

**COST/BENEFIT ANALYSIS**

All data are according to the Macedonian standards	Way of lighting	Way of lighting	Way of lighting	Way of lighting	Way of lighting
	Mercury 125W (normal)	Mercury 125W (Philips)	URBAN 1X55W	Na 70W (normal)	Na 70W (Philips)
<b>Installation</b>	2	2	1		
Type of installation	On-top	On-top	On-top	On-top	On-top
No. of poles	1	1	1	1	1
Luminaries per pole	200	200	200	200	200
Lamps per luminary	1	1	1	1	1
No. of lamps	200	200	200	200	200
Type of lamp	Mercury 125W <b>6200lm</b>	Mercury 125W <b>6200lm</b>	Fluo -/840 55W, <b>4800 lm</b>	Natrium 70 W <b>6600 lm</b>	Natrium 70 W <b>6600 lm</b>
Type of ballast	Conventional	Conventional	Electronic	Conventional	Conventional
Total consumption per lamp [W]	<b>140</b>	<b>140</b>	<b>58</b>	<b>82</b>	<b>82</b>
Total consumption [W]	28000	28000	11600	16400	16400
Average lighting [lx]	20	20	20	20	20
<b>Investments (EUR)</b>					
Cost per installed luminary	<b>23,5</b>	<b>63</b>	<b>60</b>	<b>30</b>	<b>65</b>
Total costs per luminary	23,5	63	60	30	65
No. of luminaries	200	200	200	200	200
<b>Total costs (EUR)</b>	4700	12600	<b>12000</b>	6000	13000
Period of evaluation [years]	5	5	5	5	5
<b>Total costs per year of life(EUR)</b>	940	2520	2400	1200	2600
<b>Total capital expense (per year)(EUR)</b>	940	2520	2400	1200	2600
<b>Cost for electric power</b>					
Total watts (W)	28000	28000	11600	16400	16400
Average hours used per year (h)	4015	4015	4015	4015	4015
kWh per year	112420	112420	46574	65846	65846
<b>Average rate per kWh (EUR/kWh)</b>	0,08	0,08	0,08	0,08	0,08
<b>Total energy expense per year(EUR)</b>	<b>8993,6</b>	<b>8993,6</b>	<b>3725,9</b>	<b>5267,68</b>	<b>5267,68</b>
<b>Cost for replacement</b>					
No. of lamps	200	200	200	200	200
Avr. hours used per year (h)	4015	4015	4015	4015	4015
Total lamp hours per year (h)	803000	803000	803000	803000	803000
Rated lamp life (h)	8000	16000	13000	25000	25000
Avr. lamp renewals per year	100,375	50,1875	61,76923077	32,12	32,12
<b>Net price each (EUR)</b>	1,8	2,6	3	6	6
<b>Replacement expense each (labor)(EUR)</b>	3	3	3	3	3
<b>Net price plus replacement expense per year (EUR)</b>	4,8	5,6	6	9	9
<b>Total lamp-renewal expense per year(EUR)</b>	481,8	281,05	370,6153846	289,08	289,08
<b>Recapitulation</b>					
<b>Total capital expense per year (EUR)</b>	940	2520	2400	1200	2600
<b>Total energy expense per year (EUR)</b>	<b>8993,6</b>	<b>8993,6</b>	<b>3725,9</b>	<b>5267,68</b>	<b>5267,68</b>
<b>Total lamp renewal expense per year(EUR)</b>	481,8	281,05	370,6153846	289,08	289,08
<b>Est. total repair expense per year(EUR)</b>	4,7	1,26	1,2	6	1,3
<b>Complete lighting expense for year (EUR)</b>	<b>10420,1</b>	<b>11795,91</b>	<b>6497,7</b>	<b>6762,76</b>	<b>8158,06</b>
<b>Complete lighting expense per lux year (EUR/lx)</b>	521,005	589,7955	324,89	338,138	407,903

The higher first cost of a fluorescent lamp is more than compensated for by lower energy consumption over its life. The longer life may also reduce lamp replacement costs, providing additional saving especially where labor is costly. Therefore it is widely used by businesses worldwide, as well as by households.