Start Campus

Start Campus
Sustainability Report 2022

01

A Message from the CEO

A Message from the CEO

When we start a brand-new path, many questions arise. Where will it lead us? Is it worth it? Will it make a difference? Will we get to our destination? Will it impact others in a positive way?

It's in the uncertainty that answers must be sought. It's the only way that, step-by-step, you can confirm the journey you're on is the one that matters and that you are on the right direction.

The past decade has confirmed two secular trends by worldwide events: Digital and Sustainable Transitions. These two trends are not, and cannot be, just fancy words. These are important and accelerating tides that affect companies, sectors, and entire industries, who need to adapt not only to survive but also thrive in a new world that is quickly unfolding in front of us, at an increasingly higher speed.

In a time of high energy costs coupled with an exploding demand for sustainable solutions, Start Campus developed an innovative and holistic solution to develop a sustainable hyperscale data center campus outside of urban centers providing 100% green energy, 24/7, and highly connected to national and international data routes.

Two trends; one path to combine them and take advantage of their full potential while responding to growing need from large international technology companies.

This is what we are building in Sines, Portugal. A Hyperscaler Data Center campus that will be one of Europe's largest data center campus with 100% green energy at competitive prices in a premium European location, becoming the perfect data gateway to Europe, the Atlantic and the rest of the world.

A project that will create up to 1,200 highly skilled direct jobs by 2028 and will become an active member of the local communities, that are, since the beginning of this journey, at the core of our company.

That's how the GAMMA Community Platform was born: from a trust built together with local entities, institutions, companies and NGOs. This platform leads an annual investment initiative to support community projects in surrounding regions during the life of the Sines project.

We hope that such initiatives should not only lead to even greater positive impacts on the region, by promoting economic growth and prosperity through community engagement, but also lead others to contribute, and multiply the positive externalities of our work.

A project that will create up to 1,200 highly skilled direct jobs by 2028 and will become an active member of the local communities

A Message from the CEO

2022 was marked by the start of construction works in Sines. The first building on the campus, with a total capacity of 15 MW, started construction in April and will be ready for service before the end of 2023.

SINES project is the only possible Green Atlantic Gateway to the growing European digital ecosystem.

This location allows Start Campus to tap into renewable energy solutions, repurpose existing legacy infrastructure, restore natural habitats and promote biodiversity, while not competing with human office or residential needs. This is what it means to deliver sustainable targets second to none in Europe.

Another important milestone was Start Campus joining the iMasons Climate Accord: an industry-wide pledge to battle climate change by reducing data center carbon output. Start Campus has pledged to have carbon-free operations by 2025 and to be fully carbon neutral by 2028. This also means we need to develop the right tools to continuously increase accuracy, transparency and benchmarking in carbon accounting.

But from all of 2022 achievements there is one that outplays them all: Nothing would have been possible without an incredible team of highly multifaceted and highly dedicated professionals that joined the Start Campus adventure in the last couple of years. To all of you in the team: my warmest and most sincere thank you.

Sustainability is at the core of our company and our team. We are all committed to reducing carbon and our impact on the climate, to foster industry collaboration and synergies, and to establish open standards for measuring and improving climate performance and impact — a sustainable alternative that contrasts to projects in the traditional FLAP-D markets.

Moving and processing massive data workloads into highly efficient Green Giant hubs creates breathing room for companies to expand and focus on their core businesses in an ethically, sustainable, and competitive way.

That is our passion and our purpose. We started this journey just two years ago and are fully engaged in continuing this path. Start Campus counts on everybody in this journey building the future for upcoming generations.

Afonso Salema
Start Campus' CEO

SINES project is the only possible Green Atlantic Gateway to the growing European digital ecosystem.

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at a Glance

Start Campus at a Glance

Data Centre Campus Under Construction

15MW by 2023

495MW by 2028

0 WUE

1.1 PUE

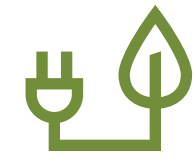**100% Recycled Waste Ratio**

100% Powered with Green Energy

9 Nationalities Across Workforce

Two Endemic Species' Re-introduction Programs on Site

16% of CO_2e Reduction from Expected Construction Values

Up to 1200 Direct Jobs and 800 Indirect Jobs

37% Of Our Workforce are Women

400% Employee Growth in 2022
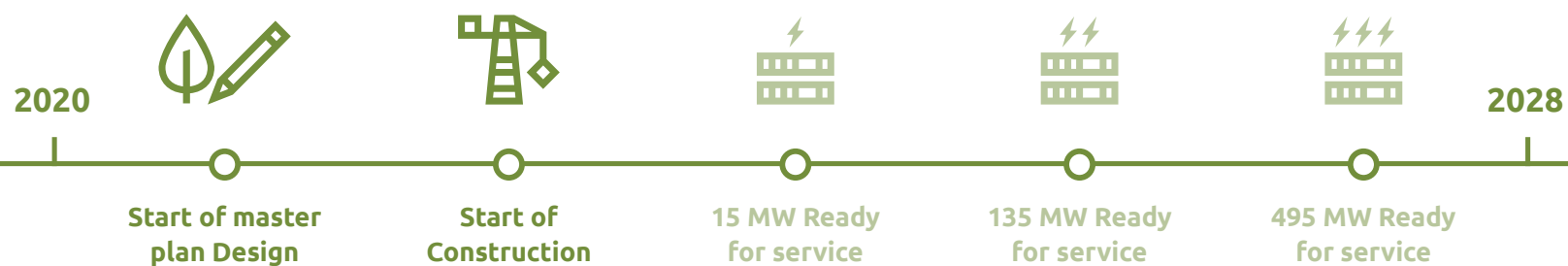
03

About Start Campus

Who are we

Start Campus is the developer of the SINES project - an investment of €3.5 billion, to deliver a **hyperscaler data center**, with 495MW of server capacity, in Sines, Portugal.

It is one of the largest data center ecosystems in a premium secure European location, which is the perfect gateway to Europe and the world, powered by **100% green affordable energy**.

Start Campus designs, builds, and operates commercially attractive, reliable, secure and sustainable data centers' ecosystems in Europe for large cloud providers, by setting **new industry standards for sustainability** and bringing value to the communities where it operates.

Currently, the project is in the midst of finalizing the construction of the first building which will harbor in total **15 MW of IT capacity**.

For the purpose of this report, the first building is referred to as "SIN01". It is expected to be **fully operational by the end of 2023**. The remaining 5 buildings will total up to 495 MW of IT Capacity, and will be in construction between the end of 2023 up to 2028. These buildings are named "SIN02 – SIN06" consecutively.

2020 — **2028**

| Start of master plan Design | Start of Construction | 15 MW Ready for service | 135 MW Ready for service | 495 MW Ready for service |

Start Campus

Where we are

Sines is a strategic location for worldwide connectivity and **fully powered by renewable and cost-efficient energy,** providing a state-of-the-art ecosystem.

By locating facilities outside of large metro regions, SINES project makes a **positive impact** on net contributions by providing a new industry within local communities, creating new jobs and developing sets of new skills.

Why Sines, Portugal?

Portugal is the **safest country in Europe** and a full member of the EU since 1986 and of NATO since 1949.

- ▸ Most peaceful country in Europe and 3rd in the world
- ▸ Lowest security threat in the world
- ▸ Highest multilanguage proficiency in Europe

- ▸ Best expat destination worldwide
- ▸ Portugal now accounts for 3.4% of the Foreign Domestic Investments (FDI) projects in Europe
- ▸ 2021 was a record year for FDI projects in Portugal, with a growth of almost 30% since 2020

- ▸ 2nd highest rate of Engineering Grades in Europe
- ▸ 30% growth in the software and IT services sector
- ▸ Fast delivery due to local and national government support

What we do

495MW Campus

- ▸ Hyperscale campus with a modular and flexible design
- ▸ Green giant data center campus composed of seven buildings
- ▸ First building of 15 MW
- ▸ Other buildings of 120 MW each hybrid whitespace: allowing both air and liquid

Sustainability

- ▸ Operations carbon neutral by 2025
- ▸ Fully carbon neutral by 2028
- ▸ Repurposed oceanwater cooling infrastructure
- ▸ Designed WUE of 0
- ▸ 100% renewable power
- ▸ Carbon modelling up to scope 3
- ▸ Biodiversity protection
- ▸ 1.1. PUE

Green Power

- ▸ Renewable hybrid solution – powered by 100% green energy
- ▸ Competitive costs
- ▸ Owned renewable power plants
- ▸ Grid connection secured with direct wire
- ▸ Behind-the-meter renewable energy

High Fiber Connectivity

- ▸ Dense subsea and terrestrial fiber connections.
- ▸ Connected to 62 countries and 91 locations
- ▸ Carrier neutral

Reliability & Support

- ▸ Resilient site
- ▸ Maximum uptime
- ▸ Meets and exceeds Tier III by TIA
- ▸ Concurrently maintainable
- ▸ Support at local and national level, being granted Potential National Interest ("PIN") status

Specialized Site Selection

- ▸ Re-purporsed industrial site at scale
- ▸ Less than 150 km from Lisbon
- ▸ Strategically located and designed to offer renewable power and re-purposed infrastructure

Secure facilities

- ▸ Designed to meet high security standards
- ▸ FISMA (Moderate)
- ▸ HIPP ▸ ISO 27001-2013
- ▸ SSAE18 SOC II ▸ PCI-DSS

Sustainability is at the Core
for a greener future

Carbon pledge

✓ Deliver a positive handprint from the beginning with Carbon Neutral Operations by 2025

✓ Carbon Neutrality by 2028

Green Power

✓ Nearby own private solar parks and green PPAs for effective 24/7

✓ Reduce emissions and environmental impact by repurposing existing facilities, delivering industry leading 1.1. PUE

Zero Water

✓ Negligible WUE with no water consumption by using state-of-the-art oceanwater cooling solution and no landscaping irrigation

Community Engagement

✓ Involving the local community in sustainable start-up projects through the GAMMA platform

✓ Active listening and participation in community initiatives

Biodiversity

✓ Habitat restoration programs to re-introduce endangered native species

✓ Carbon sink project to offset carbon emissions of construction phase

04
Culture

Our Vision

To deliver and **grow sustainable and resilient data center ecosystems** by setting new industry standards for clients and communities around it.

Our Mission

▶ Robust site selection, ensuring each site has characteristics that can enable **sustainability options** and **competitive operation.**

▶ Proactive **engagement with local communities** to add value to the local area.

▶ Partnering with **world-renowned data centers experts** and companies.

▶ **Hiring talented people** that embrace new ideas, challenges and live our values.

▶ **Work with forward-thinking clients** that want to make change happen.

Values

🌱 **Sustainability**
Build up of **economic**, **social**, and **environmental sustainability values.**

⚖️ **Integrity**
Work based on **trust and honesty.**

👁 **Transparency**
Engage in an **open and fair way** with stakeholders and communities.

05

Our Reporting Strategy

Our Reporting Strategy

The global definition of **Sustainable Development** is the combination of human civilization's activities with natural systems functions, for them to remain diverse and produce everything it needs for the ecology to thrive:

▸ **Economic Development**

How it will affect and contribute to businesses, jobs and employability, GDP nationally and regionally.

▸ **Social Development**

Awareness of and legislative protection of the health of people from pollution and other harmful activities which may emerge from business and industry.

▸ **Environmental Protection**

Businesses are being regulated to improve their environmental performance, prevent pollution and to keep their carbon emissions low.

This report will outline in **full transparency** Start Campus' Environmental, Community and Company dimensions as well as whole Industry targets and achievements accomplished so far.

It will cover **Key Performance Indicators** (KPIs) from several areas such as: Sustainability, Legal, Health and Safety, Data IT, and Human Resources.

Start Campus believes that the combination of **Sustainable Development Goals** and the twin Power Transitions - Digital and Energy - is the right path moving forward for global sustainability of data centers and their complex ecosystems.

Our Reporting Strategy

We are proud to be pioneers in reporting all necessary data from the start of the construction phase. This will allow us to **fully track and properly manage our carbon footprint** by evaluating and mitigating impacts more accurately while still in construction.

Additionally, we are pleased to share that **Start Campus will be a participant in the United Nations Global Compact**.

We affirm that we support the Ten Principles of the United Nations Global Compact on human rights, labor, environment, and anti-corruption. This pledge to the UN SDGs is demonstrated through our data center design, our policies, our responsible business practices, and our community engagement where **we make the strongest impact**. Throughout this report, we highlight areas of our business where we actively show our commitment to the UN SDGs.

In Start Campus, we have 4 Sustainability Pillars:

For the Planet	For the Industry	For the Community	For Start Campus
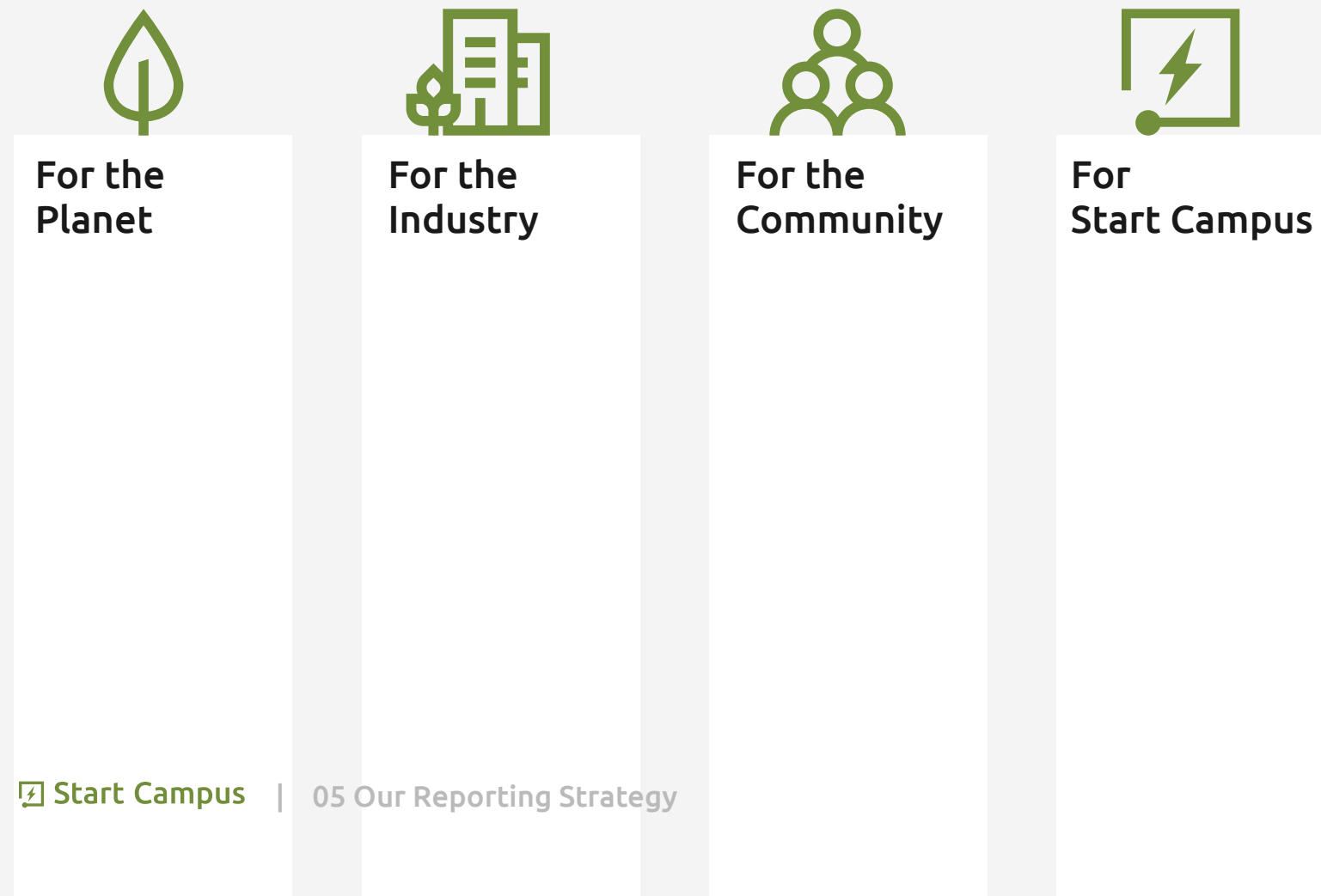
Our commitment is aligned primarily to 13 of the 17 **United Nations Sustainable Development Goals** (UN SDGs):

