Sustainability report.

2021
Green Mountain designs, builds and operates highly secure, innovative, and sustainable colocation data centers in Norway. The data centers operate on low cost 100% renewable power and are extremely energy efficient.

The first data center, DC1-Stavanger, is built deep inside a mountain in a former high-security NATO ammunition storage. The second data center, DC2-Telemark, resides in Norway’s ‘cradle of hydro power’, whereas the third data center, DC3-Oslo, is situated just outside the capital of Norway.

Green Mountain is one of the largest data center operators in the Nordics and experiences strong growth. Among clients are large international companies within Cloud, Banking/Finance, HPC, Automotive and more.
Opening remarks from CEO.

Why do we need a sustainability report?
The most important thing is what we do, not what we write in a report.

This was my initial thought when a colleague suggested we should produce a report a few years back. At that time, my sole focus was to support our employees in delivering the best services in the most sustainable way we could. Sustainability is and has always been a part of the company’s DNA and I felt we raised the issue, opportunities, and solutions of climate change at every occasion we got. At that point, I also believed that many of the reports I read were merely glossy brochures trying to greenwash a company’s activities.

However, things have changed. Today, our clients and stakeholders demand more transparency in what we are doing and what our next goals are. They want this presented in a way that is easily understood and that holds us accountable. So, I have changed my view on sustainability reports – they are a necessity.

In 2021, we therefore hired a Sustainability Manager whose priority is not to focus on producing sustainability reports. The task is rather to coordinate and systemize all the efforts we currently do and set measurable objectives and targets for our organization.

The role’s main purpose is to keep a sharp focus on the execution of our action plans and move our organization forward in reaching our sustainability goals. The report you are reading is simply a byproduct of the process we initiated. A process that challenged us all to review both past, present, and future efforts and opinions. To scrutinize our activities and commit to improvement. Because there is still room for improvement, and we find these improvement areas in close to every single area we look at.

So, here it is. Green Mountain’s first sustainability report. Outlining both our achievements and shortcomings as well as our plans and ambitions. I hope you will keep a keen eye on us and make sure we keep our word. Because in the end, what still matters most is action – not reports.

Sincerely yours,

Tor Kristian Gyland
CEO of Green Mountain
Message from Sustainability Manager.

Our objectives and targets are clear.

For many years I worked closely with Green Mountain on different projects and in 2021 I was fortunate to be offered the role as Sustainability Manager. I already knew their strong and well-established ambitions for sustainability, so this was an exciting opportunity. The first task on my list was to address our strategies and objectives. We needed to coordinate all our projects and activities within a strategic framework. The purpose was to utilize our own resources more efficiently and simultaneously make it easier to report on progress and goal achievement.

Working on sustainability performance involves all parts of our organization. In addition, we will more extensively engage our customers, partners, and neighbors in the time to come. This is one of the reasons why we are committed to publish an annual sustainability report. We want these reports to be inspiring and educational, for both our own employees and all interested readers.

Undoubtedly, we have important plans and tasks ahead of us. I would like to highlight two especially important areas for Green Mountain. For one, we need to further reduce our carbon footprint. Our own emissions are low, but it is still a challenge to bring them down to zero. One measure is to make us independent of fossil fuels for emergency power. I am optimistic about this task as we have strong suppliers to help us find new solutions. The other area is energy efficiency. Together with our partners, we work to make even better use of the 100% green power that run our data centers. In two different projects, we will use excess heat from our cooling processes to breed trout and lobster in land-based aqua farms. As a result, the energy will be used twice, and free up large amounts of power in the grid.

Our objectives and targets are clear, but at the same time we realize that we need more knowledge and new technologies to reach them. We may achieve a lot on our own, but even more in collaboration with others.

Sincerely yours,
Torkild Follaug
Sustainability Manager
Executive Summary.

This is the first sustainability report issued by Green Mountain. It covers seven focus areas within ESG (Environmental, Social, Governance), with an emphasis on the environmental aspect. Each focus area has a defined overall objective supplemented by several targets. In the report we outline our progress towards these targets as well as our next steps.

IN BRIEF, HERE ARE THE HIGHLIGHTS FROM THE 2021 REPORT:

- Green Mountain continues to power all its data centers by 100% renewable power, certified by guarantees of origin. We hit our 1.2 PUE target and will concentrate our future efforts on improving energy efficiency further through a specific program for our clients. We will continue to invest in our current pilot projects on heat reuse and explore new solutions.

