



ESDS owns a Data Center building in Nashik (Maharashtra) which has been constructed on a 1 acre industrial plot while the total constructed area of the building is 50,000 sq. ft.

Nashik is located in Northern Maharashtra at 600 m (2,000 ft) from the mean sea level. Nashik is situated on the banks of holey River Godawari.

Nasik experiences moderate summers and very cool winters with average temperature about 27°C. (Source: Wikipedia). ESDS Data Center is near the bank of River Godawari which adds in cool and pleasant environment. ESDS Nashik datacenter is a Green datacenter due to following

- a. Infrastructure Design
- b. Servers
- c. Network
- d. Virtualization
- e. Atomization

Let's consider all these in detail and understand–

Infrastructure Design →

While designing the center infrastructure, we have taken care of everything required to make ESDS a Green Datacenter–

Dual Cavity Walls → we have built datacenter with dual cavity walls. There is cavity of around 3ft in both walls of datacenter. The cavity helps to keep ambient temperature low and reduces the power require for cooling.

Vermiculite → Vermiculite, the very popular and expensive insulating compound all over the world, known for its water retention capacity after being exposed to fire for up to 3 hrs, has been used for plastering the interior walls, beneath the flooring, as well as ceiling of the Data Centre floor. Fly Ash Bricks and Vermiculite together support in reducing dead load of Data Center, though the structure was designed to take load of Red Bricks and Sand plaster. A well designed structure of Sun Louvers across the entire building guarantees minimized direct sun light penetrating into the building, thus reducing the energy required for air-conditioning.

Water harvesting → By doing water harvesting we try to save water for plantation on trees in our campus area. By planting trees and having green campus, we save lot of power require for cooling. The building has a well-planned rainwater harvesting architecture contributing towards ground water table recharging. Clean and filtered rain water is passed into a 200 ft. deep tube well which is filled up with pebbles.

A Sewage Treatment Plant (STP) has been set up within the premises ensuring that the sewage water is recycled and used for watering the trees and plants in our campus

Fly-ash Bricks in datacenter → The Data Center structure has been built using Cellular Lightweight Concrete (CLC) Blocks commonly known as Fly-Ash Bricks. Using CLC Blocks provides better strength to weight-ratio, as they are 1/3rd of the weight of the commonly used bricks and have a higher fire rating. It also provides better acoustic and thermal insulation, creating a temperature difference of up to 4-5 degrees Celsius in comparison to red bricks



Ventilation System → A dual air-conditioning system is deployed on the work floors. The conventional central air-conditioner only operates 3-4 months a year. For the rest of the year, a unique concept of fresh air in-take system has been integrated which has 1/6th power consumption compared to the conventional central air-conditioning. This mechanism takes 1/3rd fresh air from a height of 130 ft, resulting in air temperature being cooler by 4-5 degrees Celsius, before being processed by the fresh air-conditioning system.

The fresh air is then channeled to the respective vents/ducts of the workstation floor and 2/3rd return air is cooled down to 2 degree Celsius for dehumidification, while more return air helps to heat up the cool air up to 12 degree Celsius. This heat-exchange process results in cooling of return air prior to entering the compressor, which in turn results in double power saving. Conventional air-conditioning systems deploy a heater to heat the dehumidified air and compressor for cooling hot return air.

Cold Aisle Containment → Cold –Aisle containment is deployed in the datacenter, and installed end of row doors, aisle ceilings or overhead vertical wall systems to contain the conditioned air that cooling systems send into the cold aisles. This ensures that only that air flows into the air intakes of the rack-mounted IT devices. The data center contains the cold aisle to keep the cold air in and the hot air out. Since the utilization of cold air is done in this fashion, the power require for overall cooling gets saved.

Smart Precision Air Conditioners → Depending upon temperature requirement, the speed of PAC fans varies and thus require power for cooling get saved.

Energy efficient equipment → Certified Energy efficient equipment's have been installed to ensure high performance and quality.

ECO – Friendly Fire suppression GAS → FM-200 gas is an eco-friendly gas used for fire suppression system in datacenter.

Server and Network Devices →

Low power server → ESDS uses low power servers. Around 70% servers in the datacenter are in form of blades which consumes low power as compared to rack servers.

Near Zero Power Loss → Since we use mostly blade servers, we reduce the power loss by reducing the use of SMPS, power cables and so on.

Variable Speed Fans → Most the servers we use have variable speed fans and depending upon cooling requirement their speed varies and therefore limits power utilization as well as reduce noise pollution.

Energy efficient Servers → All of our servers are energy efficient server certified by respective OEMs like Dell, IBM and so on.

Fiber Optic ports → Since copper interface require more watts as compare to fiber cards, we use fiber ports in switches to reduce the overall power requirement of device.



Server Virtualization →

Virtualization of server → ESDS has its own cloud and that is the primary service of ESDS from its datacenter. By offering cloud, we do virtualization of IT servers and try to optimize the utilization of servers. Thus the use of power is reduced.

Workload Migration → eNlight cloud has feature of auto migration of VMs and auto scalability of VM resources. So whenever there is no need of resources, the VMs are moved to other running nodes and nodes without VMs are shut automatically. This saves lot of power.

ESDS Green Connect →

Tree Planation → ESDS has adopted a village and plants tree in that village according to use to servers in its DC. When we connect one server in DC, we plant two trees in the village in order to compensate the environment effect by IT carbon emission.