06

International Standards and Partnerships

International Standards and Partnerships

Start Campus views governance and compliance with international standards as fundamental to the sustainable management of its facilities. Our data center **complies with globally accepted standards for quality**, security and environmental management and we ensure that we are up to date and in compliance with the most recent versions – even before they are mandated.

The data center is designed and operated using the best energy management and sustainability metrics as described in CLC/TS

(Technical Specification) 50600-5-1: covering Maturity Model for Energy Management and Environmental Sustainability.

Included as a set of metrics within CLC/TS 50600-5-1 are the ISO/IEC 30134-series and the mandated EU Taxonomy as applied to data centers.

Moreover, within the scope of environmental compliance, **we are aiming to achieve Gold LEED certification**.
In addition, Start Campus is in the progress of achieving certification in several global standards, including:

ISO 14001: 2015 Environmental Management System Standard	**ISO 45001: 2018** Occupational Health and Safety Management	**ISO 9001: 2015** Quality Management System	**ISO 50001: 2011** Energy Management	**ISO 26000:** Guidance on Social Responsibility
ISO/IEC 20000: For IT managed Services	**ISO /IEC 30134-8:2022** Information technology - Data centres key performance indicators	**ISO 14064-3:2019:** Certification of GH Emissions	**ISO 27001: 2013** Information Security Management System Standard	**UL's ECVP 2799,** Environmental Claim Validation Procedure for Zero Waste to Landfill
HIPAA Health Insurance Portability and Accountability Act	**Business & Human Rights** Resource Centre guides and benchmarks	**United Nations Guiding** Principles on Business and Human Rights	**NIST 800-53/FISMA** Federal Information Security Management Act (FISMA)	**SOC 2** Type II technology companies
TSI Trusted Site Infrastructure (TSI)	**TVRA** The Threat and Vulnerability Risk Assessment	**Uptime Institute** OR M&O	**PCI-DSS**	

Achieving Third-Party Standards

This report provides disclosures **compatible** with the following third-party standards. All related metrics are disclosed in our **integrated sustainability index** in the Appendix of this Environmental Social and Governance (ESG) report.

07

Our Sustainability Goals

For the Planet

Objective: Net Zero Emissions

Goals	Target	Year
✓ **Sourcing of materials with shortest distance site**	**80%**	**2022**
✓ Reduce CO₂ emissions per employee through travel	60%	2023
✓ 100% Certified sustainable energy supply to all facilities	100%	2024
✓ Offset construction emissions	100%	2028

Objective: Renewable Energy

Goals	Target	Year
✓ Competitive PUE	1.1	2023
✓ Obtain ISO 50001: 2011 Energy Management	Certification	2024
✓ 100% Renewable Energy 24/7	100% 24/7	2024
✓ Improve energy efficiency	75%	2025

Objective: Supporting The Circular Economy

Goals	Target	Year
✓ Reuse of local excavated earth	100%	2023
✓ Advise suppliers to divert non-essential electronic waste to recycling in partnership with customers	75%	2024
✓ Create Industry Opportunities with the Site's by-products	2 Projects annually	2024
✓ Industry-Leading WUE	0	2024
✓ Re-use facilities for cooling seawater system	100%	2024
✓ Adoption of Cradle to Cradle (C2C) Approach in Construction	100%	2025

Objective: Biodiversity Restoration Programs

Goals	Target	Year
✓ Create a natural habitat for Discoglossus galganoi	Species Reproduction	2023
✓ Develop a landscape design that promotes endemic and endangered species protection	Wildlife Corridors	2023
✓ Local Carbon Sink Projects	2	2024
✓ Assure and advise end-to-end circular economy supply chain	60% of EDPs	2024

For the
Planet

For the
Industry

For the
Community

For
Start Campus

For the Industry

Objective: Be a Beacon of Innovation and Inspiration

Goals	Target	Year
✓ **Promote cybersecurity training**	**3 per year**	**2022**
✓ **International internships to promote Worldwide Datacenter Education**	**5 per year**	**2022**
✓ Share our pioneering BIMMS Carbon Modelling System for greater industry transparency	Per facility	2023

For the Community

Objective: Empower Local Community Support

Goals	Target	Year
✓ **Launch GAMMA Community Initiatives**	**20 Projects**	**2022**
✓ **Develop and sponsor leading global educational programs in the field of Sustainable Data Centers**	**2 Programms/ Year**	**2022**
✓ Create Interconnected R&D hub with Universities and Institutes	Bi-annual educational sessions	2023

For Start Campus

Objective: Invest in Employee Wellbeing
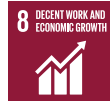
Goals	Target	Year
✓ **Create a safe-space for problem solving**	**Yes**	**2022**
✓ **Align our values with Human Rights Statements**	**Yes**	**2022**
✓ Develop mental health awareness program for employees	6 sessions/ year	2023

Objective: Impact our Costumers' Sustainability Goals

Goals	Target	Year
✓ Establish a start-to-finish ethical and sustainable supply chain	80%	2023
✓ Reinforce training and development to increase skills and industry knowledge across the company	40 anually	2024
✓ Report our sustainability using GRI principals for better alignment with customers' reporting	Yearly	Ongoing

08

For the Planet

Impact on SDG's

Net Zero Emissions

Start Campus' goal is to be **carbon-free by 2028**, and carbon neutral in operations by 2025. Carbon emissions are measured, targeted, and mitigated by phase.

We have defined three phases of carbon emissions of a data center:

A   **Construction**

B   **Operations**

C   **Decommissioning**

In order to **calculate the carbon emissions** reported, we used the internationally recognized Greenhouse Gas Protocol Corporate Accounting and Reporting Standard from the World Resources Institute and World Business Council for Sustainable Development, known as the GHG Protocol Corporate Standard.

Our figures have undergone independent third-party verification. Regarding our emissions reporting , it is our highest priority to include scopes 1, 2 and 3. According to the GHG Protocol and ISO 14064, **the three GHG emissions categories are**:

Scope 1 | Direct GHG emissions

Scope 2 | Indirect energy GHG emissions

Scope 3 | Other indirect GHG emissions

Omitting Scope 3 emissions may present potential risks for investors. In fact, **Scope 3 emissions can represent the majority of an organization's total carbon footprint**. According to the Carbon Disclosure Project (CDP), on average organizations report having supply chain greenhouse gas emissions that are 5.5 times greater than their own direct impact from scope 1 and 2 emissions.

