# LED PUBLIC LIGHTING

## FIELD EXPERIENCE IN MILANO, BRESCIA, BERGAMO

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# A2A - ITALIAN LEADER COMPANY FOR LED LIGHTING



Success Stories: Milano, Brescia, Bergamo

# BEFORE LED LIGHTNING PLAN

## Milano

**150 W**
Average single light power
(previously in use)

**100 Lumen/Watt**
luminous efficiency of the lamps

**Over 114 GWh**
About 42.000 flats' energy consumptions

**87 kWh**
Annual per capita consumption

**141.963 lamps**
Used for public lighting

# BEFORE LED LIGHTNING PLAN

## Brescia

**116 W**
Average single light power
(previously in use)

**100 Lumen/Watt**
luminous efficiency of the lamps

**Oltre 18 GWh**
8.200 flats' energy consumptions

**92 kWh**
Annual per capita consumption

**42.774 lamps**
Used for public lighting

# BEFORE LED LIGHTNING PLAN

## Bergamo

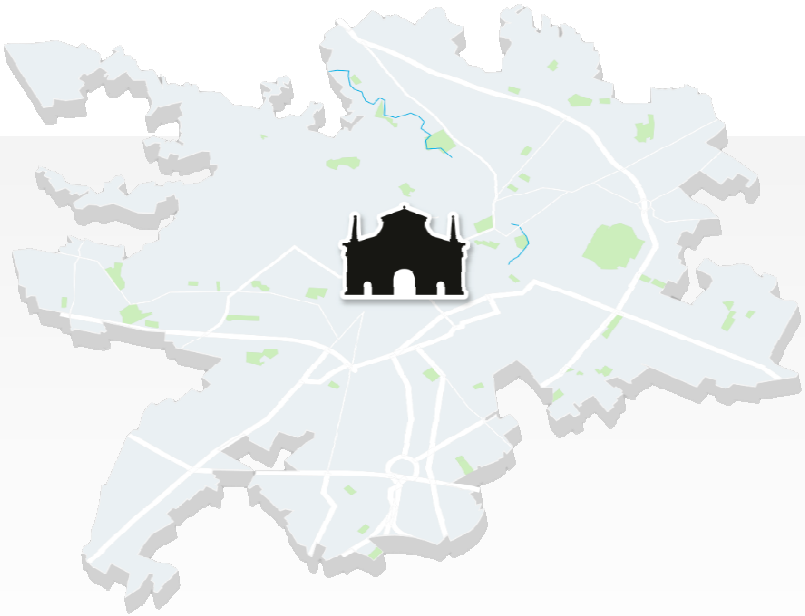
**108 W**
Average single light power
(previously in use)