- Our carbon footprint on electricity is 0 gramCO₂e/kWh but looking at scope 1 and 2 combined the carbon footprint amounts to 3.24 gramCO₂e/kWh. This is far below industry average, but we have identified the two areas where we can take action to lower it further. Preventing leakage of F-gasses from cooling solutions and offset CO₂ emissions from back-up generators until a carbon free solution is available. In our next report, we will include Scope3 emissions as well.

- Norway is defined as a non-stress water area, which means that we have ample freshwater resources. However, we continue to monitor and improve our freshwater usage. At DC1-Stavanger for instance, no freshwater is used to cool the facility.

- In 2021, we sorted and recycled 76% of the waste we generated, the rest was incinerated for district heating.

- We continue to receive a high employee satisfaction score. The reason for this is our focus on good working conditions, competence programs and a nurturing work environment. We would like to increase our share of female employees (currently at 15%) and will develop a more detailed plan to accomplish this. Our local community initiatives were all well received in 2021 and we will strengthen them further in 2022.

- Green Mountain has a strong focus on compliance with international standards as well as industry partnerships. In addition to already approved certifications we are preparing to obtain three new ISO certifications.
Green Mountain in numbers.

- **3** Data center locations
- **10** Years in operation
- **56** Employees
- **5.7 of 6** Client satisfaction score
- **158** MW power available
- **>800** MW power available at new locations
- **127,600** m² land available
- **>450,000** m² land available at new locations
- **100%** Renewable power
- **4.9 of 6** Employee satisfaction score
- **63%** Revenue growth
- **100%** Uptime and no SLA breach

Certifications
Company Values.
Setting the Green Standard.

Our vision is supported by our company values.

- **Satisfied customers** are the most important goal of our business.
- In our business, trust is one of the main keys for success. We must always be honest and reliable to gain our customers’ trust.
- We need to know both our own business as well as our customers’ businesses and work to raise our knowledge and skills.
- Enthusiasm towards our goals and achievements is an important driver for our continued success.

Since its inception, Green Mountain has had an ambitious vision; “Setting the Green standard”. But what does that actually mean? And does it mean the same as when we started out over 10 years ago?

As a starting point for developing this sustainability report, we have gathered key personnel from all company functions to revisit and review this vision. They had different perceptions but there was agreement on the core meaning.

Employees who had been with the company from the start explained that the original vision was to build the world’s greenest data center. When DC1-Stavanger went operational in 2013, many felt that vision was accomplished. What would be our next goal? Today, our vision statement requires us to be the front-runner on sustainability. We want to be the company that pushes the needle and challenges the status quo. We want to explore new possibilities that take our data centers to the next level of sustainability. In our discussions, we all agreed that Green Mountain had done a good job so far, but that there are still areas for improvement. That is why we will keep our strategic focus on sustainability now and into the future.
We currently see that almost all our discussions with clients start with a drive to a carbon neutral future. If we look 5 years back, sustainable data centers were a nice to have, now it is a top-3 decision criterion. We have clients today that would not engage in dialogue unless we can support their race to net zero. We also see a significant migration north, as we are the only region in Europe that can deliver 100% renewables, free cooling, and heat-reuse alternatives.

Svein Atle Hagaseth  
CSO in Green Mountain

When making design and technology decisions we must ensure that we deliver the most environmentally sound and sustainable solutions without compromising on quality, cost, or time-to-market. Sustainability is more than green power and the reuse of water and residual heat. Our ambition is to develop the entire value chain, from design and technology to the construction process and operation, in the best possible way according to Green Mountain’s sustainability targets.

Ole Sten Volland  
CTO in Green Mountain

For the operations team in Green Mountain, the most important sustainability aspect is energy efficiency. This is something we can directly influence in our daily work by optimizing the infrastructure to minimize energy use. In addition, we advise our clients on how they can optimize the IT equipment inside the data rooms in order to be more energy efficient. This is of course done in a manner that won’t affect operations – uptime will always be our number one priority.

Truls Dishington  
COO in Green Mountain
Objectives & Targets.
Objectives and Targets.

Green Mountain’s sustainability report is an important opportunity for us to maintain an open and transparent dialogue with all our stakeholders. In addition, it supports our internal processes and activities to constantly improve our performance and quality on sustainability.

Our report has seven focus areas: Energy, GHG emissions, Waste, Water, Biodiversity, Social responsibility, and Governance. They bring a broad perspective in our report, covering a whole range of Environmental, Social, and Governance (ESG) topics.

