energy consumption from a quantitative point of view, the annual amount is always in reference to the bills of the supplier. According to applicable European laws, the precision of a common domestic counter cannot be under 5% (V class);
- the inclusion of losses of refrigerant refers to specific data for the Diegem and Pisa. The Prague' local presence estimate is based on square meterage and considered similar to the Pisa' local presence.

Given all the above assumptions, the element which impacts most strongly on the final result is the accuracy of the energy consumption counters.

The contribution of all energy consumption is about 33% of the final result. Assuming counter accuracy to be approximately 5%, the maximum error margin is about 1.5 tons of CO₂eq (1,6% as a percentage). From a quantitative and conservative point of view, the guarantee level in the final result is set at 5%.

i. Allocation procedure

In the present study, no allocation procedures were necessary because there are no by-products in the output of the system. For the same reason, no allocation procedures were applicable for reuse or recycling as requested by the ISO standards.

06. ANALYSIS OF LIFE CYCLE INVENTORY

The inventory analysis includes the collection of data and calculation of procedures that allow the quantification of the inflows and outflows of the system.

a. Paper consumption

Paper consumption was considered for each of the four EURid sites. For the calculation, the type of paper was considered in terms of quality (virgin white paper, recycled paper, cardboard), size (A3, A4, A5 and A6), and weight (i.e. the weight of the sheet expressed in g/m²).

The following table contains the consumption data from 2020 for EURid's headquarters and its local presence sites.

	TYPE/1	YEAR	n. sheets	TYPE/2	
DIEGEM	Recycled paper	2020	6,500	sheetA4 80 gr/m2	Recycled
	White paper		250	sheetA4 160 gr/m2	White
	Leaflets High Level pages		700	sheet A3 150 gr/m2	White
	Leaflets High level cover		140	sheet A3 250 gr/m2	White

	Leaflets - Brochure Cover		60	sheet 25x25 250 gr/m2	White
	Christmas Cards		250	A6 10,5X14,8 360 gr/m2	White
			80	sheet A4 270 gr/m2	White
	Leaflets - Brochure Pages		420	sheet 25x25 150 gr/m2	White
	Notebook		600	sheet A5 80 gr/m2	White
	Flipchart		250	sheet da 0,65m2 70 gr/m2	White
	Packaging paper		30	85 gr/m2	Cardboard
	boxes Christmas gifts		270	360gr/m2	Cardboard
	boxes WA finalist		9	360gr/m2	Cardboard
	Envelopes Award		10	250 gr each	White
PISA	A4 Paper	2020	1,000	sheetA4 80 gr/m2	White
Stockholm	A4 Notebook	2020	187	sheetA4 80 gr/m2	Recycled
PRAGUE	Recycled Paper	2020	2,000	sheet A4 80 gr/m2	Recycled
	A4 Notebook		50	sheet A4 80 gr/m2	White

Table 1 - Breakdown of paper consumption in terms of quality, size, and weight

For the Diegem and Prague sites the paper has been divided into recycled, non-recycled and cardboard according to the data shown in Table 1. In 2020 the Pisa site used white paper only. The equivalent CO₂ associated with the consumption of paper has been calculated from the perspective of the entire life cycle of the product. Therefore, in the database, the *wood-free* operation relating to the production process of uncoated paper was chosen, which also includes transport from the manufacturer to the regional distributor.

b. Electricity consumption

Direct electricity consumption was calculated from the system of each of the four EURid sites, as reported in the following table:

SITES	%	kWh/year
DIEGEM		
Wind energy	51%	49,586
Hydroelectric	48%	46,669
Biogas	1%	972
	TOTAL	97,227
PRAGUE		
Solar	1.66%	61
Oil	0.15%	6
Hydro	0,44%	16
Natural Gas	7.74%	284
Hard Coal	49.02%	1798
Biomass	1,8%	66
Nuclear	39.09%	1434
Other Czech Republic Mix	0,1%	4
	TOTAL	3,668
PISA		
Hydropower	29,81%	2049,5
Wind	10,61%	729,9
Solar	0.41%	28,1
Natural Gas	39.06%	2685,8
Hard Coal	12.47%	857,4
Oil	0.54%	37,1
Nuclear	4.11%	282,6
Other mix IT	2.99%	205,6
	TOTAL	6,876

Table 2 – Electricity consumption at EURid's sites

DIEGEM: The value was estimated by meter readings. The mix declared by the supplier in the invoice was considered. Network losses during transportation and the steps between high, medium and low voltage were taken into consideration.

