

Implementation of energy efficiency projects with innovative financing – success cases

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**Arkadiusz Ratajczak, legal counsel
Mariusz Swora, PhD, Attorney Law Office
(SworaLegal), est. 2001**

Scope of the presentation

- modernisation of lighting in Jaworzno (2007)
- modernisation of buildings housing educational institutions in the Radzionków (2010 – 2020): PPP with EPC
- modernisation of public buildings in Karczew: PPP + EPC + subsidy from NFOŚiGW (2012 –)

modernisation of lighting in Jaworzno (Silesia voivodship) (2007)

- ESCO formula: agreement with supply company
 - duration: 80 months
 - obligation not to change supplier after introducing TPA
 - service of lighting with the higher standard (bought from supply company)
 - not higher bills paid by the municipality (though cost of electricity is 60% less)

modernisation of lighting in Jaworzno (Silesia voivodship) (2007)

– agreement with supply company

➤ objectives:

- ✓ increased road safety for vehicles and pedestrians
- ✓ financial savings by reducing installed capacity of lighting appliances
- ✓ reduction of energy intensity of the entire street lighting of the town
- ✓ improved external image of town

modernisation of lighting in Jaworzno (Silesia voivodship) (2007)

– agreement with supply company

➤ actions taken

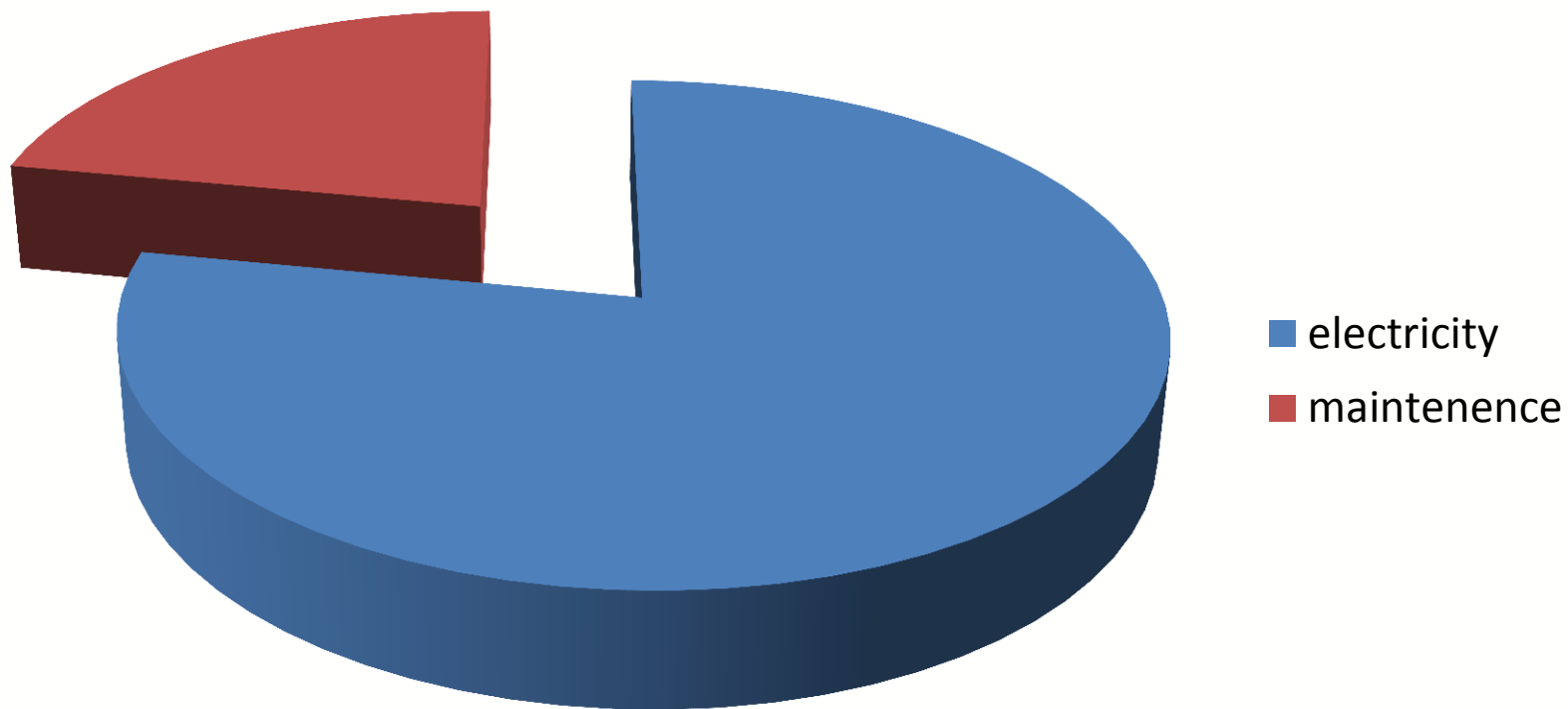
- ✓ replacement of existing lighting points (almost 8.000)
- ✓ installation new lighting points (ca 1200)
- ✓ total number ca 9.000 pts with the energy efficient devices

