Transformers and Rectifiers (India) Ltd

COMPANY PROFILE

FUTURE™
MULTI BAGGER STOCK

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1. PREMIER FINDINGS

PREMIER FINDINGS

- The global Transformers market was estimated at USD $21 Billion in the year 2020, is projected to reach a size of US $32 Billion by 2025, growing at a CAGR of 5.3% during the forecast period.
- The Transformers market in the U.S. is estimated at USD $6 Billion in the year 2020. The country currently accounts for a 26% share in the global market. China, the world`s second largest economy, is forecast to reach an estimated market size of USD $6.8 Billion in the year 2025 trailing a CAGR of 8.1% during the forecast period.
- Among the other noteworthy geographic markets are Japan and Canada, each forecast to grow at 2.3% and 4.2% respectively over the analysis period. Within Europe, Germany is forecast to grow at approximately 3% CAGR while Rest of European market will reach USD $7 Billion by the end of the analysis period. Demand for transformers in developed economies is driven by the increasing electrification ratio and upgrade of existing electricity T&D networks.
- Dry-type transformers represent a fast-growing segment because of increasing focus on environmental safety. Demand is set to be driven by increasing replacement of old transformers and installation of new units. Single phase dry-type transformers are expected to witness high growth on account of rising applications in marine, mining, and oil and gas sectors, which have stringent requirements for fire safety and specific voltage.
- Rapid industrialization; massive utility/power infrastructure investments, expanding population and energy needs, government focus on rural and urban power grid construction, and implementation of energy-efficiency standards represent important growth drivers in the Asia-Pacific region. The replacement of a substantial aging fleet of transformers installed in Europe, North America and other developed economies is one of the major growth drivers for power transformers in mature economies.

2. INDUSTRY INFORMATION (with similar companies of the industry)

2.1 Introduction (1/12)

- The transformer industry in India plays a crucial role in the country's power sector. Transformers are essential components of electrical power systems, used to step up or step down voltage levels for transmission and distribution of electricity. They find application in various sectors, including power generation, transmission, distribution, renewable energy, industrial, and commercial sectors.
- **Market Size and Growth:**
  - The Indian transformer industry has experienced significant growth over the years, driven by the increasing demand for electricity and infrastructure development. According to reports, the Indian transformer market was valued at around USD 2.3 billion in 2020 and is expected to grow at a CAGR of around 6% during the forecast period (2021-2025).
- **Key Players:**
  - The Indian transformer industry consists of several key players, including both domestic and international manufacturers. Some prominent companies operating in the Indian transformer market are:
    - ABB Ltd.
    - Bharat Heavy Electricals Limited (BHEL)
    - Crompton Greaves Limited (CG)
    - Siemens Limited
    - Schneider Electric India Pvt. Ltd.
    - Transformers and Rectifiers (India) Limited (TRIL)
    - Voltamp Transformers Limited
    - Kirloskar Electric Company Limited

2.1 Introduction (2/12)

- The Indian transformer industry is a vital component of the country's power sector. Transformers are crucial for stepping up or stepping down voltage levels in electrical power systems, enabling the transmission and distribution of electricity. Here are some key points about the Indian transformer industry:
- **Market Size and Growth:** The Indian transformer industry has witnessed significant growth in recent years. In 2020, the market is valued at around USD 2.3 billion. It is projected to grow at a CAGR of approximately 6% during the forecast period of 2021-2025.
- **Demand Drivers:** Several factors contribute to the demand for transformers in India:
- **Increasing Electricity Demand:** With a growing population and urbanization, there is a rising demand for electricity across various sectors, including residential, commercial, and industrial.
- **Infrastructure Development:** Investments in infrastructure projects, such as power transmission and distribution networks, contribute to the demand for transformers.
- **Renewable Energy Expansion:** The Indian government has set ambitious targets for renewable energy capacity addition. This drive towards clean energy sources like solar and wind power requires transformers to integrate renewable energy into the grid.

