



COMUNIDADE INTERMUNICIPAL  
DO ALENTEJO CENTRAL

# ALENTEJO CENTRAL STREET LIGHTING PLAN

19<sup>th</sup> February 2020

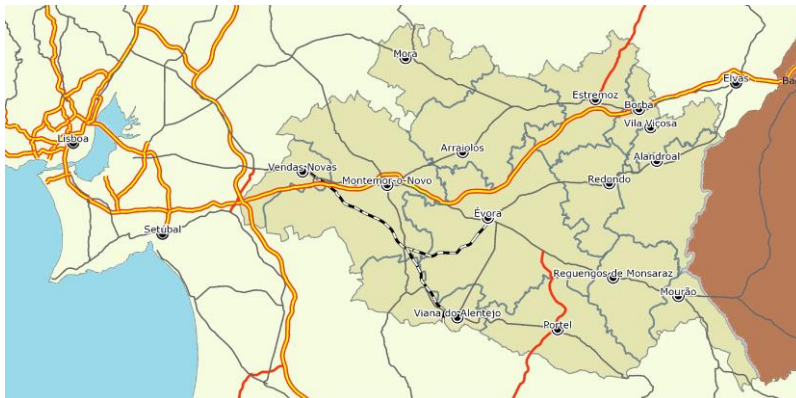


# CONTEXT : THE REGION

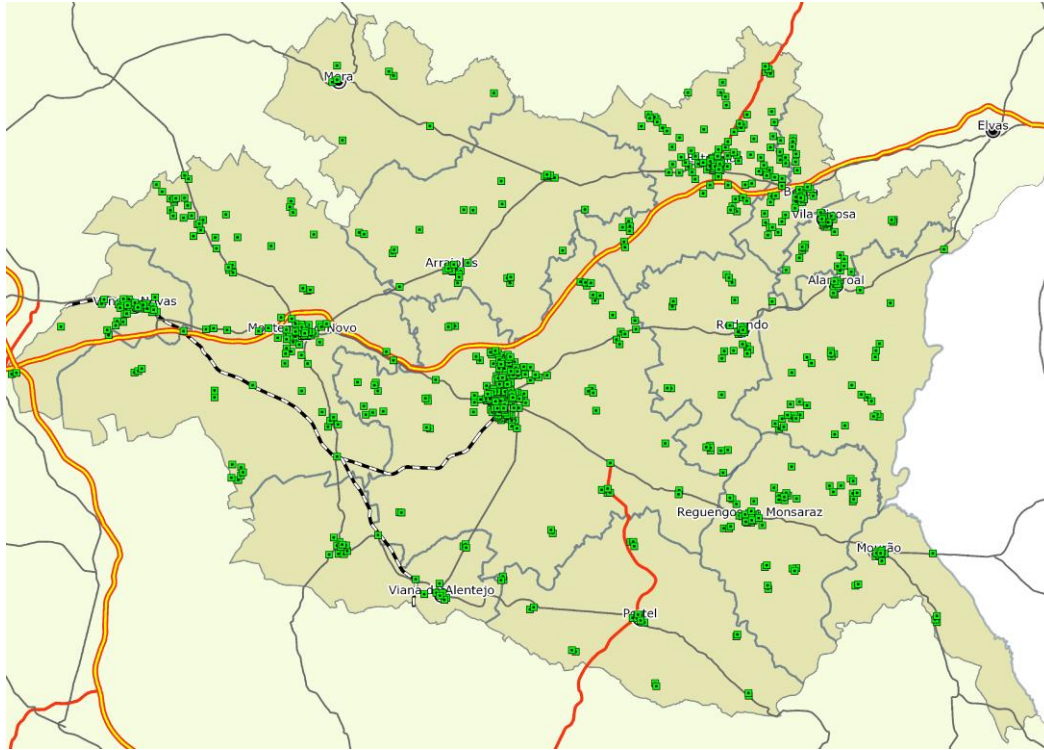
## CENTRAL ALENTEJO (PORTUGAL)



- ▶ Central Alentejo is a congregation of 14 municipalities.
- ▶ Population: 155.000 inhabitants
- ▶ Area: 7.400km<sup>2</sup>
- ▶ GDP: 2.469M€
- ▶ Companies: 19.500
- ▶ Companies with more than 50 employees: 66
- ▶ Main areas: Agriculture, services, industry, tourism



# CONTEXT : STREET LIGHTING IN CENTRAL ALENTEJO



- ▶ Transformer stations: 860
- ▶ Street lighting poles: 55.000
  - ▶ Sodium: 46790
  - ▶ Mercury: 5120
  - ▶ Halide: 2092
  - ▶ LED: 800
- ▶ Energy costs: 3M€/year
- ▶ Property: Municipal
  - ▶ Concession contract to EDP

# CONTEXT : STREET LIGHTING IN CENTRAL ALENTEJO

- Existing Luminaires needed to be upgraded



# THE NEEDS

- ▶ Reduce de costs in public lighting
- ▶ Implement efficiency measures in public lighting
  - ▶ Implement efficient public lightning;
  - ▶ Implement management systems;
  - ▶ Measure public lightning usage/efficiency
- ▶ Reduce greenhouse gas levels
- ▶ Find European funding for the project
- ▶ Agreement and support from the mayors

# PROJECT TIMELINE

- ▶ Project appliance: 2014
- ▶ Technical Assistance (TA) agreement with eeef: 2015
- ▶ Technical Assistance tenure: 2015-2016
- ▶ ESCO Tender publication 2017
- ▶ ESCO contract signed: February 2018
- ▶ Approval from Finance Court: December 2018
- ▶ Works started in November 2019

There is a necessity of leveraging the project by twenty times the TA funding.



# THE SOLUTION: TECHNICAL ASSISTANCE

- ▶ Street lighting master plan
  - ▶ Street characterization
  - ▶ Luminaires inventory
  - ▶ Costs by command group
  - ▶ Street lux
  - ▶ Replacement impact (street lux corrections, costs, savings)
  - ▶ Take in consideration light pollution due to Dark-Sky Reserve in some municipalities

PUBLIC LIGHTING	Consumption baseline (kWh/yr)	Energy Reduction (kWh/yr)	Energy Reduction (%)	Energy Reduction (€/yr)	CO2 reduction (tnCO2eq/yr)	Investment (VAT incl) (€,m)	Payback Period
LUMINAIRES	25,136,143	18,250,297	72.61%	2,388,450	6,607	18,736,074	7.84

# THE SOLUTION: TECHNICAL ASSISTANCE

- ▶ Lessons learnt
  - ▶ Poor inventory of public lighting
  - ▶ Over 15% of public lighting was not working
  - ▶ No information on installation dates and costs of the infrastructure



# THE SOLUTION: PROJECT DEFINITION

- ▶ Reduce light pollution
- ▶ Aluminum material
- ▶ Color Temperature: 3000K
- ▶ Half of the luminaires with management system
- ▶ Half of the luminaires with pre-programmed driver for reduction during the operation hours
- ▶ Luminaire model size specifications
- ▶ The solution could not satisfy only one brand
- ▶ Tender documents for ESCO procurement process

# THE SOLUTION: ESCO PROCUREMENT

- ▶ Six luminaires types
- ▶ 80 luminaires variations (model/power/regulation)
- ▶ Management system
- ▶ Certifications
- ▶ Warranties



# THE SOLUTION: ESCO PROCUREMENT