The Green Mountain Sustainability Objectives are supported by company targets and are aligned with selected United Nations Sustainable Development Goals.*

Future reports will be produced according to GRI-standards (Global Reporting Initiative) for sustainability reporting.** In this first sustainability report, we have used the methodology from Greenhouse Gas (GHG) Protocol to document and measure our carbon emissions in scope 1 and scope 2. Reporting GHG emissions is a comprehensive task, and our current data does not fully support reporting on scope 3.

We are currently collecting and organizing this data to be included in the 2022 report. Green Mountain will publish a sustainability report annually.
GHG Protocol establishes comprehensive global standardized frameworks to measure and manage greenhouse gas (GHG) emissions from private and public sector operations, value chains and mitigation actions.

SCOPE 1
Direct (owned) Emissions
- ONSITE facility emissions direct combustion
- OWNED equipment emissions company owned vehicles/equipment

SCOPE 2
Indirect (Purchased) Emissions
- PURCHASED facility energy for electricity, heating/cooling, stream

SCOPE 3
Other Indirect (Purchased) Emissions
- EMPLOYEE emissions travel, commuting
- LEASED ASSETS emissions operations of leased assets
- SUPPLY CHAIN emissions material extraction/production, purchased goods/services, sold goods/services, material waste

* https://ghgprotocol.org/
Energy.

Industry leading on renewable energy and energy efficiency.
- Maintain 100% renewable energy supply to all sites
- Maintain an average PUE level below 1.2 at all sites
- Establish an energy efficiency program and introduce it for all clients by the end of 2022
- 40% of clients to enroll in the energy efficiency program by the end of 2022
- Establish pilot project on own energy production by the end of 2023
- Heat reuse projects - Implement heat reuse measures at every site
- Obtain ISO 50001 certification in 2023 (Energy Management)

GHG emissions.

Carbon neutrality (scope 1+2) by the end of 2023.
- Establish a pilot project using carbon free technology for back-up power by the end of 2024
- Compensate CO₂ emissions related to diesel back-up generators until new clean technology can be used
- Establish a reporting framework for Scope 3 emissions (2022)
- Compensate CO₂ emissions for all employees’ work-related air travel from 2022 (Scope 3)
- F-gases; implement monitoring of refill at service, challenge suppliers on products with lower GWP (Global Warming Potential). Target; no leakage
- Maintain a company vehicle fleet of 100% EVs
- Obtain ISO 14064 certification in 2023

Water.

Secure sustainable water consumption.
- Comply by WUE targets to be set by CNDCP
- Analyze water consumption on an hourly basis to optimize waterflow by the end of 2022
- Obtain WUE below 0.5
Waste.

Operate according to circular economy principles.
- Offer all clients services for decommissioning and recycling of ICT equipment
- Waste sorted at source, target 80% sorting rate for recycling by 2023
- Strengthen onboarding routine for new personnel on routines concerning waste handling and sorting

Biodiversity.

Minimize negative impact on land & biodiversity.
- Establish green areas on all sites to support biodiversity by 2023
- Measures to ensure biodiversity at future sites. One action plan per site by the end of 2023
- No use of chemicals or pesticides that can harm environment

Governance.

To control risk and ensure accountability, transparency, and integrity across the organization.
- Obtain ISO 50001 certification in 2023 (Energy Management)
- Obtain ISO 14064 certification in 2023 (Carbon footprint verification)
- Obtain ISO 45001 certification in 2023 (Occupational health and safety management)
- Operate according to ISO 9001, 14001, 27001, and maintain certifications
- Secure governance training through Green Academy
- Report according to GRI (Global Reporting Initiative) from 2023
Social responsibility.

Integrate social responsibility into all aspects and levels of our business.

- Encourage female candidates to apply for jobs in operations, project, and management
- Offer apprenticeships at all sites continuously
- Support and encourage competence development and further education among employees
- Develop and strengthen our Green Academy program in 2022
- Maintain an annual average client satisfaction score above 5.5 on a 6-point scale
- Obtain an annual average employee satisfaction score above 5.0 on a 6-point scale
- Continue to allocate specific funds to support community initiatives at all DC locations
- HSE – maintain zero injuries
- Obtain ISO 45001 certification (Occupational health and safety management) in 2023
Industry leading on renewable energy and energy efficiency.

Data centers are massive consumers of energy. This energy usage can have a major impact on the environment. Green Mountain therefore focuses on three questions:

- What sort of energy do we use?
- How efficiently do we use this energy?
- How can we reuse the heat we are generating?