2.1 Introduction (3/12)

- **Government Initiatives:** The Indian government has implemented several initiatives to support the growth of the transformer industry. These include:
- **Make in India:** This campaign encourages domestic manufacturing and aims to boost the transformer manufacturing sector in India.
- **Integrated Power Development Scheme (IPDS):** The government scheme focuses on strengthening the power distribution infrastructure, including transformers, to improve efficiency and reduce losses.
- **National Solar Mission:** The mission aims to promote solar power generation and increase the share of renewable energy in the overall energy mix. This drive requires the integration of solar power through transformers.
- **Ujwal DISCOM Assurance Yojana (UDAY):** A financial restructuring program for power distribution companies, which includes infrastructure upgradation.
- TRIL has a long-standing presence in the Indian transformer industry, with a history dating back to 1994. This experience gives the company an advantage in terms of industry knowledge, customer relationships, and brand recognition.
- TRIL offers a wide range of transformers, including power transformers, distribution transformers, specialty transformers, and rectifiers. This diverse product portfolio allows TRIL to cater to different customer requirements and target various sectors, contributing to revenue diversification.
- TRIL possesses strong in-house manufacturing capabilities, including advanced facilities for transformer production. This enables the company to have better control over the production process, quality assurance, and timely delivery of products.

2.1 Introduction (4/12)

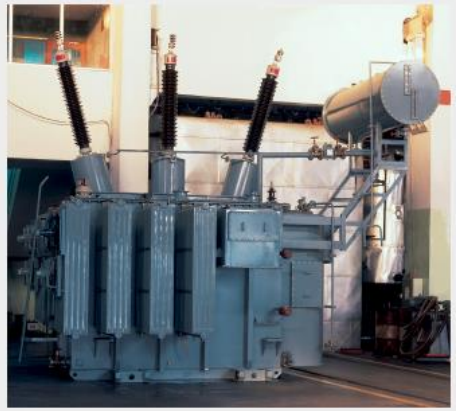
- TARIL Power Transformer product range includes conventional as well as green power transformers. Power Transformer product range includes,

  - Auto Transformers upto 1500 MVA, 1200 kV
  - Generator step up unit Transformers upto 1000 MVA, 765 kV
  - Small and medium power Transformers
  - Trackside Traction Transformers
  - Auxiliary Transformers

2.1 Introduction (5/12)

- TARIL Distribution transformer product range covers 250 kVA to 4000 kVA, 11 to 33 kV, various types include:

  - Energy efficient transformers as per IS 1180
  - Transformers with packaged substation
  - Copper and Aluminum wound
  - Hermetically sealed type
  - Transformers with corrugated cooling fins



2.1 Introduction (6/12)

- TARIL Furnace transformer product range covers 200 MVA and 120 kA, various types

  - Electric Arc Furnace Transformer (EAF)
  - Submerged Arc Furnace Transformer (SAF)
  - Ladle Refining Furnace Transformer (LRF)
  - DC Arc Furnace Transformer
  - Induction Furnace Transformer

2.1 Introduction (7/12)

- TARIL Rectifier transformer product range covers 160 kA, various types include,

  - 6 Pulse Transformer (IPT)
  - 12/24 Pulse Transformer (IPT and double deck construction)
  - 12/24 Pulse Transformer (Bridge construction)

2.1 Introduction (8/12)

- CONVERTER DUTY TRANSFORMERS
- EARTHING TRANSFORMER
- TESTING TRANSFORMER

2.1 Introduction (9/12)

- TARIL Rectifier transformer product range covers 160 kA, various types include,

  - SHUNT REACTOR
  - SERIES REACTOR

2.1 Introduction - Services (10/12)

- Upon receipt of the transformer in the factory, a visual inspection and electrical control will be performed as to provide a root cause of failure or what rehabilitation actions will be taken, as well as to provide a delivery date. As per the root cause and agreed actions taken, the core and coil or active part will be untanked, inspected and partial or full manufacturing of coils will be initiated.

- Following upgrade/service of noble parts, accessories and other auxiliary equipment, the active part is dried and replaced in the tank, which is refilled with fresh oil and high-voltage test performed. After the factory acceptance test the newly revitalized transformer is ready to be delivered back to its owner. If requested, Transformer & Rectifier (India) Limited can of course cater for the transport of the unit back and forth from the site.

