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# INSIGHTS REPORT

## WHAT DOES THE DATA CENTER BOOM MEAN FOR GCC'S ENERGY SECTOR?



by Hassan Zaheer,  
Managing Partner & COO



# INTRODUCTION

As data centers rapidly multiply across the GCC, the region's energy infrastructure is under immense pressure. How can the power grid keep up with the surge in demand driven by AI, 5G, and cloud technologies?

The global proliferation of internet adoption and digital services consumption has experienced a record level growth. Global internet users have increased by over twice as many times since 2010, and internet traffic worldwide has grown 25-fold. This growth, driven by cloudification and digitalization, deployments of 5G, and generative AI, has boosted infrastructure demand in the form of data centers to handle, store, and move massive data volumes.

In the middle of this global change, the GCC is turning into a strategic point for data centers. However, rapid development challenges the T&D infrastructure readiness as the region is pivoting from fossil-based energy sources to clean energy. This surge is pressuring T&D utilities to expand capacity and modernize grids across the region.

This article will explore the growth trajectory of data centers in the GCC, assess its impact on T&D equipment providers, and examine the implications for electric utilities and grid infrastructure.

## THE MIDDLE EAST DATA CENTER BOOM: A SNAPSHOT

The Middle East, and the GCC in particular, is undergoing a rapid rush of data center growth, with governments and private-sector operators competitively building digital infrastructure to support explosive growth in data demand. With AI adoption, cloud transformation, and expanding digital economies, the regional data center footprint is expected to expand more than double in scale by the end of the decade, making the GCC a rising hotspot for global digital infrastructure.

## What's Driving the GCC's Digital Infrastructure Rush?

**Underlying this expansion are foundational drivers:**

- Increased consumption of digital services
- 5G network rollouts and increasing AI compute capacity requirements
- Enterprises and governments migrating their workloads to the cloud
- Emerging technologies ranging from autonomous mobility to generative AI are powering a surge in processing and storage demand.
- Establishment of GCC-wide innovation hubs and shared digital platforms.
- Cloud-first directives and data-hungry applications across finance, healthcare, and smart cities are additionally driving demand for low-latency, scalable infrastructure.

## Role of National & Regional Goals:

To meet such demands, national visions across the GCC are directing digital change and localizing information. A few examples of them are Saudi Arabia's Vision 2030, UAE Digital Economy Strategy, and Qatar Digital Agenda 2030. Each of these revolves around shaping indigenous AI competence, protecting information infrastructure, and boosting digital serviceability in verticals.

Besides strategy and incentives, precisely targeted policy programs are also attracting the interest of global data center providers:

- Saudi Arabia's special economic zones, for example, enjoy tax holidays and relaxed regulations on foreign ownership.
- Likewise, Bahrain's Cloud-First vision and the free zones of the UAE offer investors regulatory frameworks and infrastructure that attract investment for data centers.

## An Opportunity for Regional & Global Players:

The competitive environment has induced the presence of massive global hyperscalers such as AWS, Microsoft, Oracle, and Google Cloud, together with regional firms such as Khazna Data Centers, Ooredoo, and Gulf Data Hub, in an attempt to capitalize on growing demand for digital solutions and AI potential in the GCC.