STATUS ON TARGETS:
All our data centers are operated on renewable hydro-power with a guarantee of origin. We have an ample supply of this renewable energy in Norway. When it comes to Power Usage Effectiveness, we hit our target of an average PUE of 1.2 in 2021. This was achieved by optimizing our cooling solutions to be as energy efficient as possible. However, it is worth mentioning that this PUE varies across our sites and client installations. The PUE is affected by the client’s IT infrastructure set-up in their respective data rooms and how they utilize their assigned power capacity. Cooperation between the client and Green Mountain ensures the best PUE possible. Our data centers produce a lot of heat that can be dispersed to air or water.

This valuable source of energy is wasted. We know that this is not a sustainable way of operating and have therefore initiated two pilot projects to reuse the heat for onshore lobster and trout aquaculture farming. (Read more on page 40.)

NEXT STEPS:
As we have ensured that all our sites use renewable energy, we are now focused on improving energy efficiency and implementing heat reuse programs. Although we advise our clients on energy optimization inside their data rooms, we want to make our approach more systematic.

- We will establish an energy efficiency program and introduce it to all clients by the end of 2022.
- We will continue to invest in our current heat reuse projects but will also explore new ways of efficient heat reuse. Our goal is to implement these solutions at all our sites. By the end of 2023, we expect to have at least one of these projects in operation.
- We will establish a pilot project for on-site wind and/or solar power production by end of 2023.
- We will focus on obtaining an ISO 50001 certification in 2023 (Energy Management System).
GHG Emissions.
GHG Emissions.

Carbon neutrality (scope 1+2) by 2023.

This report is subject to GHG Protocol scope 1 and 2. The GHG Protocol Corporate Standard classifies a company’s GHG emissions into three scopes. Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Next level, Scope 3, will be part of the upcoming sustainability report for 2022.

STATUS ON TARGETS:
Green Mountain’s objective is to reach carbon neutrality by the end of 2023. With a carbon footprint of only 3.24 grams carbon dioxide equivalents per kilowatt hour (gCO₂e/kWh), we are performing well. Of course, the closer we get to zero, the harder it gets to reduce our footprint even further.

Greenhouse gas (GHG) emissions from our operations are related to the diesel consumption of our back-up power generators. These are normally operated only for maintenance purposes, and are tested once every month to ensure no malfunction or system down-time in case of grid fall-out. The energy produced by generators during testing is either used by our data center or distributed to the local grid. Our carbon footprint from electricity from the Hydroelectric grid is zero, certified by guarantees of origin.

Due to an unfortunate leakage of 20.5 kg of fluorinated gases, our carbon footprint rose by nearly 48 tonnes CO₂e, contributing to 22% of our scope 1+2 emissions in 2021. Measures are taken to monitor and prevent future leakages in collaboration with our suppliers and operations team. We also challenge our suppliers to find alternatives with lower GWP (Global Warming Potential).

NEXT STEPS:
As carbon emissions from our back-up generators are the major contributor to our footprint, our long-term goal is to find carbon-free alternatives. We aim to launch a pilot project using a carbon-free solution for back-up power by the end of 2024.

Moving forward, we will offset CO₂ emissions from diesel back-up generators until a new clean solution can be utilized. Carbon offsetting will also be done for all employees’ work-related air travel CO₂ emissions from 2022.

Establishing a reporting framework for scope 3 emissions relating to our activities is a prioritized task in 2022.
Water.
Secure sustainable water consumption.

The global data center industry is raising awareness and adopting higher standards for sustainable water management. Green Mountain’s objective is to secure sustainable water consumption. Water is a finite resource and will have a greater influence on the localization of data centers in the years to come. Moving data center capacity from high water-stress areas to low water-stress areas contributes substantially to ensuring access to safe and affordable drinking water on a global scale.

STATUS ON TARGETS:
Today, our data centers are situated in Norway, a country with no water stress. Still, we do have a responsibility to manage our water resources effectively as water distribution has a CO₂ footprint. Moreover, we want to build competence on water optimization to be used at future locations. Our operation depends on different cooling solutions with various water consumption options at our sites. DC1-Stavanger has no freshwater cooling, utilizing only seawater. DC2-Telemark and DC3-Oslo utilize municipal water for cooling. Green Mountain monitors freshwater usage that is supplied by our local municipalities. Water used for cooling processes does not contaminate the water sources. Our Water Usage Effectiveness (WUE) for 2021 is 0.52, calculated by total litre water consumed per kilowatt hour IT-load. Our short-term target is to achieve a WUE-factor below 0.50.

