

Middle East  
Energy Dubai

# Decarbonization in the GCC Region: A Catalyst for Distribution Transformer Demand

By Eyman Ikhlaq, Analyst



- The GCC distribution transformer market is poised for steady growth, projected at a CAGR of 3% in terms of revenue from 2023 to 2028.
- Among the GCC nations, Saudi Arabia emerges as the dominant market, representing 50% of the region's demand in terms of revenue.
- There are a range of challenges and risks in the GCC region that have significant implications for the distribution transformer market.

The global energy industry has diverted towards sustainability in the wake of climate change around the world. The urgency is evident from the news about various disasters in the media and the annual COP meetings that are conducted where governments and individual stakeholders meet to discuss ways to limit environmental degradation. As countries transition towards decarbonization, the global and GCC distribution transformer market is expected to grow in the coming years. The factors responsible for the growth in the GCC region include infrastructure development projects and the introduction of decarbonization initiatives. However, there are certain challenges that can create hindrances on the road to decarbonization and eventually slow down the growth of the distribution transformer market in the GCC region.

The paper highlights the status of global and GCC distribution transformer markets, then explains factors that drive the market upward and challenges that can hinder the growth of the distribution transformer market in the GCC region. Lastly, PTR recommends the best possible trajectories that can mitigate those challenges and lead to the growth of the distribution transformer market at a healthy rate.

## Global Distribution Transformer Market Outlook

The distribution transformer is a key component of the grid infrastructure responsible for reducing the voltage of electricity transmitted from the power station to optimum levels suitable for use in homes, businesses, and industries. According to PTR, significant growth is expected in the distribution transformer market across utilities, industries, commercial buildings, and renewable energy systems. The majority of the demand is dependent on increasing EV deployment and integrating renewable energy sources. As the EU and the US work to integrate renewable energy systems to move towards net zero, multiple countries, including GCC countries, have announced ambitious targets with respect to renewable energy integration and EV charging infrastructure. Consequently, PTR predicts the global distribution transformer market to grow at a healthy CAGR of 7% in terms of revenue from 2023 to 2030.

## GCC Distribution Transformer Market Outlook

The GCC distribution transformer market is poised for steady growth, projected at a CAGR of 3% in terms of revenue from 2023 to 2028. Among the GCC nations, Saudi Arabia emerges as the dominant market, representing 50% of the region's demand in terms of revenue, and it is anticipated to expand further with a CAGR of 5% from 2023 to 2028. Notably, oil-type transformers constitute a significant portion, comprising a 90% share of annual revenue. This preference stems from their suitability for outdoor substations and heavy industrial environments, offering robustness and resilience in harsh conditions while being cost-effective compared to dry-type transformers.

With respect to vertical segmentation, utility had the highest demand for distribution transformers, capturing over 80% of the market share in 2023, while industry and renewable energy sectors accounted for the remaining 20%. The growth of the distribution transformer market in the GCC region is dependent on multiple factors, including infrastructure development projects and decarbonization initiatives.

### CAGR of GCC Distribution Transformer Market in Terms of Revenue from 2023 to 2028

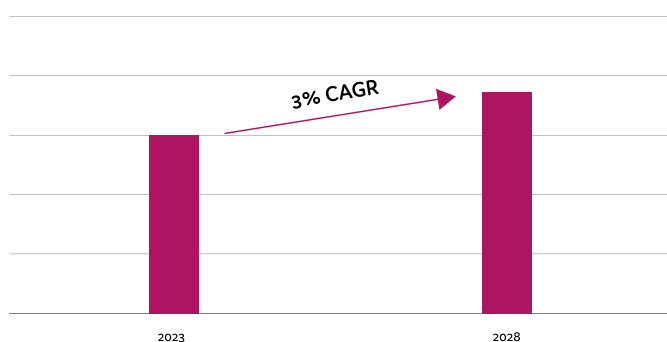


Figure 1: CAGR of GCC Distribution Transformer Market in Terms of Revenue from 2023 to 2028.  
Source: PTR Inc.

## Demand Drivers in the GCC Distribution Transformer Market

Infrastructure development projects and decarbonization initiatives, including the deployment of generation from renewable energy resources and electric vehicles, are expected to drive the demand for distribution transformers upwards.

