

Case Study



# Tier III Data Center for APGENCO

Powering uptime, security and performance with advanced  
Tier III Data Centre





Andhra Pradesh Power Generation Corporation Limited (APGENCO) is a critical organization in Andhra Pradesh's power landscape. With responsibilities encompassing power generation, transmission, and distribution, the corporation also engages in ongoing and new power projects while modernizing old power stations. APGENCO is a major contributor to Andhra Pradesh's total energy requirement with a whopping 41% share.





# Challenges

APGENCO had a real problem on its hands with its old data center. It wasn't up to snuff anymore and had some serious weak spots, especially when it came to security. The old setup was struggling to keep an eye on the whole process of electricity generation, transmission, and distribution. It was a disaster waiting to happen. They knew they had to act fast. So, they decided the best fix was to aim high and build a new data center that meets top-of-the-line Tier III standards.





# Choosing Netcon as the PMC in Data Center Design and Implementation

APGENCO knew they needed an upgraded data center that met Tier-III standards. The big question was, who should they bring in to help make it happen? They needed someone who knew their stuff, both in managing complicated projects and in designing data centers. After looking around and checking out their options, they picked us, Netcon, to be their go-to partner. We didn't just draw up the plans and work out the details; we also managed the whole project from start to finish. That made things simpler for APGENCO because they only had to deal with us, instead of juggling a bunch of different vendors. We were tasked with not only designing the Data Center and preparing the RFP but also managing the entire project end-to-end, thus becoming the much-needed single point of contact for multiple vendor coordination.





# Objectives Set by APGENCO

## High Availability and Redundancy

APGENCO aimed for a Tier III data center, targeting 99.982% uptime, which means less than 1.6 hours of downtime a year.

## Future-Proof Data Center Design

APGENCO wanted a data center capable of adapting to current needs while easily integrating future technologies to avoid technological obsolescence.

## Stringent Security Measures

Because of the vital role they play in power supply and distribution, APGENCO insisted on state-of-the-art security measures, including data encryption, multi-factor authentication, and regular security audits.

## Scalability and Energy Efficiency

APGENCO sought a scalable data center that could expand or contract without huge costs. Since they're in the power business, they saw energy efficiency not just as a good practice, but as a business necessity.





# Netcon's Comprehensive Approach to Data Center Build and Management

The data center team at Netcon developed a comprehensive data center design and construction blueprint. We incorporated an IT load of 288 kW across 53 racks. In our role as PMC, we took on several responsibilities crucial to the project's success:

1. **Creating a Coordinated Construction Schedule:** We developed an intricate schedule, addressing APGENCO's need for meticulous project planning and time management.
2. **Establishing a Multi-Disciplinary Construction Management Team:** We focussed on cross-functional team coordination to ensure that each contractor was in sync and contributed efficiently to the project's progress.
3. **Oversight of Vendor Quality and Workmanship:** With a commitment to maintaining Tier-III compliance standards, our team instituted rigorous quality assurance checks.
4. **Regulatory Compliance and Approvals:** Netcon facilitated the acquisition of necessary permits and approvals, staying ahead of legal intricacies and eliminating potential project roadblocks.





# Assessing the Needs and Designing

## How Netcon Analyzed APGENCO's Existing Infrastructure and Future Needs

Through comprehensive site audits and capacity planning sessions, Netcon evaluated APGENCO's existing IT load and future scalability requirements. It served as the foundation for designing the Tier III-compliant data center.

## Using Modeling and Simulation Tools

Netcon leveraged simulation tools to model data workflows and predict future needs. These insights were critical in optimizing rack space, cooling requirements, and power usage.

## Design Considerations Specific to Achieving Tier III Status

Our team gave special attention to redundant power supplies, fault-tolerant cooling systems, and advanced fire suppression technologies, which were integral to meeting the Tier III certification requirements.





# Why Tier III? The Demands and Regulations

## Why Tier III Data Center for APGENCO Applications?

The stakes were high for APGENCO; the corporation required a resilient, robust data center infrastructure capable of handling complex power distribution and transmission applications. Given the critical nature of these applications, a Tier I or Tier II data center would fall short of delivering the uptime, reliability, and redundancy needed.

## The Specific Attributes That Make Tier III Desirable

Tier III data centers provide the dual-powered equipment and multiple uplinks that are paramount for APGENCO's 24/7, high-stakes operations.

The N+1 redundancy—meaning there's at least one independent backup for each component—ensures system availability even when routine maintenance is being carried out.

## Regulatory Standards and Requirements for Tier III Certification

Compliance with the Uptime Institute's stringent standards is non-negotiable for achieving Tier III certification. It involves multiple autonomies in the HVAC systems, fault-tolerant site infrastructure, and a plethora of other technical requisites that are thoroughly audited.

## Advantages Over Tier I, II, and Comparison with Tier IV

While Tier III offers distinct advantages over Tier I and II, such as enhanced fault tolerance and redundancy, it does not require the fully fault-tolerant systems of a Tier IV data center—making it a cost-effective yet reliable solution for APGENCO.





# Technical Requirements for Tier III

## **Detailed Discussion of Redundancy, Fault Tolerance, and Other Technical Prerequisites**

A Tier III data center necessitates dual-powered equipment, multiple uplinks, and N+1 redundancy in cooling systems. These were methodically integrated into APGENCO's design blueprint.

## **How These Were Integrated Into the Design**

Netcon employed meticulous planning and execution strategies to weave these technical requirements into the design seamlessly. It included provisions for modular upgrades to accommodate APGENCO's future scalability needs..

## **Specific Technologies Employed**

The use of advanced UPS systems, high-efficiency HVAC systems, and cutting-edge fire suppression technologies ensured that the data center met the robust Tier III requirements.





# Summing It Up

The new Tier III data center we deployed is a game-changer for APGENCO. We have cut the downtime to less than a movie's run time per year. That's huge, especially when you're powering nearly half of Andhra Pradesh.

But it's not just about keeping the lights on; it's about doing it securely. We've deployed top-notch security features that leave nothing to chance. We also went all-in on energy efficiency, because for a power company, it's a must-have. It's not just good business; it's smart business.

The tech we've built into this data center isn't going to be obsolete anytime soon. It is a setup that'll grow with APGENCO, making it not just an upgrade but an investment in the future.

This data center is an invaluable asset for APGENCO's current projects and a cornerstone for what comes next.







# Let's build new futures together.

We like email. Send us a friendly one with a little about what you're working on and what are you trying to solve, and we'll be happy to be a part of your growth journey.

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