➤ effects:

- ✓ savings in electricity costs: PLN 1,5 million
- ✓ lowe emissions of GHG
- ✓ lower installed capacity by 53% (from over 1700 kW to over 800 kW)
- ✓ yearly consumption of electricity: from 7 GWh to 3,2 GWh

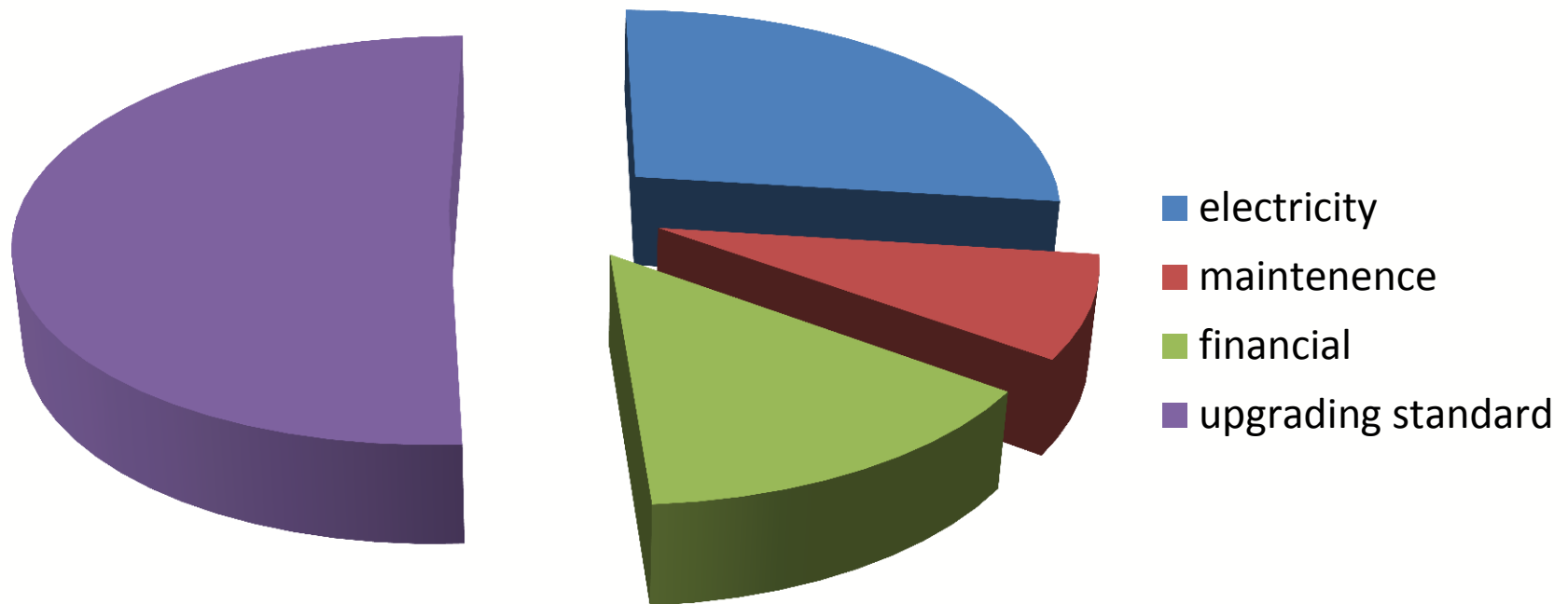
modernisation of lighting in Jaworzno (Silesia voivodship) (2007)

