Triveni Group Organisation Structure

Triveni Group

- Triveni Engineering & Industries Ltd. (TEIL)
  - Sugar Businesses
  - Co-generation Business
  - Gears Business
  - Water Business
- Triveni Turbine Ltd. (TTL)
  - Distillery Business
  - Triveni Turbines DMCC (TTD)
  - Triveni Turbines Europe Pvt. Ltd. (TTEPL)
- GE Triveni Ltd. (GETL)

TEIL holds 21.8% of the equity in TTL

50% plus one share

Triveni Engineering & Industries Ltd. (TEIL) holds 21.8% of the equity in Triveni Turbine Ltd. (TTL).
Triveni Turbines Factsheet

The world’s largest manufacturer of steam turbines (5 to 30 MW) globally

Over 3000 steam turbines installed globally

Over 12 GW power generation capacity

Presence in over 70 countries

The world’s largest manufacturer of steam turbines up to 30 MW range for providing industrial & renewable power solutions

Market leadership position in India, with around 60% market share for a decade

Joint Venture with BHGE (a GE company), GE Triveni Ltd, with majority stake for the range above 30 MW to 100 MW
Global Footprint

Head Office/Manufacturing

Subsidiaries/International Offices

Presence in 70+ countries

CAGR of 17% in Exports sales in past 5 years
Reliable & Robust Steam Turbines

Robust back-pressure and condensing steam turbines up to 100 MW that work across a wide range of pressure and flow applications with choice of Impulse and Reaction technology

Upto 30 MW

Condensing Steam Turbines
- Straight Condensing Type
- Extraction Condensing Type
- Bleed Condensing Type
- Injection Condensing Type
- Double Extraction Condensing

Back Pressure Steam Turbines
- Straight Back Pressure Type
- Extraction Back Pressure Type
- Bleed Back Pressure Type

Above 30 MW to 100 MW

Condensing Steam Turbines
- Uncontrolled Extraction
- Controlled Extraction
- Reheat Turbines
- Injection condensing Turbines

Back Pressure Steam Turbines
- Uncontrolled Extraction
- Controlled Extraction
Infrastructure

State-of-the-art facilities equipped to provide manufacturing of critical components, assembly, testing and refurbishing services

- Five-axis CNC Machining Centre
- Large fleet of Four-axis CNC machines
- 2 Nos. Vacuum tunnel catering up to 150 MW rotors
- Zeiss co-ordinate measuring machines
- Computerised test facility
- Full-speed Mechanical Steam Run Test
- Integrated CAD/CAM
- Five-axis CNC Mill Turn Centre machine
- 5-face CNC Gantry machine

Latest design tools and software to deliver innovative solutions to customers

ISO 9001-2008
ISO 14001-2008
AS9100D
Quality Assurance

Our products meet the most stringent International quality standards:

- Ultrasonic Test
- Magnetic Particle Test
- Radiography
- Zyglo Test
- Casing Hydro Test
- Thermos Stability Test
- Sound Level Measurement
- Profile Measurement Through CMM
- Low Speed Dynamic Balancing
- Full Speed Vacuum Tunnel Balancing
- Natural Frequency Test
- Alignment Check
- Full Speed Mechanical Steam Run Test
- Governor Response
- Vibration Measurement

ISO 9001 QMS & ISO 14001 EMS standards

IEC, BS, API, NEMA, DIN, ASME, CE, PED, AGMA, TEMA, HEI

Industry Best Practices
Cutting edge products with minimum lifetime ownership cost; Customer focused R&D; Extensive in-house tests and field validation programs

Experienced design team with structural, Aero domain experts

Proven modular building blocks extensively tested for product life cycle performance

Customer Capex and Opex optimisation with extensive operability benefits

Association with world-renowned design houses and academia - IISc., Cambridge, Polimi, Impact Tech. (Lockheed Martin), Concepts NREC, USA

Innovative product development concepts such as design to cost, QFD, FMEA techniques, DOE

Advanced CFD, FEA, Neural network based algorithms employed for aero performance and product reliability maximisation

Customised Plant Engineering solutions with PLM, SAP, advanced CAD/CAE

The advanced R&D product program has over 60 field proven models/variants
Design & Development

- Customised product based on modular building blocks
- Maximising efficiency and reliability by advanced aero blade-path
- Customer focused CAPEX/OPEX optimised product/plant designs
- Service solutions focused on turbine uptime maximisation
- Cost-out programs with competent product engineering
- R&D on futuristic energy technologies such as Super critical CO2 power blocks.
IT Enabled Operations

IT Enabled Operations and Reporting capturing OEE and operator efficiency

**Business Software**
- SAP – HANA
- Salesforce.com
- Primavera
- IOT – Fleet RMD
- IOT- CNC shop
- ITO- Cost tools
- OTR- Primavera

**Technical software**
- CFX
- ANSYS
- Concepts Aero Suite
- Dyrobes, ARMD
- PLM-Teamcentre
- Pro-E, Unigraphics
- Ax-turbo
- MISES
- Thermoflow, Gatecycle
- Matlab
360° Customised Service Portfolio
For every turbine served throughout its lifecycle

Customised Service Solutions ➔ Total Customer Satisfaction ➔ High Repeat Customers Orders

- AMCds for Steam Turbines
- Health Survey & Condition Assessment
- Efficiency restoration
- Re-engineering
- Reverse Engineering
- Overhauling
- OEM Expertise
- Latest Equipment
- Highly Skilled Team
Triveni’s Refurbishment Business targets all makes of Turbo-machinery globally.