### Infrastructure development projects

GCC countries are actively investing in infrastructure projects to reduce their dependence on oil resources and broaden their economic portfolios, enhancing their competitiveness in the global arena. This surge in infrastructure development is propelling the demand for distribution transformers across the region. Significant projects include the expansion of Abu Dhabi International Airport, backed by a substantial

USD 6.8 billion investment, and the completion of the Mohammed Bin Rashid Real Estate Development Project by 2035, valued at USD 28 billion.

Meanwhile, Saudi Arabia is also making significant strides with investments of USD 500 billion in Neom City, USD 59 billion in King Abdullah Economic City, and USD 28 billion in Jeddah Economic City. These investments are expected to drive substantial demand for distribution transformers to meet the energy requirements of these projects.

### GCC emission reduction targets

Apart from infrastructure projects, GCC nations have focused on decarbonization initiatives, which include emission reduction targets. Leading the charge, the UAE aims for a 23.5% reduction in emissions by 2030 and net zero by 2050, backed by a substantial investment of over USD 163 billion in clean energy. The Breakthrough Agenda of UAE testifies the action towards these commitments as it focuses on decarbonizing power, transport, and steel production, with an emphasis on hydrogen and sustainable agriculture.

Moreover, Saudi Arabia's "Saudi Green Initiative" targets a reduction of 278 MTPA in emissions by 2030 and net zero by 2060, supported by a USD 185 billion investment in green initiatives, including the establishment of the Middle East Green Initiative (MGI). Apart from UAE and Saudi Arabia, Bahrain, and Kuwait have been proactive as they aim to decrease energy consumption by 6% by 2025 and 30% by 2030, with an ambitious net-zero emissions goal by 2060.

Similarly, according to the second nationally determined contributions (NDCs) and the latest communication to the UNFCCC, Oman and Qatar plan to reduce GHG emissions by 7% and 25% by 2030, respectively. These targets and initiatives highlight the GCC's commitment to a low-carbon future, which will fuel growth in the demand for distribution transformers. The commitment to reducing emissions can be met by increasing power generation from renewable energy sources and higher EV penetration in the region.

## GCC RE targets

Currently, in its initial stages, renewable energy in the GCC region comprises only 3% of total power output. UAE leads in clean energy production and constitutes about 60% of the region’s total renewable energy generation capacity. In contrast, Saudi Arabia relies on renewable sources for less than 1% of its total power output. However, acknowledging the limitations of oil being finite and the need to cut carbon emissions, GCC nations have launched ambitious renewable energy initiatives, with solar energy emerging as a promising solution due to the region’s higher solar irradiance.

The UAE’s commitment to reaching net-zero emissions by 2050 involves a significant investment of USD 54 billion in installing renewables, which include projects like the Mohammed bin Rashid Al Maktoum Solar Park and the Noor Abu Dhabi Solar Plant. Meanwhile, in 2023, Saudi Arabia inaugurated the Al Dhafra Solar Plant, the world’s largest single-site solar facility, with plans to derive 50% of its electricity from renewables by 2030. Other GCC countries are following suit with UAE and Saudi Arabia. Bahrain aims to achieve 5% of the total energy generation through renewables by 2025 and 10% by 2035 as part of its Paris Climate Agreement commitments. Likewise, Kuwait targets 15% of electricity generation from renewables by 2030 while enhancing power plant efficiency by 15%. Depending on wind energy, Oman plans to elevate renewable energy penetration to 20% by 2030 and 35-39% by 2040.

## Renewable Energy Targets for GCC Countries

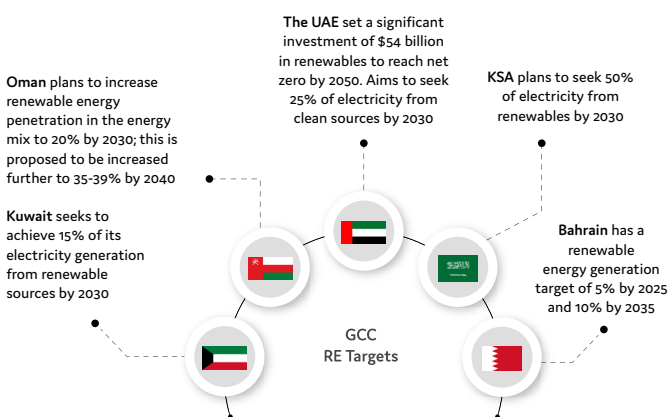


Figure 2: Renewable Energy Targets for GCC Countries. Source: PTR Inc.