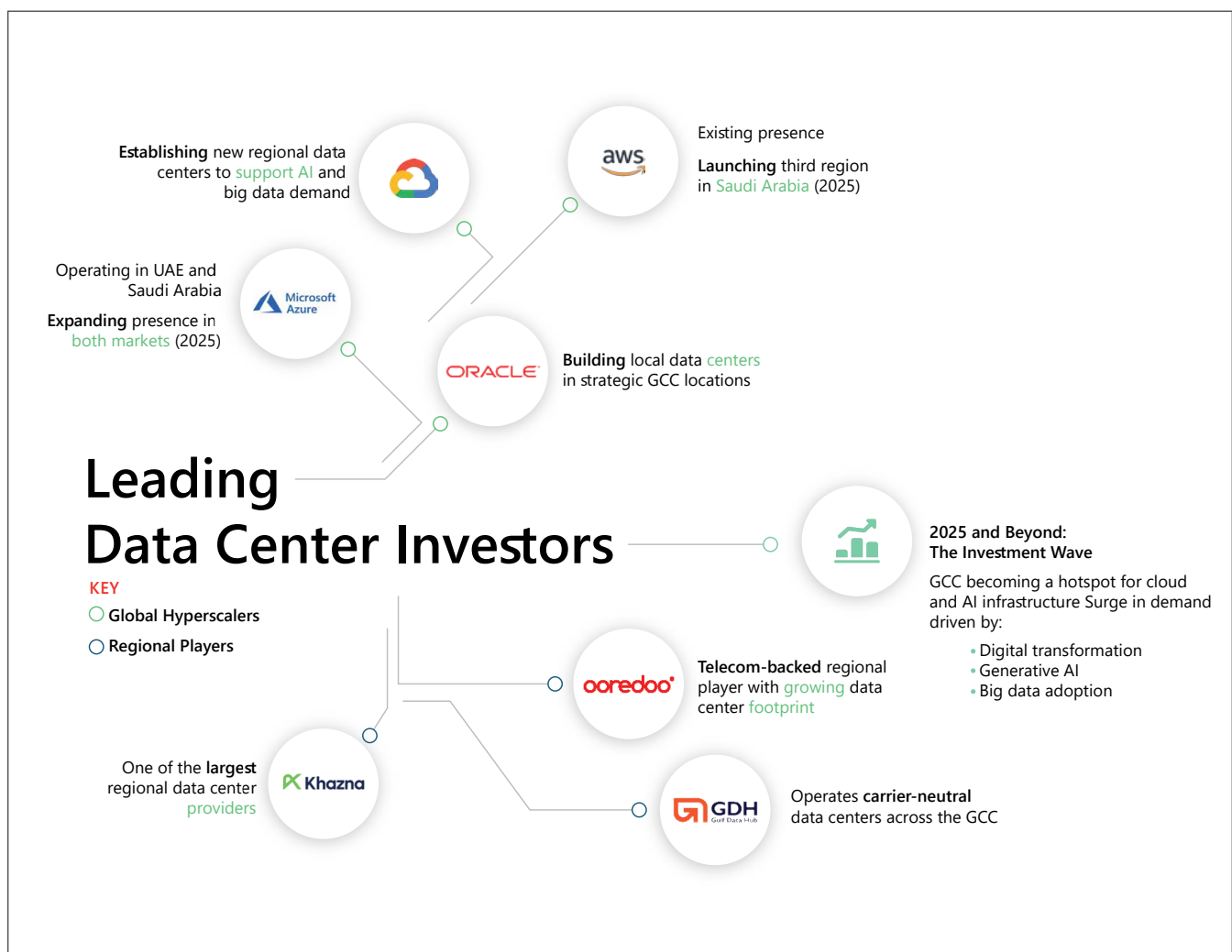


Figure 1: Leading Data Center Investors in the GCC  
Source: PTR Inc.

# THE DOWNSTREAM IMPACT: HOW DATA CENTER GROWTH RIPPLES THROUGH THE POWER ECOSYSTEM

Growth in data centers influences numerous industries, with significant impact on power and energy infrastructure but how? Let's find out:

- As digital services are thriving, data centers must draw enormous amounts of electricity, affecting electric utilities as these entities are responsible for ensuring a stable and flexible electricity supply to support the expanding data center infrastructure.
- Rising demand from data centers is directly impacting critical stakeholders like T&D equipment providers as the demand for equipment is rapidly increasing with new data centers being developed.
- The ramping up of data centers is also reshaping procurement patterns, operating models, and investment plans across the power value chain. From prioritizing scalable and efficient technology to redesigning grids for flexibility and aligning long-term plans with digital infrastructure growth, stakeholders across the power sector are being pushed to adapt alongside growing digital demand.

Let's explore how this momentum is influencing the backbone of energy infrastructure.

