



### ENERGY SYSTEMS OPTIMISATION (ESO)

#### TOYOTA BOSHOKU SA (PTY) LTD *Automotive Industry Parts Manufacturer*

#### Lighting upgrades

### BACKGROUND

Toyota Boshoku SA (Pty) Ltd (TBSA) is a subsidiary of Toyota Boshoku, based in Japan. TBSA is based in Umbogintwini, KwaZulu Natal, South Africa and manufactures door panels and car seats for Toyota South Africa Motors. The facility is housed in one large building.

TBSA is an ISO14001 accredited company and therefore has to show continued improvement with regard to environmental challenges as required by the plant and as set out in the Toyota Boshoku Global Objectives and Targets. TBSA also strives to achieve the national environmental targets as well as requirements of their customer (Toyota South Africa Motors).

### OVERVIEW OF IMPLEMENTATION

TBSA's Section Manager – General Affairs attended a Durban Automotive Cluster workshop, which introduced the programme to Toyota Boshoku.

An IEE Project assessment was conducted at the plant. The interventions dealt primarily with the replacement of existing lighting technologies with new, energy efficient technologies as recommended in the assessment report.

### KEY FINDINGS

One project was undertaken, resulting in a saving of 190,645kWh and R 165,203 per year for an investment of R 451,840 (payback period of 1.85 years). A reduction in GHG emissions of 188,738kg CO<sub>2</sub> was achieved.

### HIGHLIGHTS OF ESO INTERVENTIONS

A total of 874 old technology lamps with conventional ballasts were replaced with energy efficient lamps with electronic ballasts, resulting in an average monthly energy consumption saving of 15,86kWh. Timers were installed to switch off selected internal light fittings during daylight hours. Replacements were made as follows:

- Replacement of linear lamp T8 light fittings with linear lamp T5 fittings
- Replacement of HID floodlight fittings with CFL light fittings
- Replacement of Halogen lamps with LED lamps

Existing Technology	Quantity	New Technology	Energy saving (kwh)	GHG Emission Reduction (Kg CO2/year)
Double lamp T8 fluorescent light fittings	846	Replaced with new double lamp 28W fluorescent light fittings	153,408	151,873
50W Halogen down light lamps	5	Replaced with new 5W LED lamps	819	811
400W HID floodlight fittings	21	Replaced with new 105W CFL floodlight fittings	34780	34,432
250W HID Streetlight fittings	2	Replaced with new 105W CFL streetlight fittings	1638	1,622

The above was in addition to the replacement of and control of the HID Highbay lighting which was completed before the energy assessment.

## IMPLEMENTATION CHALLENGES

Labour strikes and holiday shutdowns prolonged the implementation of the programme. Further delays were caused by problems with the supply of products needed to complete the project.

## LESSONS LEARNED

- **Energy savings** are possible without major capital investment.
- The Toyota Boshoku Group already had policies in place to improve and reduce environmental impact. The IEE Project fitted well into the existing culture.
- Toyota Boshoku was impressed with the conduct and efficiency of IEE Project staff and consultants.



Enquiries



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