



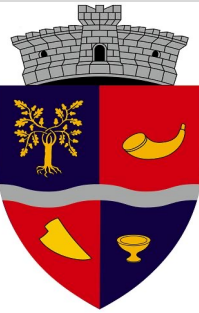
Rehabilitation of the public lighting system in Buteni, Cuied, Paulian and Berindia localities

COMUNA BUTENI, County Arad, ROMANIA



Buteni Commune short introduction

- **Buteni commune**, constituted of the four localities **Buteni, Cuied, Paulian and Berindia**, is considered one of the largest municipalities in the county of Arad, with a population of 3402 inhabitants.
- The public administration in Buteni is organized and operates according to the provisions of the Local Public Administration Law no 2/1981.
- Buteni commune is administered by Mircea Theodor Braitu as mayor and a local council composed of 13 councilors.



Buteni Commune short introduction

- Currently, in many areas there is a lack of public lighting, without achieving the lighting levels recommended by the European norms. According to EU standards, a number of minimum requirements must be met, but without oversizing the systems.
- An energy audit was performed for local public lighting system in BUTENI Commune and the report represents an energy analysis which highlights **the need and the opportunity to modernize and streamline this lighting system and proposes the optimum variant of realization.**
- Street lighting is traditionally made, based on the structure of existing aerial electricity supply networks and poles, and comprises 951 pillars and 564 lighting devices.

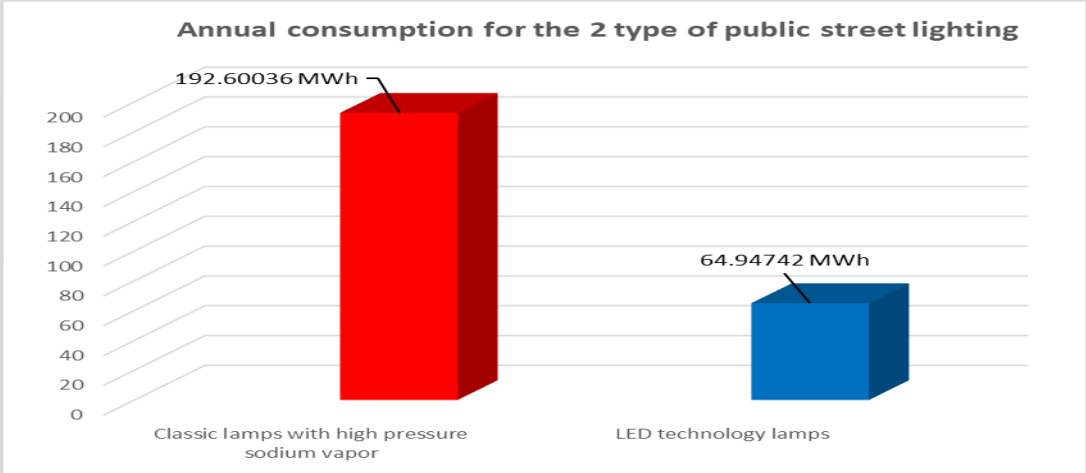


Existing luminaires from the audit outline are presented in the tables below
(power lamps=900W)

The investment of the street lighting system proposed after the audit
(install capacity-power lamps=420W)

| Nr. Crt. | Area of interest | Old body type | Numbe r of posts | Lamp consum ption [W] | Number of existing Lamps (pcs) |
|----------|--|---------------------------|------------------------|--------------------------------|--|
| 1 | Buteni locality, main street | Street projector 150 W | 526 | 150 | 70 |
| 2 | Buteni locality, secondary streets | Street projector 100W | | 100 | 185 |
| 3 | Cuied locality, main street | Street projector 150 W | 265 | 150 | 47 |
| 4 | Localitatea Cuied,secondary streets | Street projector 100W | | 100 | 122 |
| 5 | Localitatea Paulian,main street | Street projector 150W | 95 | 100 | 24 |
| 6 | Localitatea Paulian,secondary streets | Street projector 100W | | 100 | 61 |
| 7 | Localitatea Berindia,main street | Street projector 150W | 65 | 100 | 15 |
| 8 | Localitatea Berindia,secondary streets | Street projector 100W | | 100 | 40 |
| TOTAL | | | 951 | - | 564 |

| Nr. Crt. | Number of Lamps | Power Lamp [W] | Price lighting Lamp [Euro] | Total Lamps Price [Euro] (1x3) | Total Price Crutch [Euro] | Price removal/ mounting Lamp[Euro] | TOTAL PRICE [Euro] (4+5+6) |
|----------|-----------------------|----------------------|-------------------------------------|--|---------------------------------|--|-------------------------------------|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | 70 | 70 | 219,8 | 15.386,00 | 461,58 | 4.421,94 | 20.270 |
| 2 | 185 | 50 | 170,8 | 31.598,00 | 947,94 | 12.639,20 | 45.185 |
| 3 | 47 | 70 | 219,8 | 10.330,60 | 309,92 | 3.099,18 | 13.740 |
| 4 | 122 | 50 | 170,8 | 20.837,60 | 625,13 | 8.335,04 | 29.798 |
| 5 | 24 | 50 | 170,8 | 4.099,20 | 122,98 | 1.639,68 | 5.862 |
| 6 | 61 | 30 | 148,4 | 9.052,40 | 271,57 | 4.254,63 | 13.579 |
| 7 | 15 | 50 | 170,8 | 2.562,00 | 76,86 | 1.024,80 | 3.664 |
| 8 | 40 | 30 | 148,4 | 5.936,00 | 178,08 | 2.789,92 | 8.904 |
| TOTAL | 564 | - | - | 99.801,80 | 2.994,05 | 38.204,38 | 141.000 |





