# ZITHA TECH SPECIALTY CABLES (Pty) Ltd

# Low-Temperature Installation Solution for Iceland Edge Data Center



## Overview

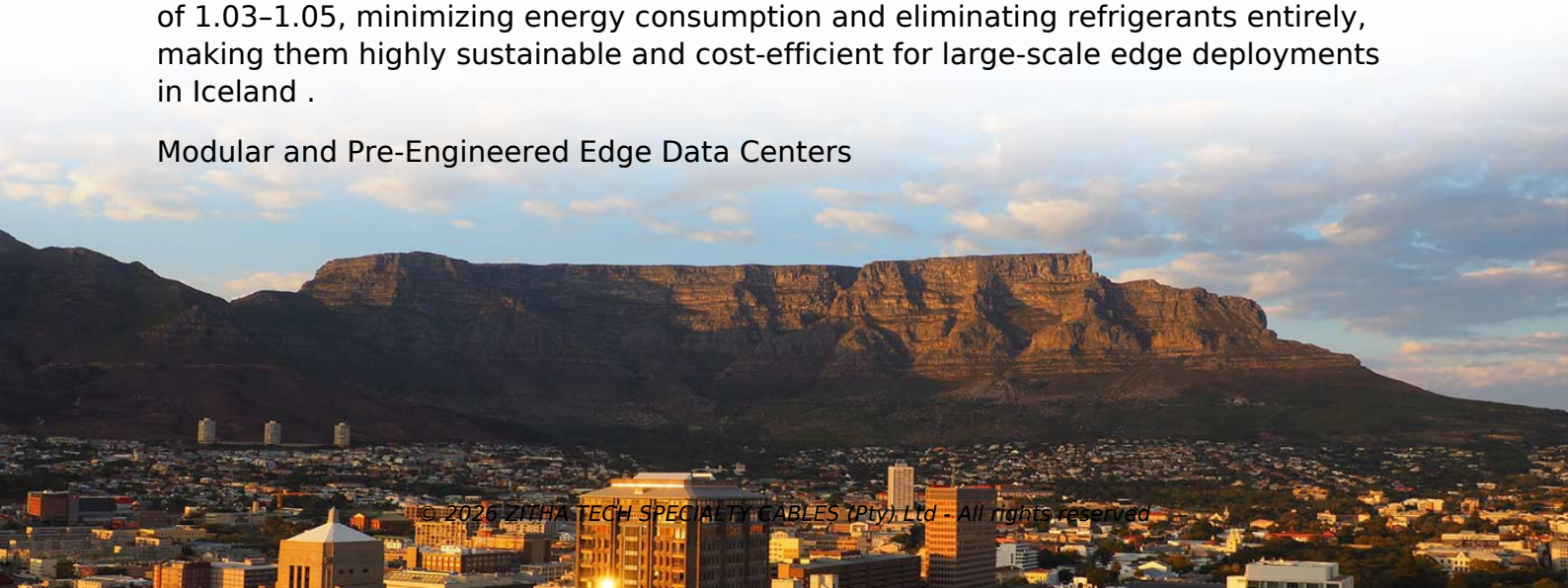
Edge data centers can be many things, from telecoms exchanges in the middle of nowhere to colo facilities in town.

## Key Takeaways

Direct free-cooling and modular edge solutions provide energy-efficient, low-temperature operation for Icelandic edge data centers, ensuring reliability in harsh Nordic climates.Free-Cooling Solutions in Iceland

AtNorth, Iceland's largest colocation operator, demonstrates a successful low-temperature installation using direct free-cooling units. These units operate without mechanical cooling, leveraging Iceland's naturally cold climate to maintain supply air temperatures within ASHRAE recommended ranges year-round. Systemair adapted 14 DV190C units with 230 kW cooling capacity and airflow up to 57,000 $m^3/h$, incorporating 4-stage dampers, deflectors, and modular cowls to protect against wind, rain, and cold while ensuring optimal air mixing. The units achieve a partial PUE of 1.03–1.05, minimizing energy consumption and eliminating refrigerants entirely, making them highly sustainable and cost-efficient for large-scale edge deployments in Iceland .

Modular and Pre-Engineered Edge Data Centers



© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved

For rapid deployment and compact edge sites, modular solutions like Vertiv SmartRow 2 offer pre-engineered, deployment-ready racks with integrated cooling, power, and monitoring. These systems simplify installation, reduce on-site assembly time, and maintain proper temperature control even in outdoor or constrained environments. Features include IP54-rated enclosures, roof-mounted condensers, and intelligent rPDU integration, ensuring IT equipment is protected from dust, moisture, and temperature fluctuations while enabling remote monitoring and management .

