

NetApp Global Centre of Excellence Campus – Bangalore, India

How Piller supplied the expertise and technology to power one of India's greenest buildings.

Start date: DECEMBER 2015

Hand over: MARCH 2017

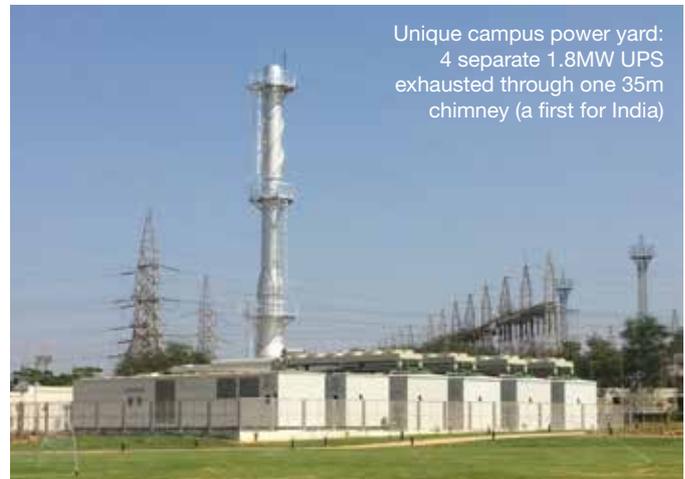
THE OBJECTIVE

In 2015 Cloud storage provider NetApp embarked on a strategic project to establish a Global Centre of Excellence in a newly constructed state of the art campus in Bangalore, India.

The campus building is a single structure with 10 floors above ground and three below with a 12,000 sq. ft. integrated data centre incorporated in the main building.

On a 15-acre campus the 1 million sq. ft. of built space that NetApp envisioned would be a showcase of sustainability and efficiency delivering product innovation, professional services, support and IT shared services to NetApp, its partners and its cloud customers across the world. It included the design and build of a data centre to be accommodated within a steel structured office building to be integrated without compromising architectural intent, building quality or performance.

From the first architectural design, every aspect of the blocking, stacking and orientation of the building was considered from a sustainability perspective by capturing light for the office space, using solar energy and using natural cooling. The project used the latest techniques including Building Information Modelling and



Unique campus power yard:
4 separate 1.8MW UPS
exhausted through one 35m
chimney (a first for India)

Lean Construction Methods in the build and NetApp wanted to push the boundaries of what was possible. For example, in order to reduce energy use and cost in the data centre – NetApp wanted to use partial free cooling by taking in outside air – something that had never been done in a data centre in India.

CHOICE OF SOLUTIONS AVAILABLE

Alongside the highest levels of protection, availability, reliability and efficiency, environmental objectives saw NetApp opt for a power protection system which challenged traditional thinking.

The result is that the entire campus is powered through Piller Uninterruptible Power Supply technology with coupled generators and with no batteries being used for energy storage back up. The energy store for the entire site uses flywheel kinetic energy storage.

WHY PILLER?

Prior to Piller becoming involved in the project a locally based electrical firm had designed a power chain for the site based on a conventional UPS topology made up of many small static units with battery storage back up.

However, it became clear that this approach would not match NetApp's desire for sustainability and efficiency.

NetApp did a re-evaluation and the focus shifted to finding a power solution that would sit better with its intent which encompassed a holistic view of the entire facility. With the project already somewhat advanced prior to Piller's involvement, NetApp's evaluation of any new design had to include the implications for potential disruption and delay from major change

Time was a major factor. NetApp's existing Bangalore team was housed in a leased office and the new building was due for completion and handover prior to the expiration of its lease. NetApp showed impressive agility in managing the impact of changing to a new power design on a project of such scale.