Repair Type	Transformer & Rectifier(India) Ltd Solution
Midlife refurbishment	Approx. 3 weeks to give a transformer 10-20 new operating years
Simple repair, without winding exchange	Most of this type of failures can easily be repaired onsite, reducing considerably the downtime
Partly & full rewind	T&R rewinds always include a refurbishment and HV testing. The size of the transformer and failure type determines the time at the factory from 8 weeks onwards
HV testing	This test verifies that a repair or refurbishment is fully executed and complying with the expected quality

2.1 Introduction - Services (11/12)

- **UPGRADE, REPAIR & REFURBISHMENT**
  - T & R has extensive experience in delivering all types of transformers to all parts of the world. The combination of highly qualified technicians, local expertise and high quality equipment enhances the speed and efficiency of this vital operation.
  - Repairs and refurbishment consist basically of reusing existing materials, such as steel, oil and copper. The T&R factory in Ahmedabad (Gujarat) is equipped to fully repair and refurbish your transformer, while giving economic and technological benefit, without compromising quality.
  - Up gradation of all type transformer make & like rewinding's, cooling arrangement, rating enhancement with minimum losses design.
  - For preventive maintenance, refurbishment also known as reconditioning, is a frequent used option, in where equipment is taken to our work shop for a full repairing, thorough cleaning and individual component analysis and replacement according the maintenance schedule.
  - We can repair & refurbish any make Transformer at works or on site, within adequate time and with satisfactory results.
- **SPARES & CONSUMABLES**
  - T & R has supplied spare parts for all ratings & make of transformer in past.
  - Spare parts or exchange units can be stored globally, within your own country or directly at your premises – you decide.
  - We are also giving solution & spares for other make transformer & supply spares also after site visit.

2.1 Introduction - Services (12/12)

- **TECHNICHAL TRAINING**
  - T & R provide technical training at site & as well as on works also.
  - Training is design based on the people skills & there competency.
  - T&R also provide training at on site & at the time of FAT.
  - **Training may vary according to the background of the company, plant or personnel. We offer training in the following areas, among others:**
    - Different Products & there Manufacturing process.
    - Site Commissioning and Testing
    - Transformer Condition Monitoring and Diagnostic.
    - Basic Design and fundamentals.
    - Transformer Oil Dissolved Gas Analysis (DGA) and Furan Analysis.
    - DO'S & DON'TS for Power Transformers.
    - Erection, Testing and Commissioning of transformer

- **OIL SAMPLE ANALYSIS & DIAGNOSIS**
  - T & R have its own testing van with all the testing facilities like tan Delta, Turns ratio meter, Winding resistance, egger etc.
  - We do oil testing in our NABL accredited lab and provide services related to the same for oil testing.
  - Because of the substantial investment in power transformers and their importance as a major factor that affects system reliability, transformer asset management can be assumed to be one of the most important areas of equipment asset management. In most cases, unscheduled transformer outages due to unexpected failures are disastrous.
  - We conduct entire tests in our lab & give faster solution based on the site report to customers.

2.2 Trends, Challenges and Opportunities

TRENDS

- Renewable Energy Integration
- Smart Grid Technologies
- Energy Efficiency

TRENDS

- Export Potential
- Focus on Energy Efficiency

CHALLENGES

- Competitive Market
- Technological Advancements
- Cost Pressures

OPPORTUNITIES

- Infrastructure Development
- Renewable Energy Growth
- Smart Grid Implementation

