

# LIGHTING SYSTEM REHABILITATION

Sector : Offices

PARLIAMENT  
HOUSE

BUCHAREST  
ROMANIA

The case study introduces one of the biggest lighting projects in Romania implemented by the Chamber of Deputies in the Parliament House. This famous building has a very specific lighting system with an enormous number of lighting bulbs, big chandeliers based on old technology which need strong modernization to reduce operation cost and energy consumption.

## PARTNER

The GreenLight Partner is the technical department of administration of the Chamber of Deputies. Parliament House is the most important public building in Romania, including offices of the Senate and Chamber of Deputies. This building includes high level offices, conference halls, exhibition halls, etc. for which lighting is a very important issue.



## CONTEXT

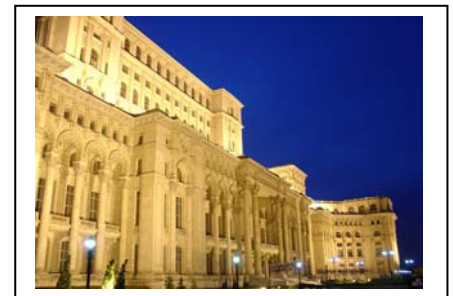
Modernization of interior lighting system is considered as a priority by the administration department of Parliament House for different reasons :

- big electricity consumption because of enormous number of lamps based on old technology and as a consequence a very high energy bill to be supported by the public budget;
- necessity to replace incandescent bulbs every 800-1000 hours, in very difficult conditions because the size of chandeliers and the size of conference rooms, maintenance operation being not allowed by the normal program of activities in these rooms;

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Project is implemented in the first phase and next steps are under consideration.



## EXPERIENCE OF THE PARTNER

### Partnership process

Energy efficiency for lighting was one of the main subjects for discussion in Parliament till 2000 at the moment when Energy Efficiency Law was approved. At that time a new low consumption lamp has been offered to all parliamentarians involved in approval of the law in order to facilitate the rapid understanding of energy conservation impact for domestic consumers.

A lot of different other contacts have been established in the last 6 years to discuss and promote energy management in this building, and finally they are invited to join GreenLight project to make more visible the excellent results after first phase of lighting modernization.

### Technical data

The Parliament House is the second biggest building in the world after the Pentagon. The building dimensions are 270/240/84 meters and 92 meters underground having 12 floors and 4 underground levels. The biggest chandeliers has 3 tones weight and 7000 lighting bulbs.



The biggest conference rooms have 1500 and 1000 sqm respectively .  
This first phase of lighting project include :

- interior lighting;
- dispatching center for lighting



Floor area upgraded (indoor lighting):	<b>33.103 m<sup>2</sup></b>	
Total number of lamps replaced :	<b>31.214 lamps</b>	
From which:	Incandescent bulbs D1 replaced with D9	<b>29.306 lamps</b>
	Fluorescent lamps D5 replaced with D6	<b>1788 lamps</b>
	reflectors	<b>120 pieces</b>
Magnetic ballasts E2	<b>14000 pieces.</b>	
Total lighting installed power before modernization:	<b>2.214.730 W</b>	
Total lighting installed power after modernization:	<b>618.177 W</b>	
Total installed power saved:	<b>1.596.553 W</b>	
Lighting electricity use per year before modernization:	<b>5.572.074,3 kWh/year</b>	
Lighting electricity use per year after modernization	<b>1.572.074,3 kWh/year</b>	
Lighting electricity savings per year:	<b>4.272.336,9 kWh/year</b>	

## COST AND BENEFITS

### Economical

Lighting electricity bill savings per year	<b>aprox.753.942 euro</b>
Maintenance cost before modernization:	<b>68.889 euro/year</b>
Maintenance cost after modernization:	<b>4.502 euro/year</b>
Savings from maintenance cost	<b>64386 euro/year</b>
Total savings in running cost (electricity +maintenance)	<b>818.328 euro/year</b>

### Environmental

According to the energy saving impact, the CO2 reduction potential is estimated at 2072 tCO2/year.

As a public recognition of lighting project performances a NewGreenLight plaque have been granted by ARCE to Parliament House.



## EVALUATION AND OUTLOOK

Monitoring by using the new Dispatching Centre was easily and safety.

In the next phase the administration of Parliament House intend to extend financial sources by using a new financial mechanism named Third Party Financing. In this context ARCE is preparing a model of Energy Performance Contract, to be submitted for approval to the National Authority for Public Procurement.

## FURTHER INFORMATION

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