



Sustainable digital infrastructure

Data centers, energy, and territories: building digital growth responsibly.

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INTRODUCTION

For years, sustainability was considered a secondary element in the design of digital infrastructure: a reputational issue, a reporting obligation, at times a marketing lever. Today, that is no longer the case.

Artificial Intelligence, the exponential growth of the cloud, and rising demand for computing capacity are reshaping the planet's energy needs. According to Statista, AI workloads will quadruple data center power demand to 156 GW by 2030. In Europe, moreover, the debate is no longer just about efficiency: it concerns energy availability, the location and governance of infrastructure and data, and territorial responsibility.

In this context, **the way an operator manages its own energy footprint says a great deal about how reliable it really is as a long-term partner.** There is, in fact, a substantial difference between those who buy renewable energy certificates to offset emissions and those who produce renewable energy, integrating it into the operational architecture of their own campuses.

Aruba belongs to the second category.

As a European builder and maker of digital infrastructure, Aruba directly designs, builds, and manages its own data centers, and owns hydroelectric and photovoltaic plants that power its facilities. This choice is not a technical detail but a strategic decision that affects reliability, operating costs, governance, and the ability to evolve over the long term.

This paper explores why sustainability, understood in its broadest sense, encompassing **energy, territory, resilience**, and **governance**, has become a key dimension of Aruba's value proposition for the European enterprise market.

Sustainability is no longer just an ethical commitment: it is an **operational, financial,** and **strategic** variable that determines an infrastructure's ability to grow over time.

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CHAPTER 01

The AI and energy nexus

The adoption of Artificial Intelligence at enterprise scale has become an infrastructural and energy challenge. AI workloads, and in particular the training of large-scale models and large-scale inference, require high computational density, continuous energy availability, and advanced cooling systems. A GPU cluster for training can consume tens of kilowatts per rack; this energy density is completely reshaping data center design requirements.

In Europe, this pressure is intertwined with a geopolitical variable: energy availability. The energy crises of recent years have shown that depending on volatile markets to power critical infrastructure represents a systemic risk; the stability of energy costs and their verifiable origin have become primary evaluation criteria for the infrastructure choices of large organizations.

Artificial Intelligence requires foundations designed to sustain it, both energetically and architecturally.

Three questions every CIO should ask their provider

- 1. Where does the energy that powers your data centers come from?**
- 2. Are you able to guarantee long-term energy cost stability and anticipate potential fluctuations?**
- 3. Is your infrastructure designed to support high-density AI workloads?**

Aruba has answered these questions with structural choices: proprietary hydroelectric plants, photovoltaic installations integrated into its campuses, and cooling architectures designed for high energy densities.

CHAPTER 02

Green-by-design: what does it really mean?

For a long time, sustainability in data centers was associated almost exclusively with energy efficiency and performance indicators. Today, that view looks limited.

A sustainable infrastructure is one capable of integrating efficient design, the use of energy from renewable sources, optimized cooling systems, and responsible resource management.

Sustainability also concerns the ability to build resilient infrastructure, designed to last over time and to adapt to technological evolution without generating new constraints or dependencies.

For this reason, sustainability, resilience, and reliability can no longer be regarded as separate dimensions; together, they represent the true **quality indicator** of a modern digital infrastructure.

Aruba has adopted a structural approach to sustainability from the earliest stages of its campus development. The Group's data centers are designed with high-efficiency cooling systems, including free-cooling, which takes advantage of the local climate conditions where some of the data centers are located. Low-PUE (Power Usage Effectiveness) architectures, with target values that place Aruba's campuses among the

most efficient infrastructures in Europe, are powered by renewable sources, including proprietary hydroelectric and photovoltaic sources. Campuses are designed in a modular way, making it possible to scale capacity without compromising the efficiency of the overall facility.

This approach is also consistent with the commitments made under the Climate Neutral Data Centre Pact, the European initiative aimed at achieving climate neutrality for data centers by 2030, of which **Aruba is among the first operators in Europe to have certified compliance through independent audits.**

Why does this matter for businesses and enterprise organizations?

For organizations required to report their emissions under regulatory frameworks, the quality of the energy source used by their IT providers has become a material data point. Scope 3 emissions (those generated along the value chain, including IT suppliers) are increasingly subject to mandatory audit and disclosure. Choosing a provider that produces renewable energy

is a choice that improves the quality of the entire client organization's sustainability reporting, enabling access to additional resources and financing.

Organizations that host their IT infrastructure in Aruba data centers can rely on services powered by an energy mix with a steadily growing self-generated and renewable component, reducing the environmental footprint of their digital operations without having to invest in their own generation plants.

The remainder of the energy required is purchased on the market, but **always and exclusively from renewable sources**.

Green-by-design is not a label: it is a design choice that manifests itself in the physical structures, energy systems, and operational governance of every campus.

CHAPTER 03

Sustainability as a lever of strategic control

Owning energy plants is a risk-management lever that translates into cost predictability for customers.

In boardrooms, sustainability stops being an ESG topic and becomes a matter of strategic finance the moment it is linked to the long-term stability of operating costs.

