

## PROGRESS | FACT SHEET

Promotion of Social, Environmental and Production Standards in the Ready-Made Garment Sector

## electronic ballasts save money, protect the environment

## SCENARIO

The garment (RMG) sector employs about 3 million people, generating 75% of total national exports. SMEs comprise around 70% of the 3600 factories in operation.

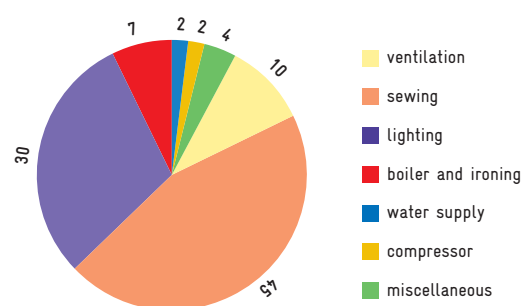
In Bangladesh, enterprises generally use energy inefficiently, mainly due to lack of know-how.

Frequent power shortages in the main grid continuously impede economic and social activity. Hence, most factories are forced to rely on generators.

Most production processes and waste disposal practices are environmentally harmful, putting pressure on national resources and resulting in widespread environmental degradation.

General awareness of the importance of cleaner production, related resource-saving technologies and preventive action are lacking.

The government tightened the environmental and labor laws to meet international standards. Yet, lack of public and private awareness and resources and specific technical expertise results in inefficient use of natural resources, especially energy.

Energy Consumption of RMG Units in %<sup>3</sup>

## ASSESSMENT FINDINGS

An eco-assessment found that energy is one of the most costly inputs of the production process accounting for about 20% of the final product cost<sup>4</sup>

Energy consumption in a typical RMG factory is predominantly in sewing operations and lighting.

Lighting is critical to productivity as well as to working conditions of workers since it directly affects visibility and thereby product quality.

A significant energy saving potential in the lighting system can be realized by replacing magnetic ballasts (MB), traditionally used in fluorescent tube lights (FTL), with electronic ballasts (EB).

## PROGRESS RESPONSE

PROGRESS<sup>1</sup> promotes ecological and energy efficiency<sup>2</sup> to reduce material and energy intensity in production, waste and dispersion of toxic materials and to improve recyclability and maximize the use of renewable resources.

PROGRESS with the support of the Garment Trade Associations focuses on the dissemination of ecological and energy efficiency concepts in the RMG sector.



## ELECTRONIC BALLAST: FEATURES

- ▶ Low heat dissipation
- ▶ Low flickering
- ▶ Long-life of EB (30,000 hours) as compared to MB (10,000 hours)
- ▶ Enhanced voltage range (70V – 250V)
- ▶ Local production and availability
- ▶ No starter needed
- ▶ Easy to recycle

## RMG AND NATIONAL BENEFITS

It is estimated that an **industry-wide switch** to electronic ballasts would **result in a decrease of electricity load demand** in the magnitude of **75 megawatt (MW)**. In perspective **this means:**

- Around **7 power plants of 10MW** each with at least **USD 28 million investment** and **several years of construction time**
- vs.**
- Industry-wide **ballast replacement** costing **USD 16.6 million investment<sup>5</sup>** in **less time**

Cost and energy savings of switching from magnetic to electronic ballasts<sup>6</sup>

|   | factory A | factory B | factory C | factory D | factory E |
|---|-----------|-----------|-----------|-----------|-----------|
| Approximate number of FTL in a factory                                      | 550       | 1,000     | 1,500     | 2,000     | 5,000     |
| Investment costs to change all the ballasts to electronic @160 BDT per unit | 80,000    | 160,000   | 240,000   | 320,000   | 800,000   |
| Scrap value of old ballasts @ 5 BDT per unit                                | 2,750     | 5,000     | 7,500     | 10,000    | 25,000    |
| Energy cost saved per month @ 5.50 BDT/KWh                                  | 6,406     | 12,812    | 19,217    | 25,623    | 64,058    |
| Energy cost saved per year, in BDT  | 76,869    | 153,739   | 230,608   | 307,478   | 768,694   |
| Months to recover initial investment  | 12.10     | 12.10     | 12.10     | 12.10     | 12.10     |
| Energy saved per year (MW)  | 13.98     | 27.95     | 41.93     | 55.91     | 139.76    |
| Power capacity saved (KW) approx.   | 3.75      | 7.5       | 11.25     | 15.00     | 37.50     |

## FACTORY BENEFITS

**Reduction in energy consumption** of up to **28%** measured in the five pilot factories.

Average **energy cost saving** around **13 BDT per FTL per month**, for the same illumination or lighting intensity.

**No significant difference in cost** between magnetic and electronic ballast.

**Return on investment** in around **one year**.

The General Manager of Southern Knitwear Ltd. confirmed:

- **Energy savings** in test lines which now run on electronic ballasts.
- **Reduction in heat emission** of the lighting system contributing to a **cooler and more comfortable working environment**.

## CONSIDERATIONS

Initial analysis indicated that **most of the components of magnetic ballasts can be recycled** to produce other products.

A **thorough discussion on how to handle MB waste** in an environmentally friendly manner is **deemed essential**.

**This pilot initiative is only a first step** in promoting eco-efficiency.

**Given new EU regulations on chemicals** (i.e. REACH) and global environmental concerns, **enhancing eco-efficiency** in the RMG sector **increases its competitiveness** so that **Bangladesh remains an attractive sourcing destination**.

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<sup>1</sup> In collaboration with the Sustainable Energy Project, SED.

<sup>2</sup> Eco-efficiency as defined by the World Business Council for Sustainable Development (WBCSD).

<sup>3</sup> Energy Management Study, Energy Audit Cell, Ministry of Energy & Mineral Resources, 2003.

<sup>4</sup> – ibid

<sup>5</sup> (3600 units x 2000 nos./each RMG x USD 2.3/unit)

<sup>6</sup> Pilot project findings of Prokaushali Sangsad Limited (PSL), July 2007, commissioned by GTZ.