Reykjavik data center energy storage

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ICE01, located in the Reykjavik area, is a Tier 3 data center that embodies the perfect synergy of sustainability, security, and efficiency. Offering over 2700 SQM of white technical space with 3.2 MW capacity, it capitalizes on Iceland"s geothermal resources for renewable energy and natural cooling, boasting one of Europe"s lowest power prices and a PUE as low as 1.15.

o Data centers face a pressing need to reduce their climate impact. o Iceland’s data centers offer attractive power and processing rates. o But with rising AI data demands, the sustainable answer is not obvious.

"Data centers are here to stay," Iceland"s president Gu?ni Thorlacius J?hannesson said when introducing the annual Datacenter Forum in Reykjavik last month.

"Last night, I attended a sporting event, and I took loads of videos. On the way back, I listened to music, Spotify, and did a tiny bit of work after that. Downloaded stuff, necessary stuff, unnecessary stuff, and didn’t pay any attention to the energy all this takes, because it’s just somewhere in a cloud. I don’t see black smoke billowing... I just don"t see the energy that is used.

"This might be a cause for concern, or at least it should make us aware that if we want to be sustainable, we have to be conscious of the energy we use. It is our duty to make sure that we are conscious and to seek the best ways to go forward."

Iceland certainly sees itself as one of the most viable options for handling our ever-growing data demands, and with good reason. The country has a mild climate all year round, with temperatures ranging from just above freezing in the winter to around 54?F (12?C) in the summer, and the range is even smaller on the south of the island.

This essentially provides data centers, that produce a lot of heat but must be kept at around 68 to 77?F (20 to 25?C), with a free, natural cooling system that doesn"t require any energy. Iceland"s data center industry boasts an impressive power usage effectiveness (PUE) range of 1.05 to 1.2, thanks to the lack of air conditioning systems and instances of hardware overheating.

But if energy is needed, Iceland has that covered, too, at least from an environmental perspective. The country runs almost entirely on renewable energy, with 100 percent of its electricity generated from hydroelectric (73 percent) and geothermal (27 percent) power sources. Only about 15 percent of the country"s energy usage comes from fossil fuels, said President J?hannesson, and where they are used, the primary culprit is the mobility sector - the country is, after all, an extremely popular tourist destination and stopover for flights to other countries. But the non-electricity components of aluminum smelting, the country"s largest industry, are

also partially to blame.

Hydroelectric and geothermal sources have low variable costs when operational and are not subject to fuel price fluctuations, so energy companies can offer long-term price stability. That all adds up to a strong sales pitch for businesses looking for a sustainable and cost-effective location for their data.

Even those that are more security conscious than financially or environmentally motivated may be tempted by the island. Iceland is often named one of the world"s safest countries and benefits from a political landscape that’s historically stable. Data centers are also ideal power customers for Iceland, as they consume electricity at a fairly constant rate, so power companies are willing to agree to ten-year power purchase agreements (PPAs) at favorable prices. The Russian invasion of Ukraine has demonstrated how valuable such an agreement can be. But even so, executives from the handful of data center operators with an Icelandic presence are not lifting their foot off the gas pedal when it comes to promotion.

"It takes something to get customers on an international scale to move data to a little rock in the North Atlantic," said Halld?r M?r Saemundsson, the chief commercial officer of Borealis Data Center at the Datacenter Forum. "We need to prove ourselves time and again."

With the rise of AI in the mainstream over the last year, our data demands have skyrocketed. Mike Allen, the COO at Verne Global data centers, said that an AI "inflection point has come" at the Datacenter Forum. He added: "From the data center perspective, we’ve seen this explosion of use cases have an effect on the infrastructure and the demand for infrastructure."