Data centers depend on energy as a primary input: an operator that does not control its own energy supply chain is exposed to electricity market fluctuations, geopolitical shocks, and regulatory uncertainty. Over time, this translates into cost volatility that is passed on to customers through contract renegotiations or tariff adjustments. The energy issue is intertwined with the broader theme of **digital sovereignty**.

A European digital infrastructure that depends on energy sources controlled outside the European perimeter carries a systemic vulnerability that goes beyond any single supply contract.

In this sense, **Aruba's energy sustainability cannot be separated from its nature as a European operator**: producing energy in Italy, managing plants on national territory, and operating data centers with 100% European governance are all elements of a single design aimed at making European digital infrastructure less dependent on external, ungovernable dynamics.

ARUBA: A CONCRETE COMMITMENT TO RENEWABLE ENERGY

The Group's hydroelectric fleet comprises 11 plants, with total output exceeding 60 GWh of renewable energy per year, equivalent to the electricity needs of **more than 22,000 households**, and an installed capacity of approximately 11.6 MW.

The plants are spread along five rivers in four regions: in Piedmont, along the Stura di **Lanzo**; in Lombardy, along the Lambro, with two plants in **Melegnano** (MI), and along the Brembo, with plants in **Ponte San Pietro**, **Valbrembo**, and **Paladina** (BG); in Veneto, along the Astico, in **Chiuppano** and **Calvene** (VI); and in Friuli-Venezia Giulia, along the Fella, in **Pontebba** (UD).

On the solar front, all the buildings of the IT3 campus are clad with next-generation photovoltaic panels, and the Rome data center campus (IT4) is likewise equipped on all surfaces and roofing with suitable exposure.

11

HYDROELECTRIC
PLANTS

+60 GWH

OF RENEWABLE
ENERGY PRODUCED

11.6 MW

OF INSTALLED
CAPACITY

evidence box

CHAPTER 04

The relationship between data centers and territories

One of the most relevant and least explored topics in the data center debate concerns their relationship with the territories in which they operate.

The prevailing model of recent years has seen large digital campuses as infrastructure dropped onto a territory: facilities with high energy and water consumption, often perceived by local communities as elements of negative impact rather than shared development. This perception has become a real risk: in several European countries, large data center projects have faced local opposition, permitting delays, and growing regulatory constraints.

Aruba has chosen a different approach, one that finds its fullest expression in the IT3 campus in Ponte San Pietro, in the province of Bergamo.

The future belongs to digital infrastructure that is designed **with** the territory, not dropped onto it.

IT3 Ponte San Pietro: a model of industrial regeneration

The IT3 campus was developed through the redevelopment of the industrial area that once housed the historic Legler cotton mill, one of Italy's largest textile manufacturers, active for over a century. Rather than consuming new land, Aruba chose to regenerate a disused area, restoring economic, employment, and urban-planning value to a territory that had lost its main production hub.

This approach has concrete implications:

- urban redevelopment: reclaiming disused industrial areas reduces the consumption of undeveloped land and contributes to the regeneration of the urban fabric;
- direct and indirect local employment development;

- energy integration: proximity to the hydroelectric plants makes it possible to draw on local renewable sources, reducing transmission losses and contributing to the overall efficiency of the system;

- social acceptance: transparency in dialogue with local communities and the sharing of territorial development goals transform digital infrastructure from a source of impact into a source of shared value.

The IT3 model is not an isolated case: it is the expression of a design philosophy that Aruba intends to apply to the development of its future campuses. Urban regeneration is not a side effect of infrastructure development: it is an explicit design objective.

THE ENABLING EFFECT ON THE TERRITORY: CONNECTIVITY, ENERGY, AND SHARED INFRASTRUCTURE

The presence of a large-scale data center

does not generate value only for those who operate it or the customers who use it: it produces an enabling effect on the infrastructure ecosystem of the surrounding territory.

When an operator like Aruba chooses to establish a presence in an area, it triggers a process of infrastructure attraction that goes beyond the boundaries of the campus. Connectivity operators find it worthwhile to extend their networks close to high-bandwidth-demand nodes: fiber optics, redundant interconnections, and points of presence become more accessible to local businesses and institutions as well. Likewise, the need to guarantee stable and diversified power supply often leads to the strengthening of local electricity grids and attracts interest from renewable energy producers and distributors looking to develop infrastructure nearby.

The result is a structural improvement in the territory's infrastructure conditions that

does not end with the construction of the campus but consolidates over time: an area that is better connected, better powered, and more attractive for new industrial and digital investment.

The data center thus becomes a catalyst for development, not an isolated piece of infrastructure.

In the case of IT3 in Ponte San Pietro, this effect overlaps with the already-mentioned regeneration of the former Legler area: value is not only restored to a disused industrial site, but the infrastructural and social profile of the entire area is elevated, with positive spillover effects for businesses, local authorities, and the community.

For enterprise organizations that assess their supply chain in terms of ESG impact, choosing a provider that adopts this approach has measurable value: it contributes positively to Scope 3 indicators related to the territorial impact of the value chain.

