

CYIENT

ENGINEERING ENERGY EFFICIENT AND RESILIENT DATA CENTER POWER PLANTS FOR THE DIGITAL ERA

THE CHALLENGE

As digital infrastructure accelerates worldwide, the energy demands of data centers continue to surge. Hyperscalers and enterprises must expand capacity while reducing energy consumption, emissions, and operational risk. This balance is becoming increasingly difficult as global demand rises, and grid constraints intensify.

Key challenges shaping the industry include:

Rising power consumption placing unprecedented stress on regional and national grids.

Escalating operational costs driven by cooling demand and energy inefficiencies.

Fragmented asset ecosystems making visibility, governance, and control difficult.

Stricter ESG requirements and regulatory expectations.

Ireland offers a clear example. Rapid data center expansion consumed more than 20% of the country's total grid capacity, triggering stricter planning controls. As countries race to support digital infrastructure, the Ireland case shows how quickly growth can collide with grid limitations and why operators and policymakers must rethink how capacity, sustainability, and resilience are engineered.

OUR SOLUTION

What We Do

We support the full data center lifecycle, from planning and design through engineering, commissioning, operations, optimization, and long term maintenance.

By combining power and mission critical infrastructure expertise with intelligent digital solutions and sustainability led design, we help hyperscalers, enterprises, and OEMs build resilient, energy efficient, and scalable data centers with predictable performance and lower total cost of ownership.

How it Works

| Core Area | What We Deliver |
|-------------------------------------|--|
| Design and Planning | <ul style="list-style-type: none">• Concept design, feasibility, budgeting• Multidisciplinary engineering: electrical, mechanical, civil, structural, controls• BIM coordination, engineering management, procurement support• Technical documentation, document control, commissioning readiness |
| Electrical and Power Systems | <ul style="list-style-type: none">• Redundant high and low voltage power distribution• UPS, generators, and battery energy storage solutions• Power monitoring, optimization, and electrical safety• Grounding and lightning protection• Backup and failover architectures aligned to Tier standards |
| Mechanical, HVAC and Civil | <ul style="list-style-type: none">• Energy efficient ventilation and cooling solutions• Thermal engineering• Structural and seismic compliant design• Civil and architectural support for compliance and resilience |

| Core Area | What We Deliver |
|---|--|
| Fire Protection and Safety | <ul style="list-style-type: none">• Safety integration aligned with global standards• Plant replacement strategy |
| Operations and Optimization | <ul style="list-style-type: none">• IoT-enabled monitoring and predictive maintenance• AI-driven analytics for performance and reliability• Data governance and multi-site standardization• SAP EAM and PLM integration• Centralized dashboards for unified operational visibility |
| Sustainability and Energy Resilience | <ul style="list-style-type: none">• Renewable and hybrid power integration• Microgrid-ready designs• Heat recovery for district heating• Carbon reduction and energy transition planning• Sustainable design backed by Our global certifications including ISO 9001, ISO 14001, ISO 45001, ISO 27001, CMMI-DEV Level 5 and SOC Type II |



INDUSTRY IMPACT

Advancing 1,000+ power plants globally, Cyient delivers cleaner, more efficient, and resilient power systems that can strengthen modern data center infrastructure.

WHY US

Complete Lifecycle Expertise

From feasibility and engineering to operations and maintenance, we deliver end-to-end capability under one partnership.

Deep Engineering Heritage

30+ years in plant, energy, and digital infrastructure, including 15+ years in nuclear.

Energy Systems Integration

Strong capabilities in hybrid and renewable power design, enabling microgrid-capable data centers that mitigate grid dependency.

Digital Engineering Strength

IoT, analytics, and automation technologies for performance visibility and continuous optimization.

Sustainability Commitment

Engineering solutions that meet performance targets while advancing global environmental goals.

Cyient (Estd: 1991, NSE: CYIENT) delivers intelligent engineering solutions across products, plants, and networks for over 300 global customers, including 30% of the top 100 global innovators. As a company, Cyient is committed to designing a culturally inclusive, socially responsible, and environmentally sustainable tomorrow together with our stakeholders.

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