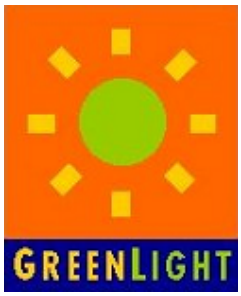
Intelligent Energy Europe



New Green Light

Brief efficient lighting project description in Lido

CASE STUDY

RĪGA LL sia
EKODOMA

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Intelligent Energy – Europe
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Lido Restaurant and recreation centre– brief project description

The LIDO Restaurant Recreation Centre is located in Riga and was opened at the end of 1999. It is a part of the LIDO enterprise network owned by Gunārs Ķirsons. The network consists of 7 bistros and the LIDO Restaurant and Recreation Centre, which has, in some respect, become a visiting card of Riga and Latvia. It is one of the most attractive public catering enterprises and one of the most favourite places of family recreation in Riga. A genuine Latvian environment, tasty, characterizes the Centre and various dishes, live music every evening, and other activities.

The main building of the LIDO Recreation Centre is one of the biggest and most beautiful log buildings in Europe, which can host up to 1000 guests. LIDO architects and designers have designed the Latvian interior of the LIDO Recreation Centre. The territory of the Centre with the spacious catering complex, parking lot for visitors and the attraction park is carefully greened and decorated, and it occupies almost 5 hectares. Decorations and ornamental plants are changed according to seasons.

The main lightning problem in the building is choice of poor efficiency technologies of lightning, mainly base on incandescent lamps. In the first stage of the efficient lighting project, only indoor lightning has been addressed.

Large part of the lightning equipment is strictly decorative, with the aim of keeping a warm and cosy atmosphere.

A walk-through audit was performed to define the existing situation and to offer a better lightning solution.

In the restaurant there are about:

- 570 luminaries with one 40W incandescent bulb each
- 390 luminaries with one 40W incandescent bulb each
- 240 luminaries with 25W incandescent bulb each

The operation hours are approximately 4400 hr/year. The operational hours are calculated according to the opening hours of the restaurant. The lightning is not used in relation to the outdoor lightning level.

As part inception phase towards the completion of the Greenlight program in Lido Recreation Centre a retrofit project replacing incandescent bulbs with CFL in the first floor, left wing of the restaurant, will be implemented. The selected area and luminaries interested from the retrofit are shown in a sketch drawing in appendix 1.

In table 1 are provided data about the current situation in the selected area concerning the type of lighting technology used.

Table 1. Current situation in the selected area

Bulb type		Pin	Lm	Nr.	Load, W	Total W	hr/year*
Incandescent Classic GLS		E27	~400	33	40	1320	4380
Incandescent Candle		E14	~200	64	25	1600	4380
Incandescent Concentrate spot **		E14	~200	46	25	1150	4380

* Estimated: 12hours a day per 365 day a year

** In some case Concentrate spot in the area are equipped with halogen lamps.

The proposed alternative consists in retrofitting the existing luminaries with CFL, with the aim of keeping the same light level meanwhile reducing electricity consumption.

The lifetime of the project is 10000 hours, which is the economical lifetime of the selected CFL. This time corresponds to 2.28 years considering the 4380 h/year of operation in LIDO.

Costs saving potential for the retrofitting project of the proposed alternative is summarized in table 2, 3 and 4.

Table 2. Cost Saving potential of CFL compared to an incandescent Classic GLS 40W i

	Before incandescent	**After - CFL**
Power Input	40 W	11 W
Number of bulbs	33	33
Total Power Input	1320 W	363 W
Average Durability	1000 h	10000 h
Luminous Flux	~400 lm	~400 lm
Relation Heat to Light	95 % to 5 %	75 % to 25 %
Necessary Lamps in 2.28 Years (12 h/day * 365 days = 4380 h/year)	10	1
Energy Consumption in 2 Years Burning Time of 12 h/day	13200.0 kWh	3630.0kWh
Energy Costs (0,04473 LVL/kWh)	590.44 Ls	162.37 Ls
Costs per Lamp	0.37 Ls	7.50 Ls
Total Costs in 2.28 Years	712.54 Ls	409.87 Ls
Savings		**302.67 Ls**

Table 3. Cost Saving potential of CFL compared to an incandescent candle 25W

	Before incandescent	**After - CFL**
Power Input	25 W	5 W
Number of bulbs	64	64
Total Power Input	1600 W	320 W
Average Durability	1000 h	10000 h
Luminous Flux	~200 lm	~200lm
Relation Heat to Light	95 % to 5 %	75 % to 25 %
Necessary Lamps in 2.28 Years (12 h/day * 365 days = 4380 h/year)	10	1
Energy Consumption in 2 Years Burning Time of 12 h/day	16000.0kWh	3200.0 kWh
Energy Costs (0,04473 LVL/kWh)	715.68Ls	143.14 Ls
Costs per Lamp	0.37 Ls	7.50 Ls
Total Costs in 2.28 Years	952.48 Ls	632.14 Ls
Savings		**329.34 Ls**

Table 4. Cost Saving potential of Compact reflector compared to an incandescent concentrate spot light 25W