NEXT STEPS:
• Improve our monitoring on water usage
• Analyze water consumption on an hourly basis to optimize waterflow
• Optimize the balance between water usage and electricity consumption based on water-stress situation at site
• Comply with WUE targets to be set by Climate Neutral Data Centre Pact (CNDCP)**
• All water data to be made available to our clients

* https://eta-publications.lbl.gov/sites/default/files/lbnl-1005775_v2.pdf
** www.climateneutraldatacentre.net
Waste.
Waste.

**Operate according to circular economy principles.**

Sustainable waste management is a central part of a broader circular economy. We will prevent usable goods and materials being sent to landfill or incineration site as part of energy recovery programs. There has been a landfill ban on biodegradable material in Norway since 2009.

**STATUS ON TARGETS:**

At Green Mountain’s sites we ensure that waste is sorted and recycled with a target sorting rate of >80%. In 2021 we sorted 85 out of 112 tonnes of solid waste generated and collected at our sites.

This gives a sorting rate of 76%, missing our target by four (4) percentage points. The waste is sorted by the following categories: wood, residual waste, metal, plastics, cardboard/paper, glass, electronics, organic, chemicals and hazardous waste. Waste bins and containers are placed at each site and clearly marked. Apart from the waste generated by operations and construction projects, our clients occasionally need to decommission some of their ICT equipment. As a service to our clients, we have partnered with CHG-Meridian, to make it easier to reuse and/or recycle ICT-equipment.

**NEXT STEPS:**

To reach our 80% target we will need to make several adjustments in our operations. The main challenge is to make it easy to sort the waste correctly at source. In collaboration with our recycling partners, we will raise awareness among our staff, clients, and suppliers on the importance of sustainable waste management. This will be implemented in our mandatory onboarding program.
Biodiversity
Biodiversity.

Minimize negative impact on land & biodiversity.

Healthy, biodiverse ecosystems sustain life on earth by providing air, water, and other essential elements, creating the basis of all resources in our industry. According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 75 percent of the earth’s land and 66 percent of its oceans have been altered by human activity and many essential ecosystem services are under increased pressure*. The rate of change has increased significantly over the past 50 years due to unprecedented pressure from human populations.

STATUS ON TARGETS:
At Green Mountain we recognize our responsibility to protect the ecosystem. As one of seven sustainability focus areas, we actively work to minimize our negative impact on land and biodiversity. Several years ago, we stopped all use of chemicals and pesticides. In 2021 we committed to a more systemic approach to biodiversity. This work has raised awareness of the challenges we are all facing and underpinned the need for action to ensure the best environment for future generations. Resulting in an initiative to mitigate our current and future negative impact.

NEXT STEPS:
• Develop a plan to use free space at our existing sites to plant vegetation and trees in 2022
• Develop an individual biodiversity action plan for every site to be executed in 2023
• At future sites, we will take measures to ensure biodiversity already in the site selection and design phase

*https://ipbes.net/sites/default/files/2021-06/2021_IPCC-IPBES_scientific_outcome_20210612.pdf
Social Responsibility.
Social Responsibility.

Integrate social responsibility into all aspects and levels of our business.

We address social responsibility within four focus areas: working conditions, diversity and inclusion, education, and community support. Our objective is to integrate social responsibility into all aspects of our business.

STATUS ON TARGETS:

WORKING CONDITIONS:
Green Mountain will ensure our social obligations and human rights. We offer safe working conditions, financial security, a nurturing work environment and we secure the well-being of our employees at work. Our annual employee satisfaction survey shows that there are zero harassment incidents at Green Mountain. Moreover, the survey indicates a very high satisfaction score in general (on a 6-point scale):

- Job Satisfaction – 5.09
- Support from colleagues – 5.34
- Knowledge sharing – 5.28
- Employee involvement – 5.07

We believe that satisfied employees will lead to satisfied clients, which our annual client satisfaction survey demonstrates. The average satisfaction score of the overall client partnership engagement with Green Mountain has been 5.73 on a 6-point scale, the last five years.

DIVERSITY AND INCLUSION:
The digital infrastructure industry is traditionally male dominated. In Green Mountain, we are above the industry average with 15% female employees. Nevertheless, our goal is to increase this number significantly, especially within technical roles and in management. Our recruitment processes and procedures ensure non-discrimination. We will continue to broaden our search for female candidates.
“Being a good neighbor and contributing to the local community is important to Green Mountain. Every year we allocate funds to support a variety of community initiatives at all the three locations where we have established data centers.”