## T&D EQUIPMENT PROVIDERS

As digital demand intensifies, the rapid growth of data centers throughout the GCC, particularly in large markets like the UAE, Saudi Arabia, and Qatar, is having a significant impact on the transmission and distribution (T&D) equipment landscape:

### IMPACT

- Data center growth is stressing the region's supply chains and manufacturing bases for faster manufacturing cycles and project-specific, made-to-measure solutions.
- Growing demand for highly efficient and reliable distribution infrastructure to support dense clusters of data centers.
- Local T&D equipment manufacturers increasingly focus on the production and supply of advanced technologies such as GIS substations, SF6-free switchgear, high-voltage transformers, and intelligent switchgear to enhance grid performance and reliability.

## OPPORTUNITIES

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## ELECTRIC UTILITIES

As data center growth accelerates, not only equipment manufacturers but also electric utilities are now tasked with addressing the significant challenges. The challenges faced by utilities are:

### IMPACT

- The rapid expansion of data centers is significantly increasing both base and peak electricity demand across the region.
- Power-intensive operations of data centers are placing additional stress on already strained grids, especially in fast-growing cities like Riyadh, Dubai, and Doha.
- Utilities are now faced with the dual challenge of maintaining grid stability while addressing escalating and variable power requirements.
- The combination of rising data center activity, urbanization, and industrial growth demands forward-looking capacity planning and the ability to manage complex, dynamic load profiles.

## OPPORTUNITIES

- Utilities are exploring dynamic interconnection plans and invest in technologies that optimize the functional flexibility and reliability of the grid to meet the specific needs of data centers.
- With policy support, countries are working on enhancing access to green energy through grid-integrated renewables and broadening demand response initiatives to augment data center operators' sustainability goals.
- Utilities are rethinking their role as strategists by being actively involved in the uptick of digital infrastructure, positioning themselves in regional economic growth, and building future-proof grids.

## CONCLUSION

The rapid growth of data centers in the GCC is putting immense pressure on energy infrastructure. As data centers consume more power, both T&D equipment providers and electricity utilities are facing significant challenges.

Strategic imperatives for T&D equipment vendors include anticipating demand and investments in high-efficiency, agile product lines. Additionally, participation in collaborations with data center developers and utilities at an early project stage will be critical to meeting the evolving needs of the industry.

For electric utilities, priorities involve long-term grid capacity planning and accelerating grid modernization efforts. Utilities also have a unique opportunity to lead energy sustainability by collaborating with data center developers on clean power integration, aligning both industries toward greener energy solutions.

To achieve this, cross-industry collaboration is important. Decision-makers, energy planners, and digital infrastructure developers must work together to ensure data center operations in the region are sustainable and efficient. Together, they will facilitate the creation of a robust, future-proof energy infrastructure that can meet the demands of the digital economy.

Hassan is the Chief Operating Officer at PTR Inc. based in Abu Dhabi, UAE. With more than a decade of experience in the energy transition space, Hassan works for various Fortune-500 blue-chip clients on global market studies in the electrical infrastructure sector. In his current role at PTR, he works with clients to sustainably grow their businesses, both through custom consulting work and tailored research reports by PTR, helping their executive management and boards make data driven decisions. Hassan is also a Member of Advisory Board for CWIEME Berlin and an advisor to the educational non-profit Better Humans Academy. Hassan has a tech background with a Masters in Power Engineering from the Technical University of Munich (TUM) and a BS in Electrical Engineering from the Lahore University of Management Sciences (LUMS). Additionally, he is also an Alumni of the Center for Digital Technology & Management (CDTM).



**Hassan Zaheer**  
Managing Partner &  
Chief Operating Officer  
PTR Inc.

## ABOUT PTR:

With over a decade of experience in the Power Grid and New Energy sectors, PTR Inc. has evolved from a core market research firm into a comprehensive Strategic Growth Partner, empowering clients' transitions and growth in the energy landscape and E-mobility, particularly within the electrical infrastructure manufacturing space.