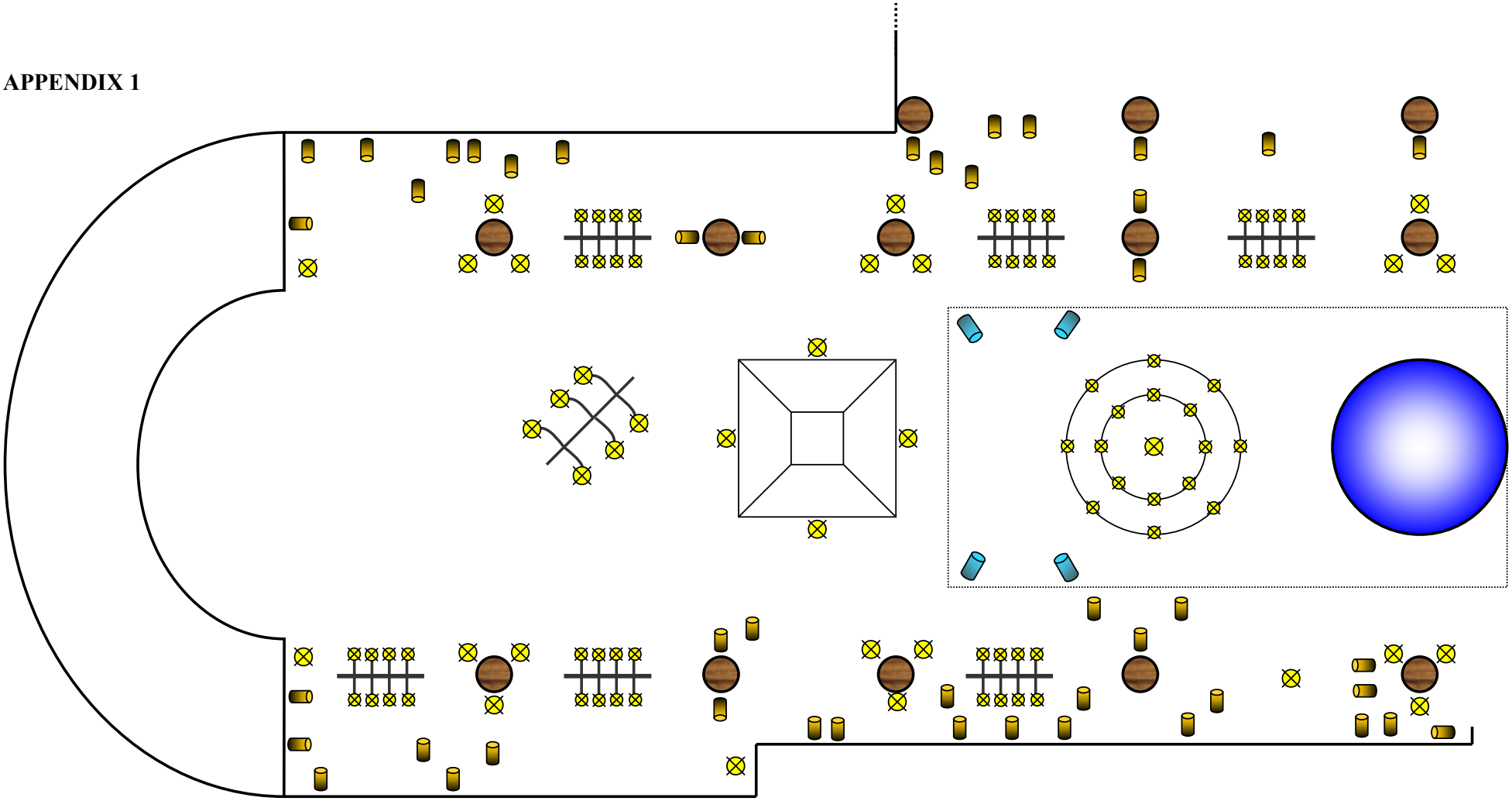
	Before incandescent	After - CFL
Power Input	25 W	9 W
Number of bulbs	46	46
Total Power Input	1150 W	414 W
Average Durability	1000 h	10000 h
Luminous Flux	~200 lm	~200 lm
Relation Heat to Light	95 % to 5 %	75 % to 25 %
Necessary Lamps in 2 Years (12 h/day * 365 days = 4380 h/year)	10	1
Energy Consumption in 2 Years Burning Time of 12 h/day	11500.0 kWh	4140.0 kWh
Energy Costs (0,035 LVL/kWh)	514.40 Ls	185.18 Ls
Costs per Lamp	0.45 Ls	8.00 Ls
Total Costs in 2 Years	721.40 Ls	553.18 Ls
Savings		**168.21 Ls**

In table 5 are summarized the total costs and saving potential accumulated for 2.28 years period.

Table 5. Total costs saving potential

	Before - incandescent	After - CFL
Total Costs in 2.28 years	2386.41 Ls	1586.19 Ls
Accumulated cash flow in 2.28 years		**800.22 Ls**

APPENDIX 1



Nr.	Ref.	W
33		40W
64		25W (?)
46		25W (?)
4		?

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