2.3 Chart – June 2019 to July 2020

3. FUTURE GROWTH AND INDUSTRY SCENARIO

3.1 GROWTH DRIVERS (1/5)

- ✓ Increasing demand for electricity due to population growth and urbanization.
- ✓ Investments in infrastructure development, including power transmission and distribution networks.
- ✓ Government initiatives to expand renewable energy capacity, such as solar and wind power.
- ✓ Rising industrialization and urban development, leading to increased demand for transformers in commercial and residential sectors.
- ✓ Upgradation and modernization of aging power infrastructure.
- ✓ As smart grid technologies gain traction, TRIL can explore opportunities to provide transformers equipped with advanced monitoring and control capabilities, enabling efficient and reliable grid operations.
- ✓ TRIL can tap into export markets by leveraging its manufacturing capabilities and quality products. There is a global demand for transformers, and TRIL can expand its presence in international markets.
- ✓ With increasing emphasis on energy conservation and sustainability, TRIL can develop energy-efficient transformers that help customers reduce energy losses and improve overall system efficiency.
- ✓ Embracing technological advancements and innovation can enable TRIL to develop and offer advanced transformers with features like smart grid capabilities, improved efficiency, and environmental sustainability. Such technological innovations can help the company differentiate itself in the market and attract customers.

3.1 GROWTH DRIVERS (2/5)

The growing focus on renewable energy sources, such as solar and wind power, presents a significant trend for TRIL. The integration of renewable energy into the grid requires the development of specialized transformers and other power equipment.

The adoption of smart grid technologies is on the rise, enabling efficient and reliable power transmission and distribution. TRIL can capitalize on this trend by incorporating smart features into their transformers, such as remote monitoring, diagnostics, and control capabilities.

Energy efficiency is a key concern in the power sector. TRIL can align with the trend of energy-efficient transformers by developing products that minimize losses, improve power factor, and enhance overall system efficiency.

The transformer industry in India is highly competitive, with several domestic and international players. TRIL faces the challenge of maintaining market share and competitiveness amidst intense competition.

3.1 GROWTH DRIVERS (3/5)

The transformer industry is evolving with advancements in materials, design, and manufacturing processes. TRIL must keep pace with these technological advancements to stay relevant and meet customer demands.

Fluctuating raw material prices, such as copper and steel, can impact manufacturing costs. TRIL needs to manage cost pressures while maintaining product quality and profitability.

India's infrastructure development plans offer opportunities for TRIL. Investments in power transmission and distribution infrastructure, as well as other sectors like railways and metro systems, create a demand for transformers.

The Indian government has set ambitious targets for renewable energy capacity expansion. TRIL can leverage this opportunity by providing transformers specifically designed for renewable energy integration, such as solar and wind farms.

3.1 GROWTH DRIVERS (4/5)

- ✓ **Increasing Electricity Demand:** The rising population, urbanization, and industrialization in India contribute to the increasing demand for electricity. As the demand for power transmission and distribution infrastructure grows, TRIL can capitalize on this opportunity by supplying transformers to meet the expanding electricity needs.

- ✓ **Infrastructure Development:** The Indian government has been investing in infrastructure development, including the expansion of power transmission and distribution networks. TRIL can benefit from this growth driver by securing contracts for transformer installations in infrastructure projects such as highways, railways, metro systems, airports, and smart cities.

- ✓ **Renewable Energy Expansion:** The Indian government has set ambitious targets for renewable energy capacity addition, including solar and wind power. TRIL can leverage this growth driver by providing specialized transformers designed for renewable energy integration. These transformers facilitate the efficient transmission and distribution of electricity generated from renewable sources, helping TRIL tap into the expanding renewable energy market.

- ✓ **Government Initiatives and Policies:** The Indian government has implemented several initiatives and policies to promote domestic manufacturing, such as the Make in India campaign. TRIL can benefit from these initiatives by expanding its manufacturing capabilities, enhancing product quality, and leveraging government support to gain a competitive edge in the market.

- ✓ Changes in government regulations and policies can impact the transformer industry. Compliance with evolving regulations, such as energy efficiency standards, environmental regulations, and safety requirements, poses challenges for TRIL.

- ✓ Economic fluctuations, including changes in GDP growth, interest rates, and investment patterns, can impact the demand for transformers. Economic downturns or slowdowns may affect the overall market demand and pose a threat to TRIL's growth.