Scope 1

Direct GHG emissions

All direct emissions within the operational control of an organization (e.g., operating generators onsite).

Scope 2

Indirect energy GHG emissions

Indirect emissions generated from purchased or acquired electricity, heat, steam, or cooling.

For 2022, this scope will be null, as all energy was generated on site through generators.

Scope 3

Other indirect GHG emissions

All other indirect emissions from sources such as business travel, waste management, manufacture of the products you buy across the value chain.

Construction Phase

During the construction of the first building, Start Campus was able to **reduce expected emissions by about 16%**, as seen in table 1. The most significant reductions were made by changing the sourcing of materials via top-down supply chain.

As seen in table1, emissions set by the materials for Foundations, Structure, Pavements and Roads has been **significantly decreased** from estimates previously established, specifically the change in sourcing methods for steel and concrete components which has lowered associated carbon emissions.

These include both location of sourcing – **changing to suppliers located closer to the site** will dramatically decrease emissions – but also changing the overall composition and type of material to accommodate more environmentally-conscious choices.

Emissions reductions achievement:

SIN01 Actuals	Estimations Jul	Current	Actual Reduction
	Tons of CO$_2$e	Tons of CO$_2$e	%
15 MW Data Center Building *	9,772	8,189	**16%**

Table 1. Carbon Emission Analysis 2022
* Includes: Earth+Foundations; Building structures; Landscape; Roads and Pavements; and Hydraulics.

For the Planet

For the Industry

For the Community

For Start Campus

2022 was characterized solely by Design and Construction phases, we reduced our expected carbon footprint in 16%.

Construction Phase

During this stage, **the greatest impact comes from basic construction materials**. In particular, the sourcing of concrete for foundation pillars, and steel components resulted in a reduction of 38% and 40%, respectively, of tCO_2e. An overall 1800 tCO_2e of embodied carbon was avoided.

It starts with the impact in the procurement methods: Ensuring the supply chain procures locally, uses recycled materials and promotes circular economy, when possible.

Utilizing the excavated earth from the site for landscaping purposes is a factor **most times overlooked in the design phases of construction**, but has a great sustainability impact.

For first 15MW building, it has contributed to a **12% decrease in overall emissions** compared to previous estimates under traditional methods.

At Start Campus, all **landscaping architecture was taken into consideration.** The land that has been excavated was put aside for later use, thus not contributing to additional emissions from travel of soil sourced elsewhere.

Start Campus is proud of these figures, especially when compared to emission values produced by comparable data centers using standard construction techniques, as seen in Table 3.

Table 2
Distribution of carbon emissions attributable to diesel, tCO_2e

All Areas by GHG Emission Scopes	tCO_2e
Total (Scope 1 and 3) All areas 2022	8,189
Scope 1	416
Scope 3	7,773

* Scope 2=0

Table 3
Comparison of Start Campus and other Data Centers Constructed with Standard Techniques

	tCO_2e/m^2
Standard Data Center [1]	0.5 - 0.9
Start Campus SIN01 Building	0.26 ✓

[1] The Institution of Structural Engineers, 2022.

B

Operations Phase

The first building – SIN01 - will **start operating by end of 2023**, while the remaining buildings – SIN02-SIN06 – will all be **fully operational by then end of 2028**.

The pledge to be carbon neutral during operations by 2025 is accomplished by Start Campus utilizing energy from it's own solar parks and green PPAs to optimize costs, and repurposing the cooling facilities systems.

This ultimately **protects the environment** and does not leave a strain on the local energy grid With these methods, Start Campus can deliver its industry-leading PUE of 1.1 and a WUE goal of 0.

Start Campus cools its data halls in two ways:

a) reusing the infrastructure of a decommissioned coal power station ocean water facility;

b) reclaiming cooled ocean water for cooling system from a nearby liquefied natural gas (LNG) import terminal, which in turn uses the ocean water to exchange heat for the regasification.

C

Decommissioning

E-waste is the fastest growing waste stream. According to the U.N.[2] just 20 percent of e-waste is formally recycled and more than **53 million metric tonnes** of it was produced in 2019. In 2020, the UK was the worst offender in Europe for e-waste exports and the second biggest e-waste contributor in the world after Norway. While this can't solely be blamed on the shredding or degaussing of old data center IT assets, the rate at which organizations are making the move to the cloud means the issue could worsen.

Start Campus acknowledges the importance of creating a **full life-cycle assessment** to make sure that even the impacts of end-of-life of the facility are accounted for. This is accomplished by maintaining a **transparent report** throughout the life-cycle, and assessing the **most sustainable methods** for data centers hardware removal, resale, relocation and recycling.

These methods are in compliance with the requirements set under ISOs 27001, 14001 and 9001.

[2] UN Environment Programme (UNEP), 2022, "Emissions Gap Report 2022".

Carbon Sinks

Reducing and offsetting 'embedded carbon' is another focus for Start Campus. Since **the Start Campus' Code of Practice for Suppliers** has defined non-negotiable minimum standards to which we ask our suppliers and their sub-tier suppliers to adhere.

These include **commitments to considering the environmental impact of all activities**.

Carbon sinks remove carbon dioxide from the atmosphere and absorb more carbon than they release, being an essential method of fighting against climate change.

Carbon sinks can be divided into:

1 Natural Carbon Sinks

A report [3] in Nature Climate Change has confirmed oceans to be the main natural carbon sinks, absorbing approximately 50% of the carbon emitted into the atmosphere.

Plankton, corals, fish, algae and other photosynthetic bacteria all impact this carbon extraction. Aside from the oceans being the main natural carbon sink in the world, forests are also a significant player. They absorb twice as much carbon as they release each year, a net 7.6 billion metric tons of carbon dioxide annually.

Similarly, mangroves are great sinks, extracting almost 10 times as much carbon dioxide from the atmosphere than terrestrial forests.

[3] Harris, N.L., Gibbs, D.A., Baccini, A. et al. 2021. Global maps of twenty-first century forest carbon fluxes. Nat. Clim. Chang. 11, 234–240.

2 Artificial Carbon Sinks

In addition to natural carbon sinks, technological advances have helped produce artificial techniques that extract carbon from the atmosphere. Examples include:

Using **geological carbon sequestration** techniques that inject carbon dioxide into deep saline aquifers to produce large pockets of salt water. Injecting carbon dioxide emissions from **coal-fired power stations** deep under the Earth's surface and using light-sensitive algae that are capable of absorbing carbon dioxide and emitting oxygen.

Although artificial carbon storage technologies are still far from meeting the demands of climate change[4], little by little new projects are appearing to capture CO_2 artificially and then retain it using a variety of methods.

[4] Intergovernmental Panel on Climate Change (IPCC), 2023, "AR6 Synthesis Report".

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Our Strategy for Sequestration of the CO₂ that We Cannot Avoid Emitting

Start Campus proposes to be a pioneer in this challenging path, **working alongside the local community** and building on the ecosystem services that nature has optimized over millions of years. We now intend to use technological innovation to capitalize on an **integrated strategy** for reaching carbon neutrality.

Our carbon neutrality strategy foresees the sequestration of unavoidable carbon during the construction and subsequent operation of Start Campus' facilities. It is therefore, planned to develop a set of nature-based measures, where the importance of **nature for the quality of life** of people and in particular its role in carbon neutrality is spread throughout the campus and the surrounding natural landscape.