STOCKHOLM: The value was obtained directly from invoices relating to 2020. Energy is certified as 100% renewable, with the supply coming from Telinet (solar). The selected operation in the database takes into account network losses.

PRAGUE: The mix declared by the supplier was applied in the invoice with the following assumptions made:

- the percentage of 2.34% has been traced back to the Czech Republic electricity network mix;
- network losses during transportation and the steps between high, medium, and low voltage were taken into consideration.

PISA: The value was obtained directly from invoices relating to 2020. The mix declared by the supplier in the invoices was used, with the following assumptions were made:

- the network losses during transportation and the steps between high, medium and low voltage were taken into consideration;
- the percentage declared by the supplier as a generic 'renewable' source was assumed to be hydropower (29.81%), wind energy (10.61%), and solar energy (0.41%), according to the mix declared by the provider (Edison).
- the percentage of 2.99% of 'other' has been traced back to the Italian network electricity mix.

c. Heating and air conditioning

The following table shows the data for 2020 in terms of power consumption and fuel:

OFFICE	kWh/year	MJ/year
PRAGUE		10,800
PISA		27,237

Table 3 – Fuel and electricity consumption for heating and cooling

DIEGEM: The system is centralised in terms of heating and cooling, and consumption is included in the lease. The resulting power consumption has already been included in the general electrical consumption.

STOCKHOLM: In 2020 the Stockholm site was limited to an open plan of coworking of only 8 square meters. Consumption values have therefore been estimated by proportioning 2019 consumption on the basis of the current square meters.

PRAGUE: The heating/air conditioning system is autonomous and powered by gas.

PISA: The heating/air conditioning system is autonomous and powered by gas. A calorific value for the fuel of 35.281 MJ/Nm³ was assumed (PCI value of the Italian natural gas distribution network in 2020).

d. Transport

The transport necessary for EURid's activity was considered significant in defining the carbon footprint. Car transport was considered only for the Diegem headquarters, as the other sites do not have company cars. Transport by air, train, and company car were taken into account, and are summarised in the table below, with the following assumptions made:

FLIGHTS	From-to	n° passengers	Distance Km
	Extra EU departures or destinations	7	23,275
TRAINS		n° passengers	Distance Km
		33	2,209
CARS	Class	n° cars	Distance Km
	Euro 6	22	233,167

Table 4 – Transport in EURid’s offices

FLIGHTS: Flights with departures from or to destinations outside Europe were considered in the study. Flights with departures and destinations inside Europe were not considered as these flights are already subject to the application of the ETS Directive. The operation '*Transport, aircraft, intercontinental passenger/RER U*' was then used to model intercontinental flights.

TRAINS: the operation of the database '*Transport, average train/BE U*' was used to model the number of trips made by 190 passengers in 2020.

COMPANY CARS: the Diegem headquarters has 22 company cars (22 EURO 6, 1 Diesel, 1 hybrid-petrol and 20 plug in hybrid petrol). A specific operation has therefore been used for the calculation model '*Transport, passenger car, diesel, EURO5/CH U*', considering the number of kilometers travelled by various vehicles. Kilometers travelled by Diegem employees with private vehicles or public transportation are excluded from the analysis.

e. Losses of refrigerant

DIEGEM: The Diegem office at Telecomlaan has 1 airco unit of 10kW, using 2,6 kg of R32 refrigerant gas. According to the Ecolife Guideline “towards a CENTR model for sustainability metrics” (§4.5), a 10% of annual loss of refrigerant gas was considered, using a specific operation for R32 on Ecoinvent.