TOR KRISTIAN GYLAND, CEO of Green Mountain

EDUCATION AND COMPETENCE DEVELOPMENT:
Green Mountain provides room for growth, development, and innovation. We offer apprenticeships, internships, and support for further education. All our competence initiatives are gathered under the Green Academy umbrella. An important part of our training is teaching employees how to work according to the sustainability objectives we have set. They receive training on waste management, energy optimization, environmental protection and more. This way, they are empowered to make sustainable decisions in their daily tasks.

COMMUNITY SUPPORT:
Being a good neighbor and contributing to the local community is important to Green Mountain. Every year we allocate funds to support a variety of community initiatives at all the three locations where we have established data centers. In particular, we want to support projects for young people. In 2021, we were the main sponsor of the local sports club (Mastra IL), we supported youth who cleaned the local beaches and gave financial support to several other good causes.

NEXT STEPS:
Within the four areas we define as our social responsibility scope, there are more milestones to accomplish. We cannot take employee satisfaction for granted and will therefore continue to ensure that Green Mountain is a great place to work. There will still be a zero tolerance of any type of discrimination or harassment at the workplace or in the recruitment process. The Green Academy will be further strengthened, and our goal is to offer apprenticeships at all of our sites.

When it comes to recruiting more female employees, we recognize that we need to set the bar higher. It is not enough to encourage women to apply, we need to join forces with the rest of the data center industry to promote our data centers as an inclusive workplace. We have already started this work within the industry association, The Norwegian Datacenter Industry**, and will present a more detailed plan during 2022. We will also continue to support initiatives in our local communities.
Governance.
Governance.

To control risk and ensure accountability, transparency, and integrity across the organization.

Being compliant with international standards is crucial to running a high-quality data center. A strong focus on governance secures our ability to live up to customers’ high standards on sustainability and supports the quality of our processes and procedures.

STATUS ON TARGETS:
Today Green Mountain is certified according to
- ISO 9001 Quality Management Systems
- ISO 14001 Environmental Management System
- ISO/IEC 27001 Information Security Management System

GREEN MOUNTAIN ALSO REPORTS ON:
- ISAE 3000*
- SOC Type II
- PCI-DSS**

The certifications and reports cover all the data centers that Green Mountain operates.

As a part of these certifications, the CEO of Green Mountain has signed policies that outline the guiding principles for the company:
- Strive for zero emissions to minimize the impact of our operations on the environment
- Reduce the amount of waste and optimize the use of resources
- Provide a high and consistent quality in all deliveries

NEXT STEPS:
- Obtain ISO 50001 certification (Energy management) in 2023
- Obtain ISO 45001 certification (Occupational health and safety management) in 2023
- Obtain ISO 14064 (Carbon footprint verification) in 2023
- Establish a framework to support sustainability reporting according to GRI (Global Reporting Initiative) in 2022

** [https://www.pcisecuritystandards.org](https://www.pcisecuritystandards.org)
“It is important for Green Mountain to use recognized standards and methods as tools to reach UN Sustainable Development Goals.”

THOMAS LØKEN, Chief Compliance Officer

INDUSTRY PARTNERSHIPS:
The global data center industry has made sustainability a priority. Many companies have launched a variety of activities to address climate change in line with the UN Sustainability Goals. Green Mountain is working proactively to share our knowledge and experiences in the sustainability space with our industry peers, and at the same time to learn from other companies’ projects, processes and initiatives. Collaboration platforms are key to our collective goals of a greener and more sustainable data center industry. Currently, we are proud members of the following partnerships:

![CEBA](image)
![Norwegian Datacenter](image)
![SDIA](image)

Certifications

![Tier III Design](image)
![Tier III Facility](image)
![Tier III Design](image)
![Tier III Facility](image)

![Quality System Certification](image)
![Environmental System Certification](image)
![Information Security Management System Certification](image)
“For the Volkswagen Group, economic factors and sustainability in the company are important aspects. The new data center in Norway satisfies in both respects. The operation of our installation is cost-effective and completely climate neutral.”

Mario Müller, Head of IT Integration and Services, Volkswagen Group

“At Atea, we have very ambitious sustainability goals to achieve by 2030. Among other things, we will reduce our own emissions by at least a 50% in line with the Paris Agreement and at the same time ensure that our products and services help our customers become more sustainable. In order to do so, we have to work with the best partners in sustainability and Green Mountain is one of the greenest data centers we have.”

