Co-funded by the Intelligent Energy Europe Programme of the European Union

Success Story

Company name: LYKOTEX Slovakia, Ltd.

Country: Slovakia

1) Description of the company and its energy consumption:

Company LYKOTEX Slovakia, Ltd. is manufacturing primary and secondary textile materials and is producing bonded textiles made by mechanical creation of fibrous web reinforced by needling and thermobonding. In 2009 we started production of polyester fibre balls. Manufacturing facilities enable production of materials with basis weight of 150 – 3, 000 g/m^2, at gained width of products up 4, 000 mm with possibility to cut out smaller widths. According to the given drawing documentation it is possible to realize cutting by water-jet area shapes 2, 000 x 3, 000 mm max.

The company gas and electricity consumption (MWh) (before the PINE audit)

Electricity consumption	*Gas/fuel/heat consumption (specify the type)*
897.709 MWh	*374.452 MWh*

Company LYKOTEX Slovakia, Ltd. joined spontaneously the project. On the basis of personal involvement of company manager Ing. Kandala cooperation and communication with them was very good from the beginning. The results from pre-audit had already been very instructive for the company and opened an internal debate on the needs of energy management. The energy audit accurately determined weaknesses in the consumption of natural gas and electricity in particular for operation of the building. All energy savings have also impact on reduction of CO2 emissions, which accurately quantifies the energy audit. The return of the majority of the proposed measures is 5 years and the company, according to its financial condition, will step by step implement all of them.

2) Description of the activities carried out with the company and the suggested energy savings measures:

The following measures ,to improve **energy efficiency**, were recommended for *LYKOTEX Slovakia, Ltd.*:

Measure 1

Direct replacement of existing T8 fluorescent tubes in lighting energy saving tube - EKOlight tube (in fluorescent lamp) by integrated electronic ballast with significantly reduced electrical input power, with the same intensity and extended life. We consider replacing 50% of existing pipes by energy saving tubes, when doing it , the compartment operator can directly determine the lamps in which tubes are determined to be changed. Taking into account the extensive lighting system and the number of lamps, may be put some lights out of service (unscrew the tube).

- **Energy savings:** **52,800 kWh / year (43%)**
- **Financial savings:** **7392 Euro / year**
- **The estimated financial investment:** **15 249 Euro**

- Return reflecting growth in energy prices: **1.33 years**

Measure 2

A fully refurbished lighting system to the demands of the work environment in terms of lighting levels in different parts of the premises of industrial buildings. When designing a new lighting system, it is necessary to consider and compare the proposed options in terms of the input of financial investments, operating costs, durability and a return system. We recommend to combine general lighting hall facilities (lower intensity illumination) with local lighting at the required workplaces (higher intensity illumination).

Currently popular LED systems, characterized by low power input, often represent relatively higher investment costs. Therefore, in this part of the energy audit, we recommend installing e.g. induction lamps with electronic ballast. These systems can also be complemented by dimmable ballasts, which can achieve even greater energy savings. It is also necessary to consider the required level of color rendering and color temperature of the newly proposed lighting system.

In the field of consumption of **thermal energy (natural gas)**, we propose the following measures: The existing heating system regulate hydraulically. The air flow regulator replace in front of the hot unit in combination with a room thermostat. The existing energy inefficient (obsolete) circulation pumps replace with new, energy-saving stepless flow ones.

Ceiling suspended destratificators install with the aim of reducing the temperature gradient along the height of the hall. The existing gateways replace with new, thermally insulated (best pull-down), supplemented with integrated single-resp. double doors for the entry of workers into the hall.

The anti-draft lamellar industrial PVC curtains mount to the entrance gate.

- Energy savings: **61,438 kWh / year (20%)**
- Financial savings: **2457 Euro / year**
- Estimated fin. investment (+ destratificators goal): **21,724 Euro**
- Return reflecting growth in energy prices: **5 years**

Measure 3

Existing units and a hot plate, respectively, tubular heaters remove from the hall. The fan (e.g. Nivolas AIR) install in the progressive hot water unit. Proposed hot water units connect to the existing heating distribution system, in so doing, it is necessary to adjust hydraulically each individual unit. The existing energy inefficient (obsolete) circulation pumps replace with new, energy-saving stepless flow ones.

The existing gateways replace with new, thermally insulated (best pull-down), supplemented with integrated single-resp. double doors for the entry of workers into the hall.

- The anti-draft lamellar industrial PVC curtains mount to the entrance gate.

- Energy savings: **92,158 kWh / year (30%)**
- Financial savings: **3686 Euro / year**
- Estimated fin. investment (+ NivolAir goal): **32,200 Euro**
- Return reflecting growth in energy prices: **5 years**

Measure 4

The thermal performance envelope needs improvement. The roof deck thermally insulate, max. value of heat transfer coefficient should comply with the maximum value of 0.30 W / (m2K). The peripheral wall thermally isolate, max. value of heat transfer coefficient should meet up. value of 0.46 W / (m2K). The existing glazing in rooflights replace with new ones (e.g. Polycarbonate cell boards) with max. value of heat transfer coefficient 1.60 W / (m2K). At the same time the window openings in the peripheral wall replace with polycarbonate sheets with the declared value of heat transfer coefficient.

- Existing units and hot plate, respectively, finned tubular heaters of the hangar remove from the hall. The fan (e.g. Nivolas AIR) install in the progressive hot water unit. Proposed hot water units connect to the existing heating distribution system, whereby it is necessary each individual unit to adjust hydraulically. The existing gateways replace with new, thermally insulated (best pull-down), supplemented with integrated single-resp. double doors for the entry of workers into the hall.

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- The anti-draft lamellar industrial PVC curtains mount to the entrance gate.

- Energy savings: **201 211 kWh / year (65.5%)**
- Financial savings: **8048 Euro / year**
- Estimated fin. investment (insulation + Nivol Air goal): **340,843 Euro**
- Easy return: **42 years**

"PINE Project has provided us with an independent qualified view of energy consumption in our company. The resulting report showed us where and under what financial conditions, we can implement specific measures and savings. We want to thank you for the opportunity to be part of the PINE project and inspirational thoughts and ideas". Ing. Stanislav Kandala, manager.

3) The savings:

The company is planning to implement progressively all improvements in three years.
The energy savings achieved after the implementation of the measures proposed by the PINE auditor.

	Electricity savings	*Gas/ heat savings*
Actual savings	*000.000 MWh*	*000.000 MWh*
Future savings (in 3 years)	*52.8 MWh/year*	*92.2 MWh/year*