Technical Solution

- For the modernization of the public lighting system, it is proposed lighting units with LED technology with 30W and 50W power, respectively 70W power units for the main road, depending on the classification of roads.
 - Luminaires 30W.....101 pcs
 - Luminaires 50 W.....346 pcs
 - Luminaires 70W.....117 pcs

TOTAL=564 pcs
- **Estimated annual reduced energy/electricity consumptions MWh/year:** $21,65 \text{ kWh} \times 3000 \text{ hours} = 64.950,00 \text{ kWh/year}$ (compared to the current $192,600.00 \text{ kWh / year}$, this means a **66% reduction in consumption**)
- **Annual monetary savings from energy efficiency measures:** $64.950,00 \text{ kWh} \times 0,14636 \text{ euro/KWh} = 9.506,08 \text{ euro/year}$
 - Operating and maintenance cost before retrofit: 3.950
 - Operating and maintenance cost before retrofit: 351,25 Euro/Year
 - Avoided Operating and maintenance: 3.598,75 Euro/Year



Technical Solution

➤ Amortization of investment costs in years compared to the obtained economies

| Nr. crt. | Name of the measure | Estimated annual savings (R) | | Investment required (I) | Simple PSR recovery period (I / R) |
|-------------|---|------------------------------|-------------|----------------------------|--|
| | | [MWh/year] | [Euro/year] | [Euro] | [years] |
| 1 | Replacement of discharge lamps in high pressure sodium vapor with LED lamps | 127,65 | 18.682,86 | *141.000,00 | 6.33 |
| 2 | Avoided operating and maintenance costs with current system lighting (lamps in high pressure sodium vapor) | | 3.598,75 | | |

➤ **Financial savings insured:** $28.188,94 - 9.506,08 = 18.682,86$ Euro / year, respectively approx. **1.556,91 euros / month**, provided that all the conditions and norms for modern, efficient and high quality lighting are met.

➤ **Estimated annual decrease of CO2 eq. emissions/year:** 39,06 tCO₂

➤ **Cost EUR/tones/year CO2:** $170,374 \text{ E Grant} / 39,06 = 4\,361,82$



Rehabilitation of the public lighting system in Buteni, Cuied, Paulian and Berindia localities

- The total value expressed in euro with VAT of the project is **200.442 Euro** out of which the requested **Grant** is **170.373 Euro** The Promoter's contribution is 15% , **30.069 Euro**.
- Final beneficiary: Commune Buteni and 3204 inhabitants will benefit for public lighting
- Partners (NO-Norway, IS-Iceland, RO-Romania): No partner



Rehabilitation of the public lighting system in Buteni, Cuied, Paulian and Berindia localities

- Eligible expenditures of project are in line with the Energy Efficiency Audit Report

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Video presentation of the commune Buteni's Mayor during the project implementation



Press release – Aradon.ro

<https://www.aradon.ro/advertorial/comunicat-de-presa-107-1523634/>

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COMUNICAT DE PRESĂ

19.04.2022

Comuna Buteni, Județul Arad, anunță finalizarea proiectului intitulat *"Reabilitarea sistemului de iluminat public în localitățile Buteni, Cuied, Păulian și Berindia din comuna Buteni, județul Arad"* din cadrul Contractului de finanțare din Programului RO-Energy: „Îmbunătățirea Eficienței Energetice” prin Granturile SEE și Norvegiene, nr. 220/516112.

Scopul prezentului proiect este reducerea semnificativă a emisiilor de CO₂ în atmosferă și diminuarea cheltuielilor aferente serviciului de iluminat public, astfel să răspundă la noile provocări de dezvoltare socio-economică la nivelul comunității comunei Buteni și să se îmbunătățească siguranța și confortul cetățenilor pe timp de noapte, prin aducerea iluminatului public la valori cantitative și calitative conform standardelor naționale și internaționale.

Obiectivele specifice ale proiectului realizate sunt:

Reabilitarea sistemului de iluminat public în comuna Buteni prin înlocuirea a unui număr de 564 de echipamente existente cu lampi cu tehnologie LED.

Valoarea totală a proiectului, inclusiv TVA, este de 198.353 euro, din care suma de 168.600 euro reprezintă finanțarea nerambursabilă iar suma de 29.753 euro va fi susținută de către Consiliul Local Buteni. Proiectul s-a desfășura pe o **perioadă** de 16 luni.

În urma implementării proiectului s-a atins SCOPUL acestuia de reducere semnificativă a emisiilor de CO₂ în atmosferă precum și diminuarea cheltuielilor aferente serviciului de iluminat public, astfel s-a răspuns la noile provocări de dezvoltare socio-economică la nivelul comunității comunei Buteni și s-a îmbunătățit siguranța și confortul cetățenilor pe timp de noapte, prin aducerea iluminatului public la valori cantitative și calitative conform standardelor naționale și internaționale.



Images after the project implementation



Images after the project implementation



Banners in Buteni commune to inform about the project details



Thank you!