At the same time, the **protection of habitats and the preservation of biodiversity** will be decisive to improve the regulation of the biogeochemical cycles of the various elements

in the territory, contributing to improve the resilience of the local community to global, anthropogenic and climate change. These measures will be **developed with local people**, so that green spaces can meet their expectations, and encourage healthier and more sustainable lifestyles.

To fulfil our strategy, we will include dimensions of research, innovation and design development in several domains. Most noticeably, regarding carbon sequestration with native species in a perspective of developing robust scientific methodologies for its quantification. To this end, **Start Campus has partnered with the University of Algarve**, which will be responsible for implementing and monitoring carbon sequestration through the careful selection of herbaceous, shrub and tree species to be used.
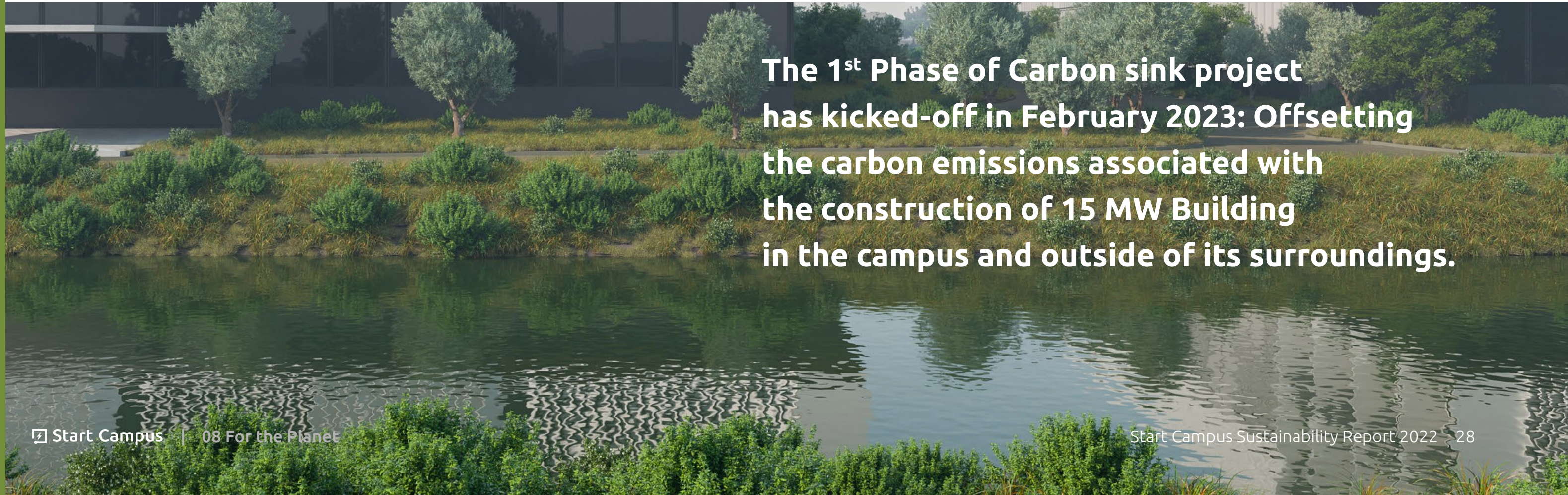
The 1ˢᵗ Phase of Carbon sink project has kicked-off in February 2023: Offsetting the carbon emissions associated with the construction of 15 MW Building in the campus and outside of its surroundings.

Supporting The Circular Economy

Reduce, Recycle and Repurpose

As an interconnected target, our **unique location provides additional benefits** to the full life-cycle of natural elements and products. In collaboration with scientific experts in the field of urban sustainability, Start Campus is in the progress of developing large-scale carbon sink projects which create **opportunities for small local businesses**, carbon sinks and promotes social health and well-being – enhancing Circular Economy – where impact is greatest.

By promoting natural and artificial carbon sinks, Start Campus **directly impacts local communities** by generating income, creating jobs, and providing job training for the next generation. By carefully collaborating with entities and suppliers which effectively promote Circular Economy – **we ensure our environmental impact is at the lowest level possible**.

Start Campus Circular Economy Model

1 **Natural ecosystems**
· Raw Material
· Sustainable Procurement

2 **Environmentally-driven Design and Delivery of Data Center**
· Ensure sustainable supply-chain
· Lowest environmental impact sourcing

3 **Repurposing existing facilities + Own renewable energy + High energy-efficiency**
· Minimize emissions and generators used onsite
· Reduce construction impacts and habitat disruption

4 **CO₂ neutral** **Offset emissions through natural and artificial methods**
· Reduce environmental impact
· Involve local community
· Restore natural habitats

5 **Promote regional economic development and social health**
· Generate entrepreneurship
· Improve employability
· Promote sustainable landscape
· Increase urban ecology

6 **Reduce, recycle and repurpose waste**
· Waste sorting optimization
· Use excavated soil for construction and landscaping

7 **Seawater discharge repurposing**

8 **Promote opportunities For local communities + ecosystem conservation**

Renewable Energy

Given that data centers are energy-intensive enterprises, estimated to account for around 1% of worldwide electricity use [5], these trends have clear implications for global energy demand and must be analyzed rigorously. Several oft-cited yet simplistic analyses **claim that the energy used by the world's data centers has doubled** over the past decade and that their energy use will triple or even quadruple within this next decade. Such estimates contribute to a conventional wisdom that as demand for data center services rises rapidly, so too must their global energy use. But such extrapolations based on recent service demand growth indicators overlook strong countervailing energy efficiency trends that have occurred in parallel.

Start Campus is developing integrated renewable power infrastructure to control costs, **reduce power consumption and reduce carbon emissions** as we drive smart data center growth. We have the ambitious goal of powering our data halls with 100% Renewable Energy 24h, 7 days a week. Start Campus is using a combination of nearby and faraway own renewable plants, green PPAs and certificates of Guarantee of Origin.

[5] Zhang,Y., ,Xiuming, K., Hangxin L., Wang, S., 2023. Research and Technologies for next-generation high-temperature data centers – State-of-the-arts and future perspectives, Renewable and Sustainable Energy Reviews, 171, (112991)
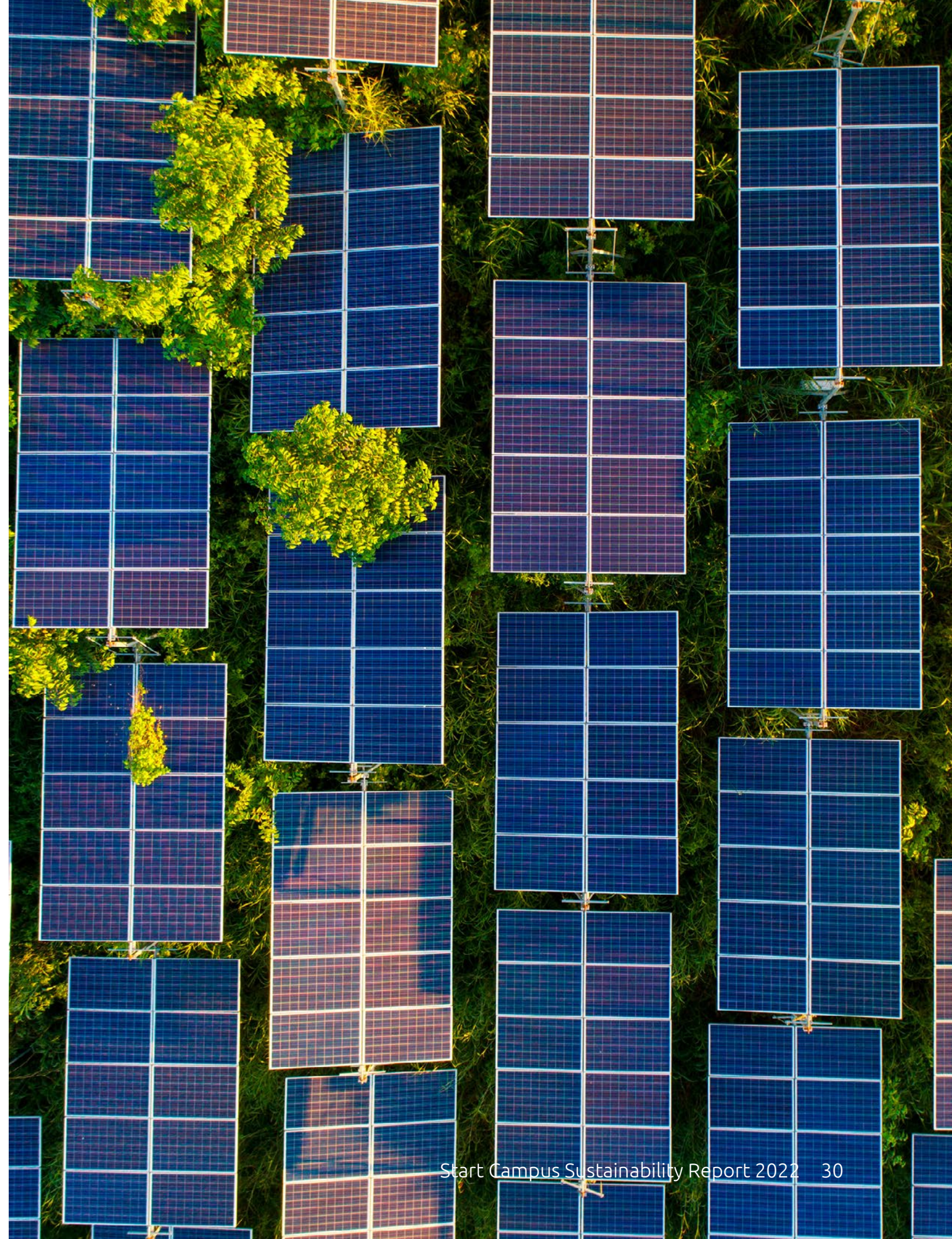
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Start Campus

Waste Commitments

For this the first building SIN01, a minimum of 75% diversion from landfill will be targeted in line with the **LEED GOLD certification requirements**. For 2023 Start Campus has a corporate target to achieve 98% diversion from landfill.

In 2022, **we managed to recycle 24.4 tons of waste** generated on site. This is equivalent to around 4 full school buses.

**We managed to recycle
4 School Buses of waste**

Water consumption

Data center water consumption is comprised of three components:

1 Water consumed directly by the data center for cooling

2 Water consumed directly for human purposes

3 Water consumed indirectly through electricity generation

In the pursuit of lower PUE, many data centers consume a great deal of water for evaporative cooling, competing for potable water supplies. According to the study[6], it takes about 7.6 liters of water on average to generate 1kWh of energy, while an average data center uses 1.8 liters of water for every kWh it consumes. Data center operators have identified risks associated with consuming water on-site at a high volume and have been adopting **greener ways to alleviate this issue**.

Fortunately, Start Campus is a zero-consumption site by design. Utilizing the Atlantic Ocean as a direct natural heat sink, no potable water will be utilized, as **the captured seawater is returned to the ocean**. The reuse of waste cooled water from LNG regasification facility, increases the system's efficiency, further allows Start Campus the ability to offer prospective customers zero water consumption.

[6] Mytton, D. 2022. Data centre water consumption. NPJ, Clean Water 4, 11

Climate Change

Since the Paris Agreement and its commitments to the IPCC report[7] of staying below 1.5ºC of warming - one term stands out in all the conversations related to climate change: mitigation. **The greatest way to mitigate** is by reducing GHG emissions into the atmosphere.

Carbon sinks offer real, significant assistance in slowing down climate change, however, **the only feasible solution is to lower emissions** by abandoning our dependence on fossil fuels and making a firm commitment to renewable energies.

The increased usage of water, even if favorable for power consumption stats, may lead to greater environmental impacts, aggravated by the imminent decrease of future water supply due to climate change (40% gap between global water supply and demand by 2030)[8].

Aware of this impact, **Start Campus' site is designed to blend as much as possible with the natural habitat** that was previously present on site. To reduce the impact on the local biodiversity's habitats, our landscape design will require zero water for irrigation purposes, utilizing the existing atmospheric conditions.

[7] IPCC, 2022: Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

[8] Lei, N., and Masanet, E. 2022. Climate-and technology-specific PUE and WUE estimations for US data centers using a hybrid statistical and thermodynamics-based approach. Resources, Conservation and Recycling, 182, 106323.

Aware of this impact, Start Campus' site is designed to blend as much as possible with the natural habitat that was previously present on site.

PUE and WUE at Start Campus
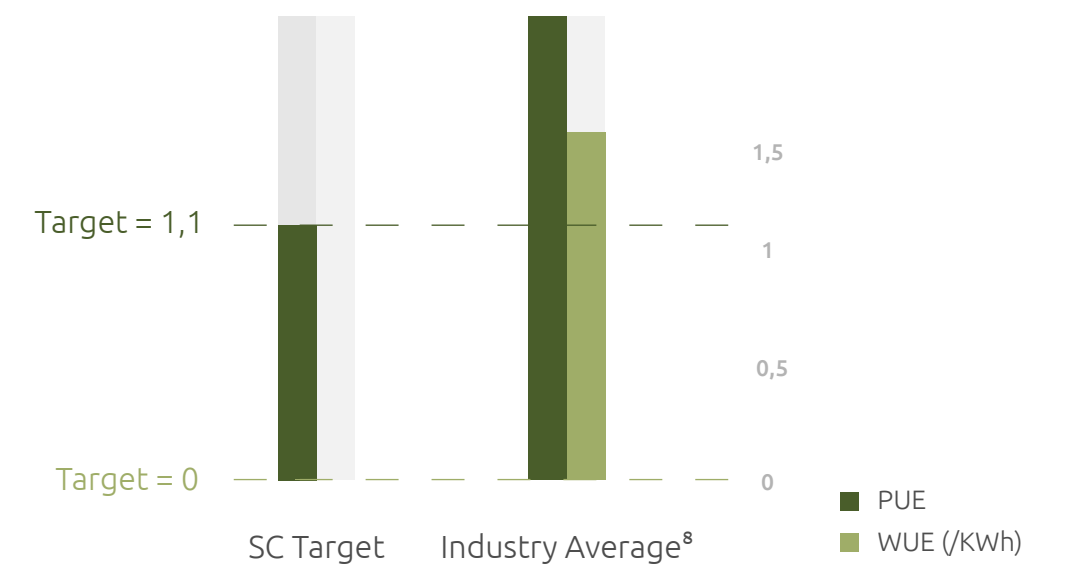
Graph 1: Comparison of Start Campus' target PUE and WUE to US industry average values. Source Lei, N., & Masanet, E. (2022). *Climate-and technology-specific PUE and WUE estimations for US data centers using a hybrid statistical and thermodynamics-based approach.*

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Endemic Biodiversity Re-Introduction Programs

Habitat restoration is a great conservation approach that may allow many flora and fauna populations to recover without the use of exotic propagules.

Start Campus has partnered with multiple local ecological and educational institutes, to analyze, design and implement ecological restoration programs on site.