Advanced Thermal Management for Extreme Edge Environments

In addition to air-based free-cooling, liquid and immersion cooling technologies are increasingly used for edge deployments in harsh climates. Solutions like Nexalus Endeavor DX-800 and immersion-cooled tanks provide efficient heat removal, higher server density, and protection from environmental hazards such as dust, humidity, and vibration. These systems are particularly suitable for edge sites with limited space, unreliable power, or extreme temperature swings, offering energy-efficient operation and reduced noise while maintaining high compute performance .

Design Considerations

When implementing low-temperature edge data centers in Iceland, key considerations include:

• Climate Adaptation: Units must withstand cold, wind, and precipitation, with protective dampers, cowls, and air intake designs.

• Energy Efficiency: Free-cooling and immersion solutions reduce reliance on mechanical cooling, lowering PUE and operational costs.

• Modularity and Scalability: Pre-engineered or modular systems allow rapid deployment and future expansion.

• Monitoring and Reliability: Integrated sensors, remote management, and redundancy ensure uptime in remote or harsh locations.

• Sustainability: Leveraging Iceland's renewable energy sources and eliminating refrigerants aligns with green data center goals .

Conclusion

For Icelandic edge data centers, direct free-cooling units, modular pre-engineered racks, and advanced liquid or immersion cooling provide reliable, energy-efficient solutions for low-temperature operation. Combining these approaches ensures sustainable, high-performance, and resilient edge infrastructure capable of handling extreme Nordic conditions while minimizing energy consumption and environmental impact.

*© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved*

## Article Content

Cold-Climate Data Centers: The Next Hot Thing

The core idea behind cold-climate data centers is to leverage naturally low ambient temperatures to enable free

Edge Computing Liquid Cooling | Solutions For Remote Sites

Our team builds cooling systems made especially for tough edge environments, focusing on reliability and simplicity to keep your

Data Centers by Iceland

A data center in Iceland will minimize your carbon footprint and reduce long-term costs. Iceland produces reliable and cost

Why Liquid Cooling for Edge Is Now Essential | Nlyte

Explore how liquid cooling for edge data centers supports AI workloads, reduces risk, and enables scalable high

Chilling on the Edge: Navigating the challenges of cooling Edge data ...

Edge data centers can be many things, from telecoms exchanges in the middle of nowhere to colo facilities in town.

Data Centers by Iceland

Clean and green in Iceland 100% of Iceland''s electricity is a sustainable mix of geothermal and hydroelectric power generation, and

Future data center energy-conservation and emission-reduction ...

To reduce the energy consumption of data centers and promote smart, sustainable, and low-carbon city development,

Iceland''s Clean-Energy Model for Data Centers and A.I ...

Iceland''s sustainable model offers a scalable, low-carbon path for high-performance computing as global A.I. energy

Iceland: The Best Place for Low-Cost Data Centers

Do you know where in the world you can find the lowest cost solution for placing data

Iceland Data Centres

The Perfect Location for Your Data Iceland is an unrivaled location for data centers, offering a unique combination of natural,

*© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved*

Edge Data Center Solutions

Pre-Integrated Power Distribution Solutions can include Busway, UPS battery backup, surge protection, and pre-integrated power

How environmentally friendly are Iceland''s data

The environmental impact – cool or uncool? Natural cooling means that Icelandic data

Cooling Edge Data Centers: It Requires More Thought

Jon Benson, Director of Technology and Solutions; Jack Kolar, VP MC/MUS Sales; and Abhishek

Keflavik Data Center

ICE02 is a tier 3 data center campus on a plot of 9 hectares, located close to Keflavik international airport. The data center currently

Why Icelandic data centres are the ''greenest in the world''

Iceland is also a stable, business friendly environment for companies considering different locations for data centres.

The Icelandic Data Center Industry

General cloud and as-a-service readiness, greater Data Center virtualization, software defined everything, interconnect fabrics, edge

Chilling on the Edge: Navigating the challenges of cooling Edge data ...

Edge data centers can be many things, from telecoms exchanges in the middle of nowhere to colo facilities in town.

Data Centers by Iceland

Clean and green in Iceland 100% of Iceland''s electricity is a sustainable mix of geothermal and hydroelectric power generation, and

Future data center energy-conservation and emission-reduction ...

To reduce the energy consumption of data centers and promote smart, sustainable, and low-carbon city development,

Iceland''s Clean-Energy Model for Data Centers and A.I ...