## EV penetration in the GCC

In the GCC countries, transportation stands out as a significant contributor to emissions in varying proportions across the region. In the transportation sector, UAE, Saudi Arabia and Qatar accounts for about 19%, 26% and 13% of the total emissions, respectively.

Responding to the need for greener transportation options, GCC nations have undertaken EV initiatives, initially focusing on government-driven purchases. Dubai leads the charge with plans to electrify 30% of its government fleet by 2030 and has established a manufacturing hub dedicated to local EV production, eyeing export markets in Egypt, Tanzania, Senegal, Mali, and Kenya. Presently, only 1% of vehicles in the UAE are electric, but the country aims for EVs to make up 50% of vehicle sales by 2050.

Moreover, Qatar is actively developing its local EV brand, EcoTranzit, with ambitions for EVs to constitute 10% of total vehicle sales by 2030. To support the transition, Qatar’s Kahramaa plans to install up to 1000 EV charging stations by the end of the decade, promoting green transportation across the nation. As distribution transformers are crucial for EV charging, investments in EV charging points will directly increase the demand in the distribution transformer market.

## EV market growth in the GCC Region in 2022 and 2023

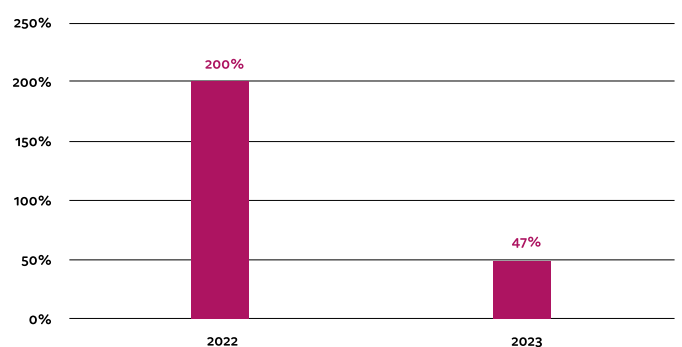


Figure 3: EV market growth in the GCC Region in 2022 and 2023. Source: PTR Inc.

Although these decarbonization initiatives look promising, there are several challenges that impact the growing demand for distribution transformers.

## Challenges and Risks

There are a range of challenges and risks in the GCC region that have significant implications for the distribution transformer market including Saudi Arabia's trade incentives and barriers, localization policies, EV import dependency, climate change impact on GDP, and global reputation.

### Saudi Arabia's trade incentives and barriers

Saudi Arabia introduced policies that discourage international players from entering the local market. In 2020, the costs for transformers from international manufacturers rose as the value-added tax (VAT) was increased from 5% to 15%. Moreover, import duty on transformers rose by 15%, contributing to the increasing cost of distribution transformers. These policies raised the costs of distribution transformers from international manufacturers, making them more expensive and impacting project CAPEX (capital expenditure).

Initially, the GCC tariff agreement did not impose an import duty on goods until July 2021. However, some amendments were introduced, such as excluding goods made in free zones and utilizing Israel's input. Saudi Arabia banned goods from the GCC tariff agreement, which companies made with a workforce of less than 25% of local people.

### Localization policies

Saudi Arabia poses challenges for international players while promoting local manufacturing of goods. The country introduced initiatives such as Saudization, IKTV (In-Kingdom Total Value Add), BENA (Build and Employ National Abilities), and Vision 2030 that create barriers to entry and competition. These policies are expected to help Saudi Arabia in increasing localization in the energy sector, enabling it to meet 75% of the energy demand through local manufacturing by 2030. The preference for local manufacturing and stringent local content policies hinder the growth of the global distribution transformers market in the short term. However, in the long run, when GCC can produce distribution transformers, infrastructure development will propel the GCC distribution transformer market.

### EV imports dependency

In GCC countries, road transportation has contributed substantially to transportation emissions, highlighting the need for advancements as alternative technologies become available. In 2022, Saudi Arabia imported approximately fourteen thousand EVs, given the absence of local automotive manufacturing. The GCC must reduce its reliance on imports and bolster local manufacturing of cleaner transportation alternatives to address transport emissions more effectively. It will aid GCC in reducing the cost of producing equipment in the long term if they are able to establish local manufacturing facilities. Furthermore, it will streamline the adoption of EVs and drive the demand for EV charging infrastructure, consequently spurring the need for distribution transformers.

### Climate change impact on GDP

As climate change intensifies globally, the GCC region faces enormous challenges. Extreme heat is projected to exacerbate existing problems, further reducing arable land and intensifying water stress. These environmental changes have economic repercussions as well. Without significant climate action, a substantial share of the region's GDP is at risk. Uncertainty and risk surrounding GDP can directly impact clean energy investments, including those in renewable energy infrastructure and technologies. This uncertainty, in turn, can affect the demand for distribution transformers, as investments in renewable energy projects often drive the need for electrical infrastructure expansion and upgrades. Renewable energy investments will have to be redirected to increase economic activity, resulting in shifting the focus away from sustainability. Shifting away from sustainability is not desirable as the global markets are investing in green technologies.

### Global reputation

Another risk is the potential harm to GCC's global image if the region doesn't move to implement decarbonization initiatives. The region's key export markets, such as the EU, China, and the US, are tightening emissions-related regulations.

Failing to achieve low-carbon solutions will lead to the loss of significant economic prospects for the GCC in the future. While GCC countries have demonstrated a growing commitment to climate action through emission reduction targets, action from the business community is slow, and consumers underestimate their regional vulnerabilities. The regions that lag in adopting eco-friendly practices may face criticism, leading to strained diplomatic relations and no global partnerships.

### Challenges and Risks in the GCC Distribution Transformer Market

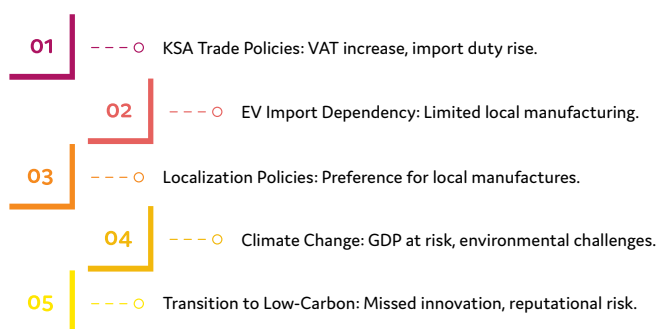


Figure 4: Challenges and Risks in the GCC Distribution Transformer Market. Source: PTR Inc.

Moreover, the GCC should increase its investments in integrating renewable energy into the grid. GCC’s sovereign wealth funds can play an important role in financing investments in clean and renewable energy projects, as well as catalyzing and fostering private sector participation in renewables. The GCC should focus on decarbonizing other sectors, such as industry and buildings, in addition to increasing EV deployment. Much of this investment into renewable energy should be hastened because it takes time for capacity to come online, and it is necessary to support the decarbonization of downstream sectors, like transport and manufacturing, via greater electrification.

The GCC region’s commitment to decarbonization, supported by ambitious emissions reduction targets and investments in renewable energy, underscores a pivotal shift towards sustainability. The transition towards cleaner energy sources is reshaping the distribution transformer market dynamics in the region. The GCC distribution transformer market is experiencing steady growth; however, as GCC incorporates more investment towards decarbonization, the distribution transformer market is expected to go up in the future. Despite challenges like trade barriers and reliance on imported EVs, fostering local manufacturing and innovation is necessary for sustainable growth.

## Looking Ahead

After a thorough analysis of market drivers and challenges, PTR recommends that governments and financial regulators take proactive steps to redirect energy subsidies and investments toward green projects. By gradually reducing fossil fuel subsidies, funds can be reallocated to support investments in sustainable technologies and renewable energy projects. For example, using the IMF (International Monetary Fund) environment model for Saudi Arabia, eliminating fuel subsidies is estimated to achieve one-third of the authorities’ 2030 emissions reduction target. Similarly, the IMF CPAT (Climate Assessment Policy Tool) shows that phasing out subsidies and using additional revenue for renewable energy investment would go a long way in achieving Bahrain’s 2035, Qatar’s 2030, and the UAE’s 2030 climate change mitigation goals.

#### About the author



Eyman is an Analyst at PTR Inc., she specializes in Transformers topics. Her professional journey began in the research sector at IDR, where she worked as a Market Research Analyst for the APAC region. After gaining a year of valuable experience analyzing market trends across various domains, Eyman moved to PTR as a Power Grid Analyst. Currently, her focus is on conducting thorough analysis and providing insights into the field of Transformers. Eyman has a strong technical background, having earned a bachelor’s degree in Electrical Engineering.

Contact: [sales@ptr.inc](mailto:sales@ptr.inc)