PISA: Pisa has a unit of a total nominal power of 5,19 kW and 3,5 kg of R410A refrigerant gas. Also in this case a 10% of annual loss of refrigerant gas was considered.
 $1.725\text{GWP} \times 0.35 \text{ kg}/1,000 = \mathbf{0.604 \text{ tonnes of CO}_2\text{eq}}$

PRAGUE: No specific data are for Prague site, but on the basis of the total area Prague is assumed similar to Pisa site. Furthermore R410A is the most common refrigerant. R410A (with the higher GWP value) was also tentatively considered for this site, with no specific information regarding the use of refrigerant to calculate the contribution to the final GWP.

STOCKHOLM: Stockholm site contribution to refrigerant loss was neglected as from 2020 it consists of a coworking space of only 8 square meters.

f. IT equipment

The IT equipment considered are those present in the Diegem headquarters which is equipped with specific server rooms for the provision of the service. They consist of several PCs, servers switches, firewalls, 7 APC PDU and 1 UPS.

The CO₂ emission linked to the production of 2,315 kg of equipment was therefore considered, attributing to the equipment an average life time of 5 years.

07. INVENTORY RESULTS

Concerning the environmental results, the importance of a correct and complete quantification of emissions into the environment must be stressed at this point.

The results of an inventory return impact values relating to the analysed system; the accuracy will be the same as the analogous system model, and the accounting of emissions into the environment will represent the reality in question in the most accurate way possible.

As in the case of energy, emissions are classified according to the process that generated them: 'direct' emissions mean those attributable to the process under examination, while 'indirect' emissions are those relating to upstream processes which have allowed the operation under investigation to be carried out (such as the production of energy used in the process, transport, etc.). Even for the environmental results it is possible to identify the different contributions to overall emissions made by:

- the production and transport of energy used in the process;
- the transport involved in the lifecycle analysed;
- the single process under investigation;
- the use of fuels in the process;
- the biomass of air emissions.

For the purposes of the carbon footprint, the only results considered are those which are environmental, mainly the emissions of greenhouse gases measured during the life cycle.

08. LIFE CYCLE IMPACT ASSESSMENT

a. Impact category

After writing the inventory analysis, it is necessary to allocate the fuel consumption and emissions levels reached at this stage to specific impact categories relating to known environmental effects (classification) and quantify with appropriate methods the extent of the overall contribution that the process has on the effects considered.

For the purposes of the carbon footprint, the impact assessment is carried out only on the GWP (Global Warming Potential).

Climate Change (GWP): greenhouse gas emissions.

Carbon dioxide is the main greenhouse gas of anthropogenic origin. The main gases that contribute to the greenhouse effect are methane (CH₄), nitrous oxide (N₂O), chloro-fluoro-carbons (CFCs), and hydro-chloro-fluoro-carbons (HCFCs).

The GWP is a relative measure of how much heat a greenhouse gas traps in the atmosphere. It compares the amount of heat trapped by a certain quantity of the gas in question to the amount of heat trapped by a similar quantity of carbon dioxide. GWP is calculated over a specific time period, usually 100 years. GWP is expressed as a factor of carbon dioxide (whose GWP is standardised as 1).

The key factors used in this study for the calculation of GWP are those published by the IPCC (Intergovernmental Panel on Climatic Change), Climate Change 2013.

SYSTEM PROCESS	UNIT	EMISSION FACTOR
----------------	------	-----------------

Paper woodfree	kgCO ₂ eq/kg	2,568
Graphic paper 100% Recycled	kgCO ₂ eq/kg	1.31
Transport car petrol Euro 5	kgCO ₂ eq/p*km	0.242
Transport aircraft passenger intercontinental	kgCO ₂ eq/p*km	0.104
Transport train BE	kgCO ₂ eq/p*km	0.038
Refrigerant R32	kgCO ₂ eq/kg	675
Refrigerant 410/A	kgCO ₂ eq/kg	1.725

Table 5 – Relevant emissions factor used in the main system process.

b. Carbon footprint life cycle

Considering all the activities related to the life-cycle of the activities of EURid, **the overall carbon footprint of all the domain names managed in 2020 can be quantified as 92 tonnes CO₂eq.** According to 1 par. 6.4.9.8. of ISO 14067:2018 aircraft transportation GHG emissions shall be specified apart from the other CFP emissions: **the contribution of the aircraft GHG emissions is about 2 tonnes of CO₂eq (about 2,2% to the final emissions).** The detail and the contributions of the various elements are summarised in the table and below.