This will positively impact the local biodiversity, contribute to offset emissions and other environmental impacts during the construction phase of the site.

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Primary study area

Start Campus Data Center

Special conservation Zone

Costa Vicentina

Endemic Biodiversity
Re-Introduction Programs

Our environmental impact assessment studies found, amongst many species, two to be in critical condition to preserve. These include two flora sub-species - *Erica ciliaris* and *Erica erigena*; and a native amphibian species classified as critically-endangered: *Discoglossus galganoi*.

We are proud to be working with the **University of Évora's leaders** in the field of environmental research, to develop the most successful re-introduction programs of these species on site:

Discoglossus galganoi

In the first building, SIN01, **two large temporary ponds were designed** as perfect habitat replicas for the endangered *Discoglossus galganoi*.

In 2023 **endangered species will be reintroduced** back into ecosystems which is essential to restore the food chain. Additionally, thriving amphibians are optimal indicators of water, air, and soil quality.

Erica erigena   *Erica ciliaris*

SIN01 temporary ponds will also be home to re-introduced flowering *Erica erigena* and *Erica ciliaris*. These endemic heather species were pointed out by local ecologists while performing the site's **Environmental Impact Assessment** as critical to conserve, on a landscape which has been dominated by exotic species over the past few years.

Following the **carefully-designed methodology** created in partnership with the University of Évora - prior to re-planting, Start Campus is storing the heather plants in appropriate nursery bags as to assure their survival.

YOU ARE ENTERING AN ENVIRONMENTALLY SENSITIVE AREA

This property is designed to encourage natural and local habitat to flourish. It provides the four basic habitat elements needed for wildlife to thrive: food, water, cover and places to raise young.

Throughout the site you will encounter warning signs of Protected Wildlife locations. We encourage you to actively participate in the biodiversity management process, by taking pictures and reporting to a member of Start Campus staff any sightings you might encounter.

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Noise Pollution

Start Campus is aware of the impacts noise pollution can have on the **biodiversity and human well-being**, this way ensuring compliance with basic noise pollution standards determined by ISO 9295:2015.

This standard specifies four methods for the determination of the **sound power levels** of high-frequency noise emitted by machinery and equipment in the frequency range covered by the octave band centred at 16 kHz, which includes frequencies between 11,2 kHz and 22,4 kHz[9]. They are complementary to the methods described in ISO 3741 and ISO 3744.

The test conditions which prescribe the installation and operation of the equipment are those specified in ISO 3741 or ISO 3744 as applicable. The standards for noise-pollution are defined by **The World Health Organization** as being harmful for the surrounding environment above 65 decibels (dB).

To be precise, noise becomes harmful when it exceeds 75 decibels (dB) and is painful above 120 dB. Therefore, it is established that values lower than 65 dB are considered low (labeled green), values between 65 and 75 dB are considered slightly elevated (labeled yellow), and values greater than 75 dB show high noise levels (labeled red).

Additionally, the habitat created for Discoglossus galganoi and the **wildlife corridors** which will be naturally occurring will be placed mindfully, significantly far from these noise-polluting sources.

[9] IDC, 2022, Global Sustainable Strategies and Technologies Buyer Value Survey.

Start Campus is aware of the impacts noise pollution can have on the biodiversity and human well-being

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For the Industry

Impact on SDG's

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Beacon for Innovation and Inclusion

To support our activities, **monitor and measure progress** in achieving our sustainability objectives, we are:

▸ **Embedding sustainability**
Embedding sustainability in corporate objectives and targets

▸ **Influence the global industry:**
We thrive to be pioneers in developing and, in particular - sharing with the wider industry our highly-detailed, and 100% transparent, Carbon Modelling System, using BIMMS Software. We aim to set an example for all future companies to adopt the most Sustainable and Ethically-driven deliverables.

▸ **Implementation**
Implementation of our sustainable procurement policy and environment policy

Additionally, **we are committed** to advise clients to invest in their mitigation strategies and create more opportunities for a **responsible lifecycle of products**. This goes beyond standard resource efficiency and supply chain management.

We focus on **longevity, flexibility and adaptability** in design, prioritising reuse and life-cycle assessments. We will additionally share our outstanding, multi-disciplinary modelling system, using the BIMMS software.

Start Campus will actively onboard every year at least five individuals interested as part of our **Internship Trainee Program.**

In 2022, we received pre- and post-graduate students enrolled in Universities around the globe, including **Europe and the United States of America**, who actively contributed with their knowledge and enthusiasm for sustainable data centers.

Collecting and sharing detailed sustainability data helps Start Campus and its customers to lead the green debate with authority, which is needed for future generations.

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Responsible Sustainable Procurement

The materials and products that we and our supply chain purchase have far reaching impacts. Through strategic management of our activities, negative impacts can be avoided or reduced, and **positive impacts prioritized and maximized**.

Adoption of sustainable procurement by Start Campus represents a large positive environmental impact. We will adopt inclusive principles to set exemplary sustainability standards and we want to take everyone with us on this journey. We have set the highest priority for site, building and contractor selection. The most impactful sections include the integration of architectural and structural design engineering to minimize associated emissions at the selection stage. As well as the quantitative appraisal to include deployment lifetime of building and components, and specific requirements for **compliance with defined ISOs** or equivalent for construction contractors.

The main principles of sustainable procurement as defined within ISO 20400:2017 and incorporated in Start Campus' Statement are:

We are adopting inclusive principles to set exemplary sustainability standards and we want to take everyone with us on this journey

73% Local Supplier Companies used

1

Accountability – through the adoption of our sustainability commitments in our most significant procurement activities

2

Establish a transparent approach to procurement that supports our net gain sustainability strategy

3

Promote ethical behavior with regards to safety, wellness, ethical business, labor and human rights.

4

Identify and develop innovative solutions with our supply chain in order to share best practices across the quality, sustainability, information technology, tax and political sectors of our most significant contractors

5

Select suppliers that share our values and sustainability goals

6

Analyze materials from a whole life cycle perspective and adopt a preference for ethical and certified products.

Cybersecurity and Training Programs

Start Campus has a policy in place for its employees to undergo regular training on Information Security Awareness. **All employees are required to complete the Information Security Awareness Training module** on a quarterly basis, which includes an exhaustive review of our internal policies relating to Cybersecurity and Data Privacy.

This information is also provided in the **Employee Handbook**, which will be attested to and signed by each employee on an annual basis.

Start Campus has several programs and policies in place related to data security and privacy of client data.

The Start Campus Cyber Security Program reflects **our commitment to implement leading data protection standards** on behalf of our clients and with respect to our own internal data systems.

Its primary mission is to protect the confidentiality, integrity, and availability of corporate and data center's information system. It is the responsibility of all Start Campus employees to **understand and to comply with the code of conduct** established the Data Privacy Policy Statement.

Start Campus' cyber management system is in compliance with to ISO 27001 standards and the effective certification process.