Iceland''s sustainable model offers a scalable, low-carbon path for high-performance computing as global A.I. energy

Iceland: The Best Place for Low-Cost Data Centers

*© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved*

Do you know where in the world you can find the lowest cost solution for placing data

Iceland Data Centres

The Perfect Location for Your Data Iceland is an unrivaled location for data centers, offering a unique combination of natural,

ICE01 Reykjavik Data Center: Ultra-Efficient, Green

Harnessing Iceland''s Renewable Resources for Next-Level Data Center Efficiency and Security ICE01,

A FUTURE AT THE EDGE: EDGE DATA CENTER WORKING

OVERVIEW Cooling system optimization and planning is one of the core subjects of traditional data center infrastructure. When a

ICE02 Iceland Data Center: Extreme Density and Renewable Energy

Discover ICE02 in Iceland, a Tier 3 data center with over 13,750 SQM of space, 83MW power, and pioneering liquid cooling

Cooling 100% green-powered data centres · Systemair

The pPUE of the unit is 1.03-1.05, depending on load, which is low for a data centre cooling unit of this scale. Thanks to the

Edge Data Center Solutions

Pre-Integrated Power Distribution Solutions can include Busway, UPS battery backup, surge protection, and pre-integrated power

How environmentally friendly are Iceland''s data centers? – Part 3

The environmental impact – cool or uncool? Natural cooling means that Icelandic data centers use between 24 and 31

Cooling Edge Data Centers: It Requires More Thought

Jon Benson, Director of Technology and Solutions; Jack Kolar, VP MC/MUS Sales; and Abhishek Banerjee, Senior Project

Keflavik Data Center

ICE02 is a tier 3 data center campus on a plot of 9 hectares, located close to Keflavik international airport. The data center currently

Cold-Climate Data Centers: The Next Hot Thing

The core idea behind cold-climate data centers is to leverage naturally low ambient temperatures to enable free

*© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved*

Edge Computing Liquid Cooling | Solutions For Remote Sites

Our team builds cooling systems made especially for tough edge environments, focusing on reliability and simplicity to keep your

Data Centers by Iceland

A data center in Iceland will minimize your carbon footprint and reduce long-term costs. Iceland produces reliable and cost

Why Liquid Cooling for Edge Is Now Essential | Nlyte

Explore how liquid cooling for edge data centers supports AI workloads, reduces risk, and enables scalable high

Edged U.S. | Home

Ultra-efficient data centers in Barcelona, Madrid-Getafe, Bilbao-Arasur and Lisbon offer low latency carrier class fibre, zero water

Liquid cooling: The Edge of reason

With such a wide range of potential Edge locations, versatile cooling solutions are needed, and this is where liquid

Deploying liquid cooling in the data center

With this data and partner support, IT and facility teams can model the desired hybrid cooling infrastructure in the data center and

High-Airflow Server Racks Enclosures for Icelandic Data Centers

High-airflow server racks designed for Icelandic data centers, enabling free-air cooling, higher density deployment,

Iceland Data Centers

Do you need to procure colocation, cloud, connectivity or other data center services in Iceland or other locations? We can help you

Edge Data Center Solutions

Maintain proper temperature control inside the rack with outdoor heat rejection. And with the option to mount the condenser on the

Cold-Climate Data Centers: The Next Hot Thing

The core idea behind cold-climate data centers is to leverage naturally low ambient temperatures to enable free

Edge Computing Liquid Cooling | Solutions For Remote Sites

*© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved*

Our team builds cooling systems made especially for tough edge environments, focusing on reliability and simplicity to keep your

Data Centers by Iceland

A data center in Iceland will minimize your carbon footprint and reduce long-term costs. Iceland produces reliable and cost

Why Liquid Cooling for Edge Is Now Essential | Nlyte

Explore how liquid cooling for edge data centers supports AI workloads, reduces risk, and enables scalable high

Edged U.S. | Home

Ultra-efficient data centers in Barcelona, Madrid-Getafe, Bilbao-Arasur and Lisbon offer low latency carrier class fibre, zero water

Liquid cooling: The Edge of reason

With such a wide range of potential Edge locations, versatile cooling solutions are needed, and this is where liquid

Deploying liquid cooling in the data center

With this data and partner support, IT and facility teams can model the desired hybrid cooling infrastructure in the data center and

High-Airflow Server Racks Enclosures for Icelandic Data Centers

High-airflow server racks designed for Icelandic data centers, enabling free-air cooling, higher density deployment,

Iceland Data Centers

Do you need to procure colocation, cloud, connectivity or other data center services in Iceland or other locations? We can help you

Edge Data Center Solutions

Maintain proper temperature control inside the rack with outdoor heat rejection. And with the option to mount the condenser on the

*© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved*

## Contact Us

Continue your research online:

Website: https://zithatech.co.za
Technical inquiry: https://zithatech.co.za/contact.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved