

Steaming electricity from waste.



*18th Century
James Watt
used coal*



*21st Century
James Watt
uses Bagasse*



**Refractory
Recycling**

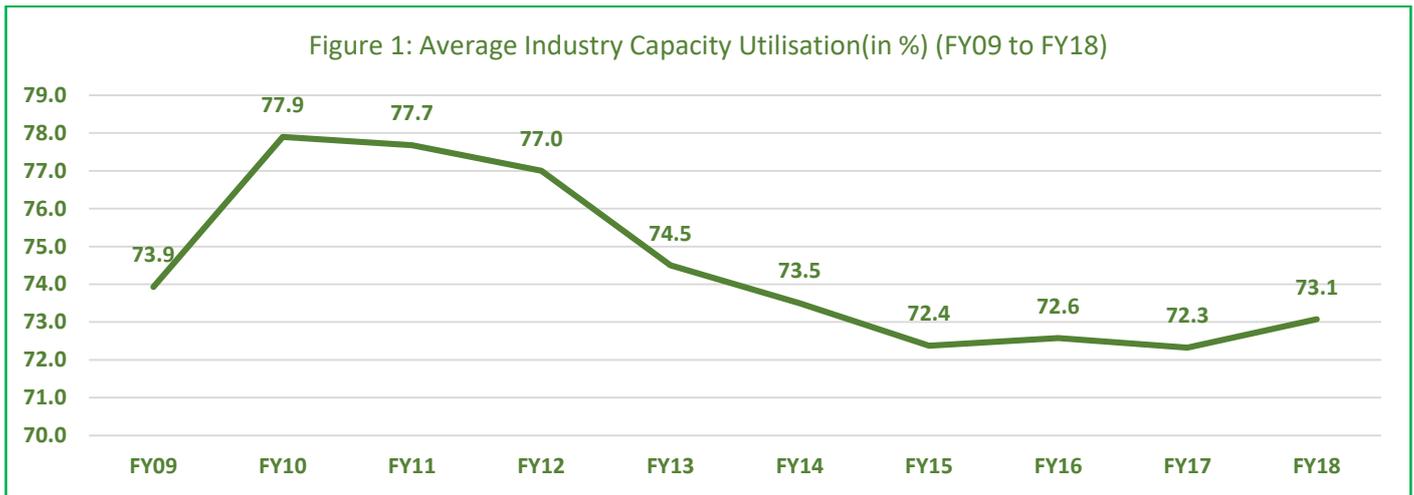
Like our last newsletter, this edition carries a few interesting developments from sectors within the Green Fund and how such trends could lead to a positive impact not just on the environment and but also on earnings growth in the times to come. This letter covers updates on industrial steam turbines and refractory recycling.

Industrial Steam Turbines – Steaming electricity from waste!

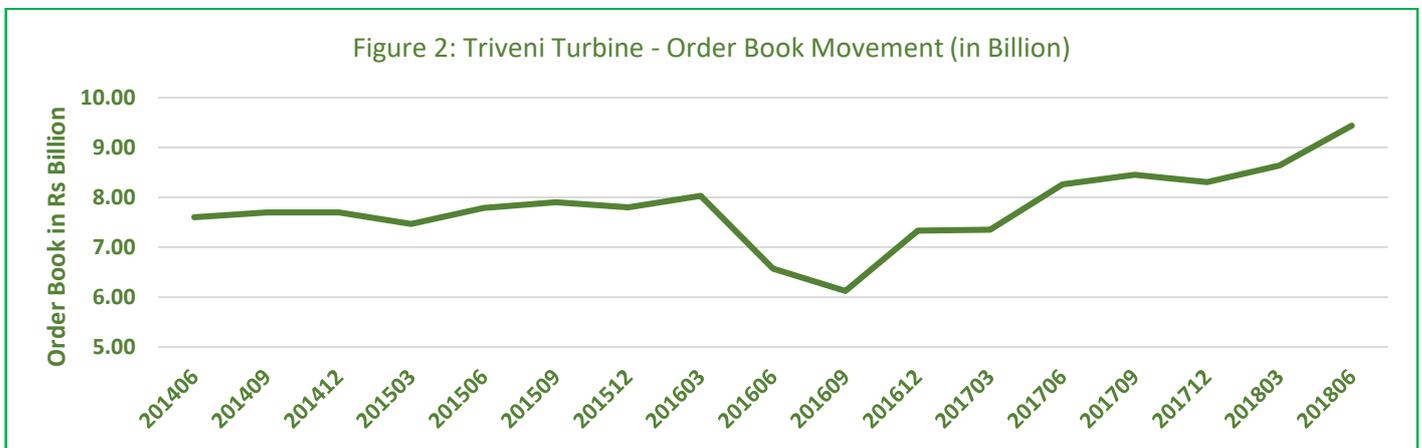
Demand for smaller sized steam turbines with power production capacity of less than 200 MW (called Industrial Turbines) depends on the private capex cycle. This in turn depends on industry capacity utilisation trends. As utilisation increases, industries plan for new capacity addition.

As shown in figure 1, per data released by RBI, the industry capacity utilisation touched a bottom of 72.3% in FY2017 and improved in FY2018. We expect this to further improve in coming quarters as various industries are operating at high utilisation level.

The fund’s investment in India’s leading small steam turbine manufacturer – Triveni Turbine would benefit as new capacity gets added. The company provides renewable power solutions using industrial by-products that would otherwise be wasted. Its steam turbines are used in diverse industries, ranging from sugar, steel, textiles, chemical, pulp & paper, petrochemicals and fertilisers. The company’s order book is on a rising trend as seen from the data published shown in figure 2.



Source: RBI



Source: Company Data

Refractory Recycling

The theme of recycling continues to be an important part of the Green Fund portfolio. Within recycling, we continue to retain a significant exposure to Orient Refractories, which uses recycled refractories as an important part of its raw material mix.

Refractories are materials having very high melting points which make them suitable to be used as heat-resisting barriers consumed with various production processes. For example, they are used in the inner wall of blast furnaces to prevent heat loss and damage to other parts of a plant. As refractories are consumables, they require to be replaced after regular intervals. Refractory application, consumption and replacement dynamics are shown in figure 3 below. Steel making requires the maximum amount of refractories (10-15kgs/tonne) with replacement required in a time period of 20 minutes to 2 months. Cement industry is the next biggest user with annual replacement requirement while non-ferrous and glass industries have longer replacement cycles.

The growth of refractory industry primarily depends on the growth of iron & steel industry and constitute

around 2~3% of the total steel manufacturing cost. The steel industry accounts for about 75% of consumption of refractory materials, with cement (12%), non-ferrous (6%) petrochemicals (4-5%) and glass (3%) making up the remainder.

Orient refractories collects used refractory from customer’s plants and reuses in the manufacturing process thus leading to saving of raw material cost and hence resulting in industry leading operating metrics.

Indian refractory industry has been growing at a fast pace for the past few years due to increase in steel production. The demand is expected to continue in coming quarters. However, the domestic refractory industry sources almost half of its raw material from China. The new environment tax policy in China has forced raw material suppliers there to scale down production and there has been an increase in imported raw material costs. Therefore we expect some moderation in operating margin of Indian manufacturers in coming quarters.

Figure 3: Refractory consumption dynamics across user industries

| Key Industry | Application | Replacement | Per tonne consumption | Refractory requirements |
|--------------------|--|------------------------|--|--|
| Steel | BF(BOF,EAF,Casting Ladles, Induction Furnances, Pellet rotary Kilns) | 20 minutes to 2 months | Global avg- 10-15 kgs Indian avg - 15 kgs | Consumable product(Systems and solutions for complete refractory management) |
| Cement | Kilns | annually | 1 kgs | Investment goods (Longer replacement cycles, Customized solutions based on the specific requirements of various industrial production processes) |
| Glass | Glass Furnace | upto 10 years | 4 kgs | |
| Non Ferrous | Converters | 1-10 years | Aluminium - 6 kgs, Copper - 3 kgs | |

Unifi's Strategy in Green Fund

Through Unifi Green Fund, we believe that a holistic approach to address the problem of environmental pollution and global warming will have significant implications for quite a few listed stocks. Unifi expects

- a) Industrial steam turbine manufacturers to benefit once industries currently operating at higher capacity utilisation start new capacity

addition. Addition of energy saving equipment would be an important part of overall capex.

And

- b) The refractory industry would benefit from growth of the metal sector, which in turn would grow with the overall domestic economy.