IMPACT CATEGORY	UNIT	DIEGEM	PISA	PRAGUE	STOCKHOLM	TOTAL
IPCC GWP 100a	ton CO ₂ eq	121,51	5,11	4,13	0,08	130.83
		92,88%	3,91%	3,15%	0.06%	100%

Table 6 – Carbon footprint relative to each EURid site and the relevant percentage.

In table 6 an analysis was carried out differentiating the impact per site. From the results above it is clear that most of the impact is due to the Diegem office, as was expected, for the following reasons:

- office transport by air, train, and company car (available to Diegem personnel only) were considered. These make a very significant contribution to the final CF results;
- the number of employees working in Diegem is greater than in the other offices, and for this reason the consumption in terms of paper, electricity, etc. is higher.

09. CONCLUSIONS

As shown by the results of the assessment conducted using 2020 data, the impact in terms of CO₂ equivalent (GWP) emitted throughout the lifecycle of the activities carried out by EURid (carbon footprint) was found to be equal to: **131 tonnes CO₂eq**, including the following contributions:

- aircraft GHG emissions are **2 tonnes CO₂eq** (approximately 1.5% of the final emissions)

- land use, land use change and forestry emissions are **2 tonnes CO₂eq** (approximately 2.2% of the final emissions)
- biogenic carbon emission are **6 tonnes CO₂eq** (approximately 4.5% of the final emissions)

Since the defined functional unit is one (1) domain name managed by EURid, and the total number of domain names on 31st December 2020 was 3.684.984, **the CF of a single domain is 0.035 kg CO₂eq**. The contribution of the aircraft GHG emissions to a single domain is **0.0005 kg CO₂eq**.

In particular, it should be noted that the headquarters in Diegem, for the reasons previously explained, has the more significant impact, approximately **121 tonnes CO₂eq**. Of these, around 38% are only attributable to the use of company cars and more than 32% to the gas consumption for heating.

Comparing the GHG emissions of 2020 with those of 2019, it can be seen that:

- The EURid CF has a decrease in 2020 comparing to 2019 emissions due mainly to the new headquarters of EURid vzw and higher contribution of the company cars.
- The CF of a single domain in 2012 was 0.57 kg CO₂eq (total number of domain names on 31st December 2012 was 3,703,665), while in 2014 it was 0.044% kg CO₂eq (total number of domain names on 31st December 2014 was 3,907,406), in 2015 it was 0.055 kg CO₂eq (total number of domain names on 31st December 2015 was 3,862,467), in 2016 it was 0.039 kg CO₂eq (total number of domain names on 31st December 2016 was 3,760,695), in 2017 it was 0.035 kg CO₂eq (total number of domain names on 31st December 2017 was 3,815,055), in 2018 it was 0.037 kg CO₂eq (total number of domain names on 31st December 2018 was 3,684,750), in 2019 it was 0.044 kg CO₂eq (total number of domain names on 31st December 2019 was 3,606,311)
In 2020 the CF of a single domain is 0.035 kg CO₂eq (total number of domain names on 31st December 2020 was 3,684,984).

YEAR	IMPACT CATEGORY	UNIT	DIEGEM	PISA	PRAGUE	STOCKHOLM	TOTAL
2012	IPCC GWP 100	Tonnes CO ₂ eq	2,079.2	10.1	14.3	1.7	2,105.2
2013			1,405.7	8.9	11.7	1.6	1,427.9
2014			15.4	7.6	6.3	1.7	174
2015			195.9	6.9	6.9	1.9	211.6
2016			133.3	7.4	5.3	2.8	148.8
2017			116.6	11.9	5.8	0.5	135
2018			120.2	9.6	4.6	1	135.4
2019			145,4	8	4,4	0,9	159,2
2020			121,51	5,11	4,13	0,08	130,83
% Trend GHG emissions 2012 vs 2013			-32.3%	-11.4%	-17.8%	-7.6%	- 32.2%
% Trend GHG emissions 2013 vs 2014			-88.7%	-14.3%	-45.9%	+7%	- 87.8%
% Trend GHG emissions 2014 vs 2015			+ 19%	-10.1%	+8.6%	+10.5%	+17.8%
% Trend GHG emissions 2015 vs 2016			-32%	+7.2%	-23%	47.3%	-29.7%