3.1 GROWTH DRIVERS (5/5)

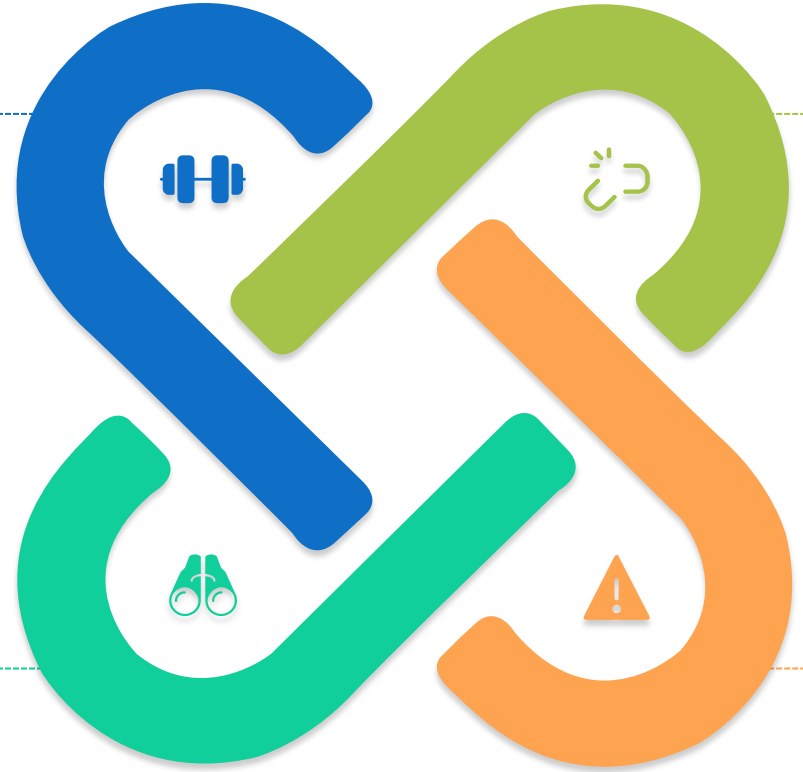
- ✓ **Export Opportunities:** TRIL has the potential to explore international markets and increase its export footprint. The demand for transformers exists globally, and TRIL can leverage its manufacturing expertise, competitive pricing, and quality products to cater to the export market. This diversification can contribute significantly to TRIL's growth.
- ✓ **Technological Advancements:** TRIL can drive growth through continuous innovation and the adoption of advanced technologies in transformer manufacturing. By staying at the forefront of technological advancements, TRIL can offer efficient, reliable, and environmentally friendly transformers that meet the evolving needs of customers.
- ✓ **Focus on Energy Efficiency:** Energy efficiency is a growing concern across industries. TRIL can position itself as a provider of energy-efficient transformers that minimize power losses and improve overall system efficiency. As customers increasingly prioritize energy-saving solutions, TRIL's focus on energy efficiency can drive its growth in the market.
- ✓ **After-Sales Services and Customer Support:** Building strong relationships with customers and providing excellent after-sales services can be a growth driver for TRIL. By offering timely maintenance, repairs, and technical support, TRIL can enhance customer satisfaction and loyalty, leading to repeat business and positive word-of-mouth referrals.
- ✓ The increasing focus on renewable energy sources in India presents significant opportunities for TRIL. The company can leverage its expertise to supply transformers specifically designed for renewable energy integration, such as those used in solar and wind power projects.
- ✓ Ongoing infrastructure development initiatives in India, including power transmission and distribution networks, offer growth opportunities for TRIL. Participating in infrastructure projects by securing contracts for transformer installations can drive revenue growth.

Ref.: Gov.

3.2 SWOT Analysis

STRENGHTS

- Established Presence
- Diverse Product Portfolio
- Manufacturing Capabilities
- Strong Distribution Network



WEAKNESSES

- Dependency on Raw Materials: TRIL is dependent on raw materials like copper and steel, which are subject to price fluctuations in the market. This dependency exposes the company to cost volatility and potential profitability challenges.
- Limited International Presence: While TRIL has the potential for export growth, its international presence is relatively limited compared to some competitors. Expanding the export footprint could enhance revenue diversification and mitigate dependence on the domestic market.

OPPORTUNITIES

- Renewable Energy Growth
- Infrastructure Development
- Technological Advancements

THREATS

- Intense Market Competition
- Regulatory Environment
- Economic Factors:

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THANK YOU