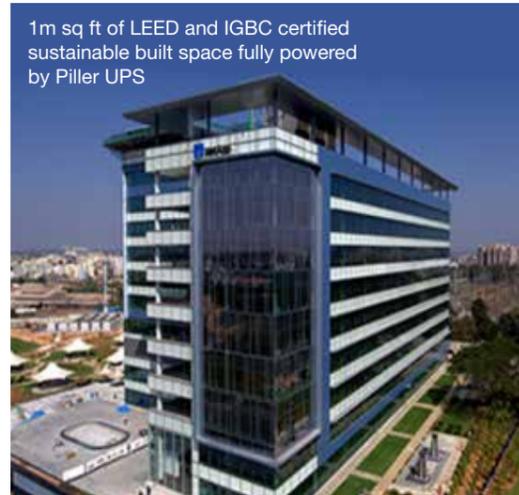
With the support of a newly appointed design consultant NetApp began speaking with Piller India. Piller immediately recognised the challenges. It understood the major implications of implementing any changes to the power topology and configuration in a project that was already somewhat advanced. It was also immediately clear that the existing design proposal of standard static UPS topology with battery back-up and separate diesel generators was not fit for purpose.

Working closely with the design consultant Piller was able to offer some preliminary designs which helped the client think differently about power, protection and back up.

A combination of local Piller technical expertise working closely in sync with Piller Germany technical teams began working on what could be delivered to provide the highest levels of reliability and availability while meeting NetApp's efficiency and sustainability criteria The conversation turned to what technology was available.

THE SOLUTION

Using customer reference use cases and the obvious technical strength of the solution Piller convinced the technical consultant of the viability of diesel coupled IPBus based UPS configuration. Piller's local team, backed by experts at Piller Germany confirmed that a hybrid medium and low voltage UPS solution was technically sound. On the mechanical side design innovations included the use of air side economizers.



With low maintainability and a 20-year life span NetApp quickly recognised the long-term benefits of Piller's technology. It was decided to remove batteries from the picture. This also freed up an additional 10,000 sq. ft. of valuable office space as well as reducing the need for extra air conditioning plant which would have been required to cool traditional static UPS and batteries – saving even more energy and running costs.

The combination of the technology, the local expertise and the direct support of Piller Germany showed NetApp that the proposed design would meet all of its objectives and be delivered and installed on time.

For power protection 4x1800kW UNIBLOCK™ UBTD+ UPS in an N+1 configuration with N+N reliability available were installed in a standalone yard away from the main building.

Each UPS was housed within its own noise abatement canopy to comply with noise level restrictions which were not to exceed 70dba at 1 metre. All four electrically coupled UPS were to be exhausted through a single 35m tall chimney.

With no separate gensets the whole campus would be powered by Piller UNIBLOCK™ UBTD+ UPS equipment backed by Powerbridge Flywheel energy storage. The option of Flywheel energy store was discussed in great detail.

NetApp is an existing customer of Texas based, Piller division Active Power, and uses flywheel technology at sites in the US. However, with a grid which is relatively unstable by international standards there was initial



Inside specially upgraded noise reducing acoustic canopies Piller power components work quietly away

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concern that it would be the first company in India to rely on kinetic energy storage for back up. Piller showed that its Powerbridge Flywheel technology would provide the right level of protection for India's grid conditions. And today the use of Piller flywheel energy storage technology is growing in the Indian market.

The project was completed in two phases. With two 1800kW UNIBLOCK™ UBTD+ units deployed initially, and a second pair supplied and commissioned several months later.

CHALLENGES IN IMPLEMENTATION

As a factory supplied turnkey solution the installation was completed to the highest quality – as expected by NetApp – and with no health and safety issues on site. The use of a single chimney stack for exhaust from the four UPS units was a first for the India market. The installation also included an upgrade to the acoustic canopy to provide better noise reduction.

Piller's local India team of experts were fully engaged in every aspect of the installation, testing and commissioning and showed great flexibility in undertaking multiple tasks to ensure a smooth deployment.

THE RESULTS

Piller began its work on the NetApp campus in December 2015. The client requirement was for an initial two units. These were commissioned in August 2016. The two remaining units were added in October 2016. The final handover was completed in March 2017.

NetApp's Bangalore global centre of excellence is a hub of innovation, development and support delivered by a highly dedicated team of NetApp professionals.

The building is LEED and IGBC certified. Piller powers the whole campus and successfully delivered one of India's most efficient data centres.

The Piller India team also plays an important role in ongoing support. From the outset it shared Piller's ethos of long-term development, engineering excellence, protection and the highest business standards and ethical values. These are aligned closely with NetApp's vision for the Bangalore centre of excellence, the company's global outlook, culture of creating value, nurturing the best talent and building world class products and services.

Both companies also have fully aligned positions on long term environmental management and sustainability.

Nothing protects quite like Piller.

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