**87 Lumen/Watt**
luminous efficiency of the lamps

**Oltre 8,8 milioni kWh**
3.500 flats' energy consumptions

**74 kWh**
Annual per capita consumption

**18.200 lampade**
Used for public lighting



# AFTER LED LIGHTNING PLAN

## Reduction of energy consumption
From 40% to 55%
(depending on the state of the plant)

## Reduction of the annual fee for the Administration
From 7% to 30%
(depending on the state of the plant)

# LED LIGHTING SOLUTIONS

## Example of types of lighting

All lamps will be replaced to standardize all equipments

Luminaires for pole installation for different powers

Luminaires for installation on wire rope suspension

Luminaires for installation on garden's poles

Design luminaires for installation on suspension or pole

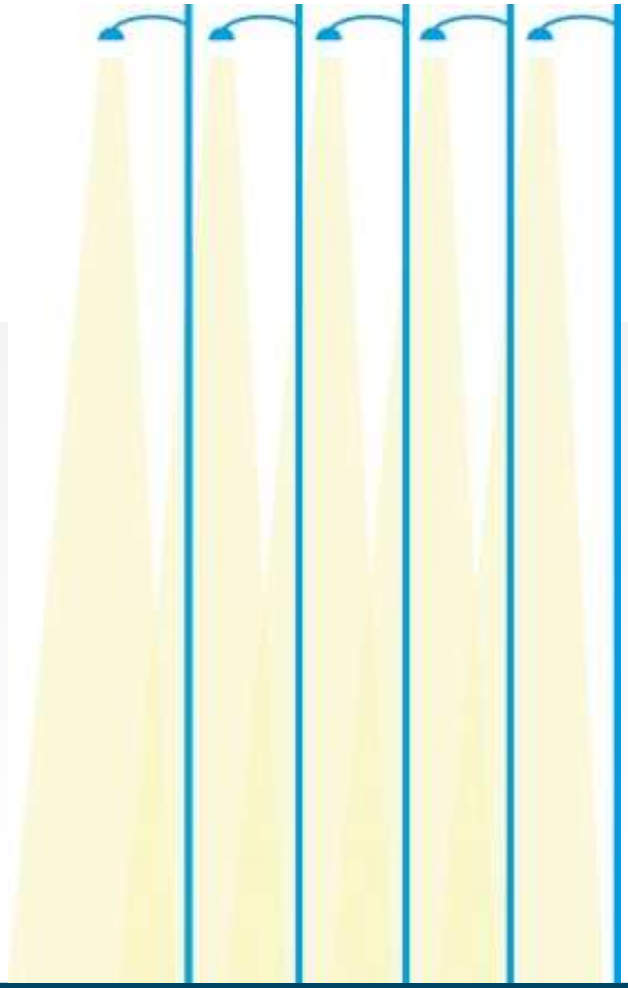
Retrofit on lighting devices (artistic value)

## LED ASSURES LIFE CYCLE

# 5 TIMES OVER

## TRADITIONAL LAMPS IN USE

LED luminaires are suitable for public lighting in compliance with current regulations regarding street lighting , the regional laws against light pollution and help save energy



# MILANO - COMPARISON

## PRE EFFICIENCY

150 W
Average single light power (previously in use)

Over 114 milioni kWh
flats' energy consumptions
42.000

87 kWh
Annual per capita consumption

## POST EFFICIENCY

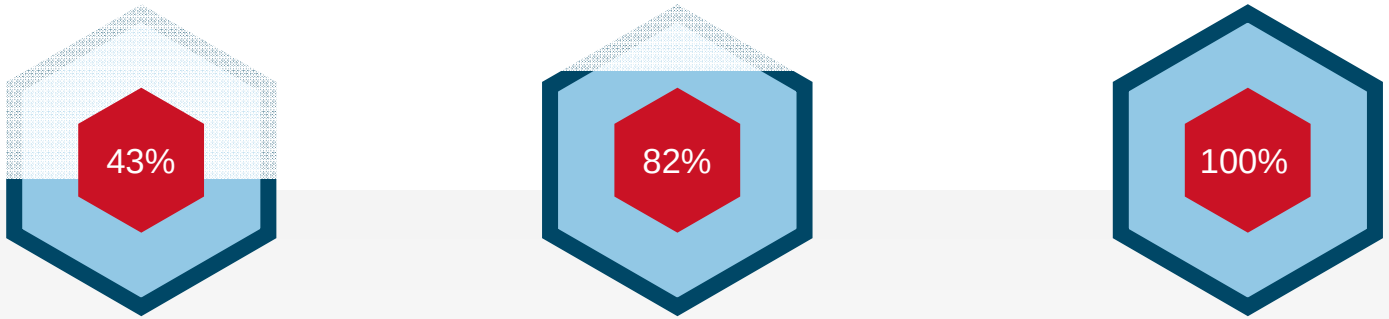
75 W
Average single light power LED

55 milioni kWh
flats' energy consumptions
20.000

42 kWh
Annual per capita consumption

# MILANO - TIME SCHEDULE

## Timing of replacement of lighting




**60.000**
31 december 2014

**113.000**
May 2015

**Massive**
31 August 2015 *


Before May 2015 (Expo) has been replaced over than 80% lights. August 2015, 100% street lights.

