

Power Usage effectiveness analysis and optimization in the INFN CNAF Tier-1 data center infrastructure.

The Energy Efficiency in a modern datacenter could be evaluated using the Power Usage Effectiveness (PUE) as main indicator and this is one of the principal factor when considering the goodness of the global investment of the center infrastructure. At the INFN CNAF Tier-1, using a new monitoring infrastructure as Building Management System (BMS) we have had access to a more flexible and detailed data collection system. This has clearly showed the pros and cons of our facility, and where exactly an improvement was technically possible. For this reason, a new project that aims to reduce the PUE by at least an estimated 10% using innovative cooling technology is currently under way. The introduction of modern cooling chillers with compressors using magnetic levitation and ecologic refrigerant will greatly reduce the total electrical power requirements of our Tier-1 according to the dictates of the Green IT program.