CHAPTER 05

The European framework: from constraint to competitive advantage

The European Union is building the most ambitious regulatory framework in the world for the sustainability of digital infrastructure. The **Climate Neutral Data Centre Pact**, signed by the leading European operators including Aruba, commits its signatories to achieving climate neutrality by 2030 through measurable targets on energy efficiency, use of renewable energy, water consumption, and circularity. At the same time, the Corporate Sustainability Reporting Directive (CSRD) extends the obligation of non-financial reporting to a growing number

of European companies, making the quality of the IT supply chain a matter of mandatory disclosure. Organizations unable to demonstrate the sustainability of their own IT chain will be exposed to reputational, regulatory, and credit-access risks. For Aruba, this regulatory framework does not require adjustments: it confirms choices already made. Investment in proprietary renewable energy, the adoption of advanced efficiency standards, and territorial roots, everything that characterizes Aruba's operating model,

naturally aligns with the requirements the European market is making mandatory. There is also an often-underestimated correlation between sustainability and infrastructural resilience: infrastructure designed with advanced energy-efficiency criteria also tends to be the most resilient, because energy optimization implies more careful and controlled management of all critical systems.

The diversification of energy sources is, at the same time, both a sustainability choice and a resilience choice.

Resilience and sustainability are not competing objectives. They are two expressions of the same design philosophy: building infrastructure that lasts.

Aruba's campuses are **Rating 4** certified (ANSI/TIA-942), the highest level of resilience for mission-critical data center infrastructure. This certification is not independent of the green-by-design choice: it is its natural consequence. Infrastructure designed to last, to be efficient, and to precisely manage every component of the system is, by definition, reliable infrastructure.

A durable digital asset that operates over time is able to adapt to technological evolution without generating infrastructural waste, creating value for the territory in which it operates.

Digital durability is the natural complement to strategic control: it is not possible to exercise genuine control over one's own digital choices if the foundations on which they are built are energy-dependent, territorially fragile, or economically unpredictable.



CHAPTER 06

The Aruba approach

Unlike many operators that communicate future goals, **Aruba can describe choices that are already operational. Sustainability is not a roadmap: it is a present condition.**

As a European operator that directly designs, builds, and manages its own data centers, we adopt a green-by-design approach that integrates energy efficiency, renewable energy production, and technological innovation from the earliest stages of development. Our campuses are designed to support the growth of cloud, AI, and digital services within a model that places resilience, sustainability, and territorial integration at its core.

- **8 proprietary data centers** in Europe (Italy and the Czech Republic), directly designed and managed, with more than 200,000 m² of equipped space.

- **80 MW of installed IT capacity**, supported by more than 300 specialized professionals.
- **11 proprietary hydroelectric plants**, covering a significant share of the campuses' energy needs.
- **Photovoltaic installations integrated into the data centers**, with planned expansion in line with the growth of installed capacity.
- **High-efficiency cooling systems.**
- **Rating 4 certification (ANSI/TIA-942)** for maximum resilience and operational continuity.
- **Members of the Climate Neutral Data Centre Pact**, with measurable commitments toward climate neutrality by 2030.



What does this really mean for organizations and public bodies?

For an enterprise organization or a public body evaluating Aruba as an infrastructure partner, **structural sustainability translates into concrete, measurable benefits.**

- **Reduction of Scope 3 emissions**
Using infrastructure powered by its own renewable energy improves the customer's sustainability profile across the entire value chain.
- **Cost predictability**
Ownership of energy plants reduces exposure to market fluctuations, resulting in greater TCO stability.
- **ESG reporting quality**
The transparency and verifiability of Aruba's energy chain provides quality data for mandatory reporting under equivalent frameworks.
- **Reduced regulatory risk**
Choosing a partner already aligned with European regulatory requirements reduces the risk of having to renegotiate contracts following the introduction of new obligations.

CONCLUSIONS

The sustainability of digital infrastructure is not a goal in contradiction with growth; it **is the condition that makes growth durable**. In a context where AI is accelerating energy consumption, European regulation is increasing transparency obligations, and enterprise markets demand verifiable supply chains, structural sustainability stops being an optional differentiator and becomes a systemic requirement.

Aruba did not wait for the market to demand it: it built its own response through decades of investment in proprietary energy plants, careful campus design, and responsible territorial roots.

For enterprise organizations seeking a partner with whom to build their digital future, the decisive question is not just "how much does it cost?" or "how much capacity do you offer?" — the main driver of choice is trusting and relying on foundations chosen today that can last over time, ensuring governance and strategic control.

European by nature, secure at the core, sustainable by vocation: these are the coordinates of every infrastructure decision we make.

About Aruba

Aruba, founded in 1994, is Italy's Cloud Champion and one of Europe's leading providers of digital infrastructures and platforms based on proprietary assets. The company designs and manages the entire technology stack: from the design and construction of data centers to cloud platforms, from trust and cybersecurity services to connectivity and software solutions that support digital strategies and AI-based applications.

With entirely Italian capital, Aruba serves 16 million users from over 100 countries and operates an infrastructure distributed across 8 data centers, hosting thousands of customers' IT infrastructures.



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