* Still to be ended retrofit and artistic lights

# BRESCIA - COMPARISON

## PRE EFFICIENCY

**116 W**
Average single light power (previously in use)

**Over 18 milioni kWh**
flats' energy consumptions
8.200

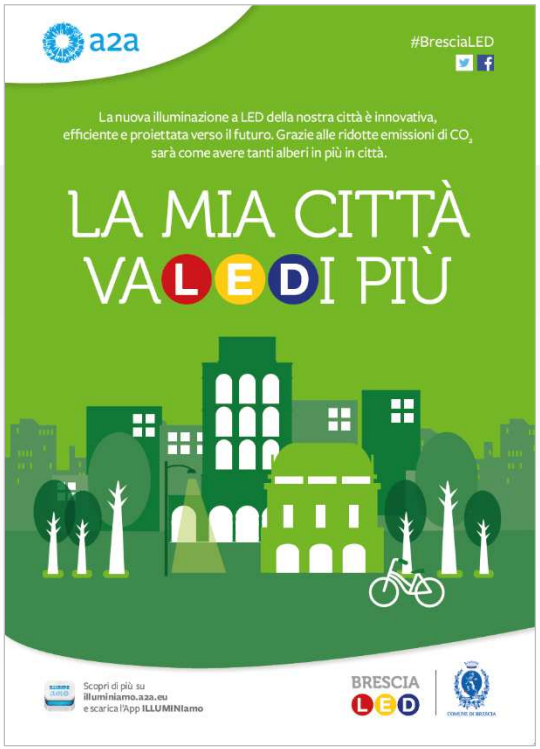
**92 kWh**
Annual per capita consumption

## POST EFFICIENCY

**60 W**
Average single light power LED

**11 milioni kWh**
flats' energy consumptions
4.000

**56 kWh**
Annual per capita consumption



# BRESCIA - TIME SCHEDULE

## Timing of replacement of lighting


**January 2015**
Start


**31 December 2016**
100% of lights

# BERGAMO - IL CONFRONTO

## PRE EFFICIENTAMENTO

108 W
Average single light power (previously in use)

Oltre 8,8 milioni kWh
flats' energy consumptions 3.500

74 kWh
Annual per capita consumption

## POST EFFICIENTAMENTO

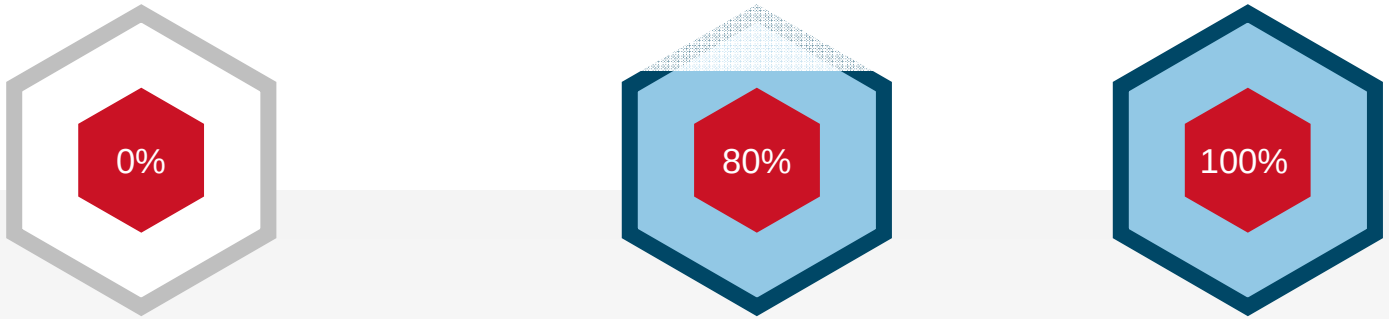
65 W
Average single light power LED

5,1 milioni kWh
flats' energy consumptions 2.000

43 kWh
Annual per capita consumption

# BERGAMO - TIME SCHEDULE

## Timing of replacement of lighting




**15 October 2015**
start

January 2016

**End July 2016**
100% street lights*


* The replacement of the LED will not affect the Upper City and the Hills for their artistic peculiarities that mismatch with mass replacement, excluded from the calculation of the retrofit for their customized feature .