% Trend GHG emissions 2016 vs 2017	-12.5%	+60.8%	+8.6%	-82.1%	-9.3%
% Trend GHG emissions 2017 vs 2018	3%	-23.9%	-26.1%	50%	+0.03%
% Trend GHG emissions 2018 vs 2019	17,3%	-16.6%	-4.5%	-40%	+14,9%
% Trend GHG emissions 2019 vs 2020	-16,4%	-36,1%	-6,5%	-91,1%	-17,8%

Table 7 – Carbon footprint comparison 2012 - 2020.

The decrease in emissions in 2020 is substantial compared to 2019, despite an additional input given by IT equipment, included into the inventory boundaries. This decrease is attributable to several reasons and mainly to the health emergency due to COVID-19:

- The increase in smart working highlighted a reduced consumption of energy and paper in the offices;
- All journeys reduced in 2020, both air and train journeys for busyness travel have drastically decreased;
- Above all, the kilometers traveled by company cars decreased, which in previous years represented about 80% of the impact and were always the greatest contribution to the final emissions. They continue to remain the main contributor, but in 2020 they had an impact about 34%;
- The impact due to company cars has improved thanks also to the adoption of less impacting vehicles: a single diesel car is owned, while the remaining fleet is given by hybrid cars.
- Finally, the Stockholm office was practically closed and actually limited to just 8 square meters. However, the contribution of this office was not significant even in previous years;
- All these elements led to an overall reduction in GHG emissions, despite a significant increase in natural gas consumption at the Diegem office, which is actually one of the main contribution to final emissions (approximately 34%).

10. ENVIRONMENTAL PROGRAMME 2021-2023 (ABSTRACT)

It is worth highlighting that the actions contained in the EMAS Environmental Programme 2021-2023 for the headquarters in Diegem and the Pisa and Prague offices will help EURid to further reduce carbon emissions. The following is an abstract of the Environmental Programme with those actions that could contribute to the reduction of CO₂ emissions, as calculated when determining the CO₂ impact.

The carbon footprint report – like the environmental statements - is part of an active and transparent information policy, and demonstrates the open dialogue that takes place between EURid and its stakeholders.

N.	OBJECTIVES 2021-2023	ENVIRONMENTAL IMPACT	INDICATORS	DEADLINE
5	Reduce the environmental impact of transport	Increasing the amount of CO ₂ in the atmosphere.	<ul style="list-style-type: none"> ▪ No. of hybrid and electric company cars leased/total company cars leased annually (% per year) • No. of video conferences per year carried out by EURid's staff 	December 2023
7	Organise at least 90% of profile-raising events annually based on environmental criteria	Use of non-renewable resources	<ul style="list-style-type: none"> ▪ No. of events organised in accordance with at least five environmental criteria (P08.02)/total number of events organised (% per year). ▪ No. of external environment-related initiatives organised by the company per year. 	December 2023

For more information please follow the link:

<http://www.eurid.eu/files/docs/emaseu.pdf>

11. ACRONYMS

EURid	European Registry of Internet Domain Names
EU	European Union
17CF	Carbon footprint
CFP	Carbon footprint of Product
GHG	Greenhouse gas
GPW	Global warming potential
LCA	Life-cycle assessment
IPCC	Intergovernmental Panel on Climate Change
ISO	International Standardisation Organisation
EMAS	EU Eco-Management and Audit Scheme
EMS	Environment Management System
EMSR	Environment Management System Responsible
CO ₂ eq	Carbon dioxide equivalent

The carbon footprint report, like the Environmental statements, is part of an active and transparent information policy and demonstrates the open dialogue that takes place between EURid and its stakeholders.