Nelly Flatland, Sustainability advisor in Atea

“Sustainability is among the most important decision criteria in designing our data center architecture. We are highly focused on sustainable data center operations with the use of containment solutions, multi-tenancy, and energy-efficient hardware. Not least we work closely and continuously with our data center partners, and the choice of entering into a long-term partnership with GM in 2021 was greatly influenced by their innovative cooling solutions, industry-leading PUE, plans for heat recycling and focus on sustainability.”

Erfan Mohammadi
Head of Cloud Infrastructure, Intility
Sustainable Data Center.
In a former high-security NATO facility deep within a Norwegian mountain you will find the DC1-Stavanger. A data center that truly ticks all the boxes when it comes to sustainability. It is powered by renewable hydropower, it uses the adjacent fjord as the cooling source and now we have even bigger plans for the heat it generates.

Ten years ago, the NATO ammunition facility was converted into a unique high-security mountain hall colocation data center with 22,600 m² (230,000 ft²) available space. The main data center comprises of a total of 6 mountain halls, each with two floor concrete buildings built within the mountain itself. The infrastructure has been designed to be expanded up to 2 x 26MW. Today, the data center hosts a variety of banking, cloud, service providers, and government clients.

**UNIQUE FJORD COOLING SOLUTION**

Our cooling solution uses cold water and gravity and is considered one of the most energy efficient cooling solutions in the world. The seawater enters our cold-water basin through use of gravity from pipes reaching 100-meter depth. The water temperature at 100 meters is stable at 8°C (46°F) all year round. It then enters the titanium heat-exchanger before a duplicated closed loop system cools the servers. Today the heated water is released into the fjord, but we are currently implementing a project where the heated water will be used in a land-based lobster farm near the site.
Green Academy.
Green Academy.

To operate efficient state-of-the-art colocation data centers, the number one priority for Green Mountain is to have competent, motivated, and enthusiastic employees. Whether it is the operations team, project managers, service delivery, sales, management or supporting functions – they all contribute to the same goal; “Setting the green standard” in the data center industry. To support this priority, Green Mountain has established the “Green Academy”.

This initiative incorporates all the different training and education opportunities that Green Mountain supports. In this interview, HR Manager, Irene Vikingstad and Team Lead – Operation Specialists, Bjarne Sørbø, explains the program.

Q: OK, let’s start with the basics. What is the Green Academy?
IRENE: If you want to take the systematic approach, it really consists of 6 areas:
• Training Program & Certificates
• Cross-site internships
• Formal and informal training
• Financial support
• Apprenticeships
• Supplier and client training

The first area, Training Program and Certificates, includes everything from onboarding of all new employees as well as the specific operations program for our technicians. In addition, it includes an individual annual training plan and a mentoring program.
The second area is “Cross-site internships”, where technicians work at a different site for a longer period. Moreover, we offer a variety of formal and informal training as well as financial support to employees who want to start studying at an external institution. Our goal is also to always have apprentices at all our...
sites, which means that we recruit new young talent every second year. And finally, we are trying to offer more and more supplier and client training as well.

Q: It is quite a comprehensive program, why do you need it?
BJARNE: If there is one thing that data centers are concerned about, it is downtime. Research shows that downtime is mainly caused by human errors. Someone did not follow the right procedures, lacked the knowledge to make the right decision and so forth. In that sense, training and competence development is the best tool to prevent this. In Green Mountain, we already had a great learning culture that we wanted to preserve and develop further. In other words, the Green Academy is the formalization of this already existing learning culture. I think of it as an umbrella that covers it all – in a neat and structured way.

IRENE: We also realized that we needed a program that was developed internally and was specifically tailored to our needs, facilities, and day-to-day operations. With the Green Academy program, our technicians will not only be specialists – they need to know several subject fields. By having the Green Academy, we can recruit from a broader set of backgrounds, as they will receive the necessary training within the organization.

Q: What are the employees’ responses to the program?
IRENE: Well, our employee satisfaction score is very high. “It is the best on-boarding ever”, is a sentence I have heard many times from new employees. So, there is no doubt that our employees appreciate it.

BJARNE: In addition, we secure the quality of our work and avoid errors. We build employee loyalty and reduce the time needed to implement new strategies or knowledge. I believe it is well worth the investment.

Q: But what has this got to do with sustainability?
Most people associate sustainability with climate targets and environmental protection.

BJARNE: Our sustainability work is based on the UN Sustainable Development Goals and many of these are related to social responsibility. This includes for instance SDG #4-Quality Education. At the same time, we believe the green academy will contribute to gender equality, innovation, decent working conditions and sustainable economic growth. All of which are covered by the UN goals.

IRENE: Moreover, an important aspect of the Green Academy is to train employees in how to work according to the sustainability objectives we have set. They receive training on waste management, energy optimization, environmental protection and more. This way, they can make environmentally friendly decisions in their daily work.

Q: In the global DC industry, they talk about a skill shortage and a particular challenge in recruiting female candidates to the industry. Do you experience this as well?
IRENE: So far, we have been able to recruit very competent personnel. But as mentioned earlier, we don’t recruit solely based on formal education and experience but also based on personality, talent, and ability to learn. This way we have a bigger pool to choose from and we know we get them up to speed with our Green Academy.

On the other hand, when it comes to the proportion of women in data centers, it is too low. We recruit a lot of our staff from traditionally male-dominated disciplines like electronics, mechanics etc. There are simply not that many female candidates to choose from.

In addition, potential candidates are often not aware of what kind of work we do in a data center, thus never consider it as an interesting workplace. We have
strengthened the focus on these challenges, but we have to realize it is a long-term project. We both need to encourage women to choose these subject fields as well as continue to educate the public on what data centers really are, why we need them and why they are great places to work. We therefore visit schools to attract apprentices, we cooperate with our competitors to raise awareness of the industry and we put the spotlight on our own female employees – as ambassadors for the industry. Moreover, we have specific goals to improve diversity and representation in our company.

Q: To conclude, what are your future plans for the Green Academy?
BJARNE: Today, we have a very solid foundation in the Green Academy platform, but we will continue to develop it. For instance, we plan to add more digital resources that can be available for our employees at their convenience. E-learning will make it more fun and accessible as well. Moreover, we need to strengthen the client and supplier training. Our data centers are not only the workplace of the employees of Green Mountain. We have personnel from our clients and suppliers at the site and plenty of external people involved in construction work. It is vital that these people also receive site specific training to maintain the security, quality, and sustainability of our data centers.

“An important aspect of the Green Academy is to train the employees in how to work according to the sustainability objectives. They receive training on waste management, energy optimization, environmental protection and more.”

IRENE VIKINGSTAD, HR Manager
Heat reuse.
Sustainable Innovation.

Heat reuse in lobster farming.

The world’s largest land-based lobster farm will be built at the perimeter of Green Mountain’s data center DC1-Stavanger. The Norwegian Lobster Farm is the first company in the world to produce plate sized lobsters in a land-based aquafarm. Their current facilities use recycling aquaculture technology (RAS) supported by advanced robotics, computer vision systems and continuous monitoring of individual lobsters. To achieve optimal growth, the lobster needs a temperature of 20°C in seawater. This is the same outlet temperature of seawater that is used to cool the IT equipment in Green Mountain’s data center. Green Mountain can therefore deliver heated seawater directly to the aquafarm, ensuring a valuable reuse of green energy. The project represents an innovative example of a circular green economic system where the excess heat is utilized for food production and a significant reduction of the total energy consumption.

“In practical terms, this means that we can scale up production, reduce technical risk, and save both CAPEX and OPEX. Using waste heat will reduce the energy consumption and make this project even more green-tech and environmentally friendly than it already is.”

ASBJØRN DRENGSTIG, CEO of Norwegian Lobster Farm
Sustainable Innovation.

Heat reuse in trout farming.

Hima Seafood will build the world’s largest land-based trout farm in Rjukan, 800 meters from Green Mountain’s data center DC2-Telemark. By connecting the two facilities by a pipe system, Green Mountain can deliver heated water to Hima Seafood. This is energy that we would otherwise be released into the air.

Heat exchanger technology will then ensure that the Hima facility can use the energy from the water to obtain the correct water temperature in their RAS solution. The same water is subsequently returned to Green Mountain. The water will then hold a lower temperature, which can be used in the cooling of the data center. Creating a truly circular delivery system. When the facility is completed and fully operational, it will produce about 9,000 tonnes of trout.

“Green Mountain’s waste heat represents a significant cost savings in our production, and we are thrilled that our heating requirements can help reduce the environmental footprint of Green Mountain and help cool the data center in return. This truly is a win-win solution for both parties”.

STEN FALKUM Chief Executive Officer of Hima Seafood
Keep in touch.

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