Cyber Risk Assessment and Incident Response

Start Campus incident response services addresses cybersecurity incidents, which include:

- SPAM
- Harmful speech
- Child/Sexual/Violence
- Malware
- Scanning
- Sniffing
- Social engineering
- Vulnerability Exploit
- Login attempts
- Account compromise
- Application compromise

- (Distributed) Denial of Service (DDos/DoS)
- Sabotage
- Outage (no malice)
- Unauthorized access
- Unauthorized modification
- Unauthorized use of resources
- Copyright
- Masquerade
- Pishing

Compliance

ISO 27001	ISO 22301	ISO 9001	ISO 200000	Decree-Law 101-D/2020 138-I/2021 order 6476-H/2021 EN 15232	TIA 942	TSI EN 50600
Certification	Certification	Certification	Certification	Compliance	Compliance / Support	Compliance / Support
Information Security	Business Continuity Processes	Service Quality	Service Management	Guide for building automation and control systems	Requirements for infrastructure rating	Data center | Infrastructure design (including security)

ISO 14001	FISM A	QNRCS	SOC 2 Type II	UI Tier Level Topology	UI Operations Sustainability
Certification	Certification	Certification	Certification	Compliance / Support	Compliance / Support
Environmental Management	US Federal effectiveness on information security programs and management	Portuguese National Cybersecurity Centre – Cybersecurity Framework	Attests security rules and processes	Requirements for tier levels	Requirements for operation according to each tier level

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For the Community

Impact on SDG's

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

11 SUSTAINABLE CITIES AND COMMUNITIES

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Community Impacts

Local Community

Start Campus aims to **increase regional economic development** by creating positive spillovers on the promotion of sustainable landscape in the region, and on the build of integrated carbon sink projects. Entrepreneurship initiatives contribute towards up and re-skilling of local populations aiming to **improve employability.** As well as a focus on education by training and skills development in all relevant areas of expertise, working in partnership with several national and local universities and technical schools such as IPS - Politécnico de Setubal, ETLA - Escola do Litoral Alentejano.

By locating our facilities outside of large metropolitan regions, **Start Campus makes a positive impact on net contributions,** providing a new industry within local communities, boosting employment in non-urban areas.

Gamma

The Gamma Platform exists to **empower community members to be leaders** in regional development by supporting local initiatives that reflect four investment pillars: educational development, environment, community, and entrepreneurship.

The Platform will fund and support a number of community projects each year that target and benefit the municipality of Sines and neighboring Santiago do Cacém.

Our goal is to leave a **positive impact on the Sines region** by promoting economic growth and prosperity through collaboration with local entrepreneurs, residents, and other stakeholders to understand and support their vision for their future of this community.

Eligibility

Applications should focus on projects that directly target and intend to benefit the Sines region and reflect at least one of our **four investment pillars**:

Educational Development
Projects or programs that intend to expand or improve educational opportunity and access.

Environment
Projects that target environmental conservation, spread environmental education and awareness, or otherwise support the natural environment in some way.

Community
Initiatives that bring community members together, involve the participation of multiple community groups or organizations, or otherwise strengthen the social fabric.

Entrepreneurship
Creative and innovative ideas that promote growth and prosperity and create value for the community.

GAMMA COMMUNITY

How it works

Any individual, organization, or company may apply for project funding, however Gamma Community Platform will give preference to applicants based in the Sines region.

The platform was launched in October 2022 and a total of 20 projects were submitted for the first year.

For additional eligibility requirements, click the following link:

Gamma Community Platform Rules and Regulations

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Wider Community

Start Campus will be a **hub of interdisciplinary projects and programs**, aimed at expanding or improving educational opportunity and access. By collaborating with international universities through the newly founded Colleges **for European Datacenter Education (CEDCE)** program, we will contribute to actively contribute to improving the employment skills involved for data center professionals. As it is still a very young industry, data center education is a work in progress, therefore, a European collaboration on data center education will play an important role in improving this.

Additionally, **Start Campus will partner up with the most relevant research institutes**, including the newly founded ETla Program, as to create a direct contact with leading global educational programs in the field of Sustainable Data Centers.

Sines Municipality

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For Start Campus

Impact on SDG's

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

11 SUSTAINABLE CITIES AND COMMUNITIES

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Investing in Employment Well-Being

At Start Campus **we value our employee's mental health** as much as their physical wellbeing.

For this reason, we have implemented a mental health program that offers **6 individual sessions per employee per year** under the EAP Pulso Program. The DNA programme is for everyone on our campuses: employees, customers, service providers and visitors.

Inclusive and Diverse

9

Different nationalities represented across the workforce

10

Out of 29 employees, 10 are women

37%

of the workforce are women.

400%

Employee growth

Health and Safety Commitments

Health and Safety stewardship is one of Start Campus' core values, **fundamental to the way we operate** and an essential component of our building strategy.

Our goal is to **protect our employees**, as well as those of our supply chain partners, visitors, costumers, our communities, and all others who could be affected by our activities.

To accomplish this, we are committed to:

▶ **Comply** with legal and other requirements, including applicable statutory laws, regulations, corporate policies, standards, vand procedures.

▶ Incorporate recognized industry **best-practice** and codes of conduct in the management of the Project health, safety and worker wellbeing.

▶ Effectively **engage all employees** in our H&S programs and initiatives.

▶ Create and maintain a **positive health and safety culture** and ensure that it is our highest priority across all levels of the Project.

▶ Follow a cautionary standpoint approach, that consists of analyzing the overall situation before taking action and then acting once the **safest process** has been identified according to health and safety rules.

▶ Always report observations which could lead to incidents, **even in doubt**.

▶ Start Campus and their associates implement **health and safety best practices** that fulfill local regulations and align with a continuous improvement process that complies with the requirements of ISO 45001.

▶ **Weekly updates** are held between the health and safety and the rest of the team, from the Board of Directors to service providers on site, ensuring best practices and personnel awareness.

▶ Progress indicators are **regularly monitored** to verify effective action plan implementation.

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Data Snapshot

Portfolio Metrics

- Total Number of data centers in construction   1
- Total MW of data center in construction   **15 MW**

GHG Emissions, tCO₂e

- Total Emissions   **8,189**
- Scope 1 Construction   **417**
  Defined by diesel consumption
- Scope 2 Emissions   **0**
- Scope 3 Emissions   **7,772**

Waste 2022

- Total Waste (tons)   **24.4**
- Waste Recycling Ratio   **100%**
- Waste Diversion Percentage   **75%**

15 MW Building Structure up to the end of 2022, tCO₂e

- Scope 1   **13**
- Scope 3   **2,501**
- Total   **2,514**

* Scope 2=0

Carbon Emissions Estimations for 15 MW Foundations and Structures, tCO2e   **8,189**

- Concrete   **3,015**
- Steel   **2,339**
- Bitumous Concrete/Asphalt   **2,073**
- Excavation + Earth Moving   **294**
- Piping HDPE   **174**
- Aggregates   **116**
- Transport   **63**
- Filling, Sealing, Smoothing   **33**
- Concrete Slab Finishes   **16**

Employment Metrics of 2022

▶	Salary Gap Women / Man	0%	▶	Doctor appointment leaves	2
▶	Total Number of Employees	29	▶	Number of Board Members	7
▶	Net Number of Women Employees	10	▶	Number of External Board Members	5
▶	Women Employees Percentage	37%	▶	Accidents Total	3
▶	Number Women Manager	2	▶	Contractor Accidents	3
▶	Women Manager Percentage	20%	▶	Employee Accidents	0
▶	Voluntary Turnover	4.90%	▶	Occupational Diseases	0
▶	Involuntary Turnover	9.80%	▶	Employee Fatalities	0
▶	Target Diversity	30%	▶	Contractor Fatalities	0
▶	Employee Satisfaction	81%	▶	Lost Time Injury Rate Total	0.1
▶	Average Length Employee	1 Year	▶	Lost Time Injury Rate Contractors	0.1
▶	Number of Different Nationalities	9	▶	Lost Time Injury Rate Employees	0
▶	Net New Employees 2022	23	▶	Lost Working Days	5
▶	Net New Women Employees	7	▶	Employee Lost Working Days	0
▶	Mental Health Program	6 sessions yearly per employee	▶	Contractor Lost Working Days	5
▶	Employee retention	100%	▶	Training Hours Total	152

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