costs of lighting before modernization



modernisation of lighting in Jaworzno (Silesia voivodship) (2007)

costs of lighting during providing service of higher standard of lighting



modernisation of lighting in Jaworzno (Silesia voivodship) (2007)

- **passive approach: PLN 4,5 million**
 - costs of electricity: PLN 3,6 million
 - costs of maintenance: PLN 0,9 million
- **active approach: PLN 4,1 million**
 - costs of electricity: PLN 2,1 million
 - costs of service with higher standard (incl. maintenance): PLN 2 million
- **profit: PLN 0,4 million/year for municipality**

modernisation of buildings housing educational institutions in the Radzionków (2010 – 2020)

- **complex thermal modernisation:**
 - objectives:
 - savings in costs for heat and electricity
 - maintenance of premises for a period of 10 years: 2010-2020
 - reduction of CO₂ emissions to atmosphere
 - raising standards of facilities

modernisation of buildings housing educational institutions in the Radzionków (2010 – 2020)

- **complex thermal modernisation**
 - actions:
 - thermal modernisation of central heating installations & heat sources
 - modernisation of lighting installations and sources
 - management system for heating & lighting

modernisation of buildings housing educational institutions in the Radzionków (2010 – 2020)

- **complex thermal modernisation**
 - agreement with private partner covers a period 2010–2020
 - estimated amount of savings achieved: app. PLN 3.4 million
 - remuneration for private partner: app. PLN 9 million
 - private partner:
 - to prepare, finance, and provide heat energy management services
 - full guarantee of the anticipated economic and saving effect

modernisation of buildings housing educational institutions in the Radzionków (2010 – 2020)

- **complex thermal modernisation**
 - results
 - heat energy savings: 54 %
 - electricity savings: 40 %
 - anticipated reduction of CO₂ emissions by 2010: 4.550 tonnes
 - improvement of town's aesthetic appearance
 - replacement of 762 windows
 - modernisation of 3 boiler rooms
 - replacement of 1 179 light fittings

modernisation of public buildings in Karczew

- first combining PPP & EPC with a subsidy
- project for thermal modernization and energy management (maintenance) of 10 public buildings, mainly schools
- subsidy from NFOŚiGW (GIS Programme)
- duration: 15 years
 - 1 year of construction/modernisation
 - 14 years of management

modernisation of public buildings in Karczew

- why PPP + EPC
 - guarantee of savings
 - modernization of 10 buildings in 1 year (lack of financing)
 - implementation of heat management system
 - modern technologies
 - thorough description of needed works

modernisation of public buildings in Karczew

- **scope of modernisation:**
 - insulation
 - modernized heating systems
 - modernized lighting
 - implementation of energy system management
 - modernization of windows and doors

modernisation of public buildings in Karczew

- financing:
 - investment costs of energy saving measures estimated at PLN 12,9 million (paid from reached energy savings)
 - subsidy from NFOŚiGW under GIS-1 Programme (€ 0,3 million – 10% total investment cost)
- guaranteed energy savings:
 - 56% heat and
 - 20,9% electricity

**Thank you,
r. pr. Arkadiusz Ratajczak**

contact: arkadiusz.ratajczak@swora.pl