# MILANO - ADVANTAGES

## Energy Saving as main focus

-51,8%

CONSUMO
DI ENERGIA

-11.033 Tep

TONNELLATE
EQUIVALENTI DI
PETROLIO
RISPARMIATE

# BRESCIA - ADVANTAGES

## Energy Saving as main focus

**-39 %**

CONSUMO
DI ENERGIA

**-1.300 Tep**

TONNELLATE
EQUIVALENTI DI
PETROLIO
RISPARMIATE

# BERGAMO - ADVANTAGES

## Energy Saving as main focus

-50 %

CONSUMO
DI ENERGIA

-900 Tep

TONNELLATE
EQUIVALENTI DI
PETROLIO
RISPARMIATE

# MILANO – ADVANTAGES

## More plus for environment

**23.650 ton $CO_2$**
less per year are released into the atmosphere . An important contribution to meeting the goals of Kyoto in 2020

**-60.000 lamps replacements**
every year ( burned or programmed changes ) allow a saving of more than 9 tonnes of WEEE per year ( Waste Electrical and Electronic Equipment)

**Reset the presence of mercury and other pollutants**
in previous lamps used for public lighting

# OTHER ADVANTAGES

## More Safety

### Same lighting efficency vs more energy efficency

Compared to previous lights (100 Lumen/Watt)

### -10.000 (Milano), - 2.500 (Brescia) , - 5.000 (Bergamo), burned lamps per year

It means less dark areas , with a marked improvement of service quality and safety

### Delete faults " in series " for lamps

The use of new technologies , modern and efficient , eliminates failures " in series " lamps , a typical problem of the old power systems

# I VANTAGGI

## Più sicurezza

### Information concerning the state of the system

Opportunity to receive information on the conditions of state (on / off ) and / or malfunction of the facilities:

- Management switching on and off by astronomical clock
- Twilight switch with adjustable threshold acting as a back-up
- Control of electrical load absorbed
- Remote control and supervision from remote locations ( operations center )

# MILANO – DRILL DOWN

## Energy efficency for fee saving

### BEFORE

For public lighting services the municipal administration was spending annually about

**42 MILIONI €**

### MILANO LED

The choice to replace with LEDs on all luminaires will lead in 2015 to a saving of

**10 MILIONI €**

### SAVING

FROM 2016 on is forecasted an annual fee of about

**29 MILIONI €**

saving 31%

# MILANO – DRILL DOWN
## Energy efficency for fee saving

Cost containment is achieved mainly due to the following factors :

ENERGY SAVING

SUBSTANTIAL REDUCTION OF MAINTENANCE COSTS

CAPEX ON A2A CHARGE

38 M€

MILANO LED BRESCIA LED BERGAMO LED

# ADVANTAGES

## Less light pollution

No emission of light intensity upwards.

Better concentration of the light beam toward the area to be illuminated , sidewalks and streets

# LED PROJECTS



## RELEVANCE OF SUPPORT COMUNICATION

# GOALS

Spread the values of the LED project:

EFFICENCY SAVING ENVIROMENT

Trigger a virtuous cycle that favors the spread of the LEDs even in homes

# COMUNICATION

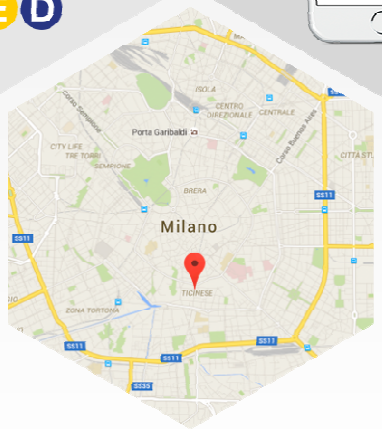
LOGO

MILANO LED

BRESCIA LED

BERGAMO LED


DIGITALI/SOCIAL




BE LOCAL

# TOOLS

support the campaign by spreading App georeferenced

Communicating with citizens through the finalization of the work

Actions dedicated field | Traditional advertising and social / digital

# STICKERS FOR POLES

Adhesive to be applied on the stakes of public diffusely
( about one every three poles )

- Disseminate and inform on the channels of communication to be used
- Engage citizens in fault reporting
- Inform people about the project Led started from August 2014

# DEDICATED WEB SITE

## ILLUMINIamo

# ILLUMINIamo

## App

The new APP A2A to inform citizens on the progress of the project ( in anticipation of the features that will be present in APP for network services in progress ) and to report service problems ( allowing citizens to send A2A to reports on streetlights off streets and unlit)


Disponibile su App Store

ANDROID APP ON Google play

# DEDICATED PROJECTS (EXPO)

## MyLED

# MyLED
## App


1

Choose the location of LEDexperience among those proposed


2

Search a totem MyLED and approach to enable proximity sensors


3

Search MyLED world , selecting a light scene to be used


4

Give life to your LEDexperience ! Share using #MyLED