ANY MAKE
OF TURBINE

MAKING
AGE

TRUST US TO REFURBISH IT

Rotating Equipment Experts who set the GOLD STANDARD in Refurbishing.
Triveni Touch: Remote Monitoring & Diagnostics

- Risk Mitigation
- Outage Reduction
- Fact-Based Decision Making
- Cyber Security
- Steam Dynamics Monitoring (CDM)
- OnSite Support* Remote Turbine Controls Diagnostics
- Blade Health Monitoring (BHM)

Monitoring KPIs

- Turbine Performance
- Commercial KPI
- Power Generation Cost
- Cost of power import and export
- Power imported and exported
- Power Generation
- System Performance
- Utility Downtime
- Specific Steam Consumption
- Health Tracker
- Steam to Process and related inefficiency
- Exhaust Steam Quality
- Steam Dynamics Monitoring KPIs
The industrial power generation market represents the decentralised and captive power generating industry. Three principal segments that generate demand in both domestic as well as the export market are:

- Industrial capital expenditure – Both greenfield and brownfield co-generation based captive power plants
- Opportunity based sale of power to the grid by captive units
- Renewable Energy – Small-scale renewable-based Independent Power Producers, agro-based co-generation and renewable waste-heat
Financial Performance

Note: * Consolidated
FY 19 Financial Performance (Consolidated)

- Net Income from Operations ₹ 8.4 billion, a growth of 12%
- PAT ₹ 1 Billion, a growth of 4%
- Record order booking at ₹ 8.5 billion
- During FY 19, the exports turnover was higher by 17% at ₹ 3.94 billion with the mix of exports in total sales marginally higher at 47% in comparison to FY 18
- The share of aftermarket sales to total sales in FY 19 is 25% as against 26% during FY 18, even though the aftermarket sales has increased by 7% at ₹ 2.1 billion from ₹ 1.9 billion
- During FY 19, the Aftermarket segment has performed very well with a growth of 13% over FY 18 in terms of order booking while sales growth stood at 7%.
- The aftermarket business has developed traction in international markets with a year-on-year growth of 49% and its share in outstanding aftermarket order book is 51% during FY 19
- The outstanding consolidated order book as on Mar 31, 2019 stood at ₹ 7.2 billion.
# Q4/ FY 19 Financial Performance (Consolidated)

<table>
<thead>
<tr>
<th></th>
<th>Q4 FY 19</th>
<th>Q4 FY 18</th>
<th>% variation</th>
<th>FY 19</th>
<th>FY 18</th>
<th>% variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Income from Operations</td>
<td>2397</td>
<td>2441</td>
<td>-2%</td>
<td>8400</td>
<td>7511</td>
<td>12%</td>
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<tr>
<td>EBITDA</td>
<td>455</td>
<td>629</td>
<td>-28%</td>
<td>1675</td>
<td>1660</td>
<td>1%</td>
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<tr>
<td>EBITDA Margin</td>
<td>19%</td>
<td>26%</td>
<td>-</td>
<td>20%</td>
<td>22%</td>
<td></td>
</tr>
<tr>
<td>Depreciation &amp; Amortisation</td>
<td>53</td>
<td>53</td>
<td>-</td>
<td>201</td>
<td>191</td>
<td>5%</td>
</tr>
<tr>
<td>PBIT</td>
<td>403</td>
<td>576</td>
<td>-30%</td>
<td>1473</td>
<td>1468</td>
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<tr>
<td>PBIT Margin</td>
<td>17%</td>
<td>24%</td>
<td>-</td>
<td>18%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Finance Cost</td>
<td>7</td>
<td>0</td>
<td>-31%</td>
<td>11</td>
<td>5</td>
<td>120%</td>
</tr>
<tr>
<td>PBT</td>
<td>395</td>
<td>576</td>
<td>-31%</td>
<td>1462</td>
<td>1463</td>
<td></td>
</tr>
<tr>
<td>PBT Margin</td>
<td>17%</td>
<td>24%</td>
<td>-</td>
<td>17%</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>Share of Profit of JV</td>
<td>23</td>
<td>-33</td>
<td></td>
<td>32</td>
<td>-25</td>
<td></td>
</tr>
<tr>
<td>Consolidated PAT</td>
<td>283</td>
<td>354</td>
<td>-20%</td>
<td>1002</td>
<td>960</td>
<td>4%</td>
</tr>
<tr>
<td>Consolidated PAT Margin</td>
<td>12%</td>
<td>15%</td>
<td>-</td>
<td>12%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>EPS (₹/share)</td>
<td>0.87</td>
<td>1.07</td>
<td></td>
<td>3.05</td>
<td>2.91</td>
<td></td>
</tr>
</tbody>
</table>

` in million
- Triveni Turbine Ltd. formed a 50:50 Joint Venture with a GE affiliate on 15th April 2010. GE Triveni Ltd. (GETL) headquartered in Bengaluru, a subsidiary of TTL, designs, supply, sell and service advanced technology steam turbines in India in the range above 30-100 MW for power generation applications in India and globally
- GETL gets technology and on-going R&D support from GE and TTL and use TTL's Bengaluru facility for turbine manufacturing
- JV registered a total revenue of ₹ 777 million with a profit of ₹ 90 million. There has been some delay in customer clearances for the shipment of large turbines and the same will be dispatched in H1 FY 20.
- The execution and commissioning of large sized turbines in the export market is underway and GETL expects these references to help it to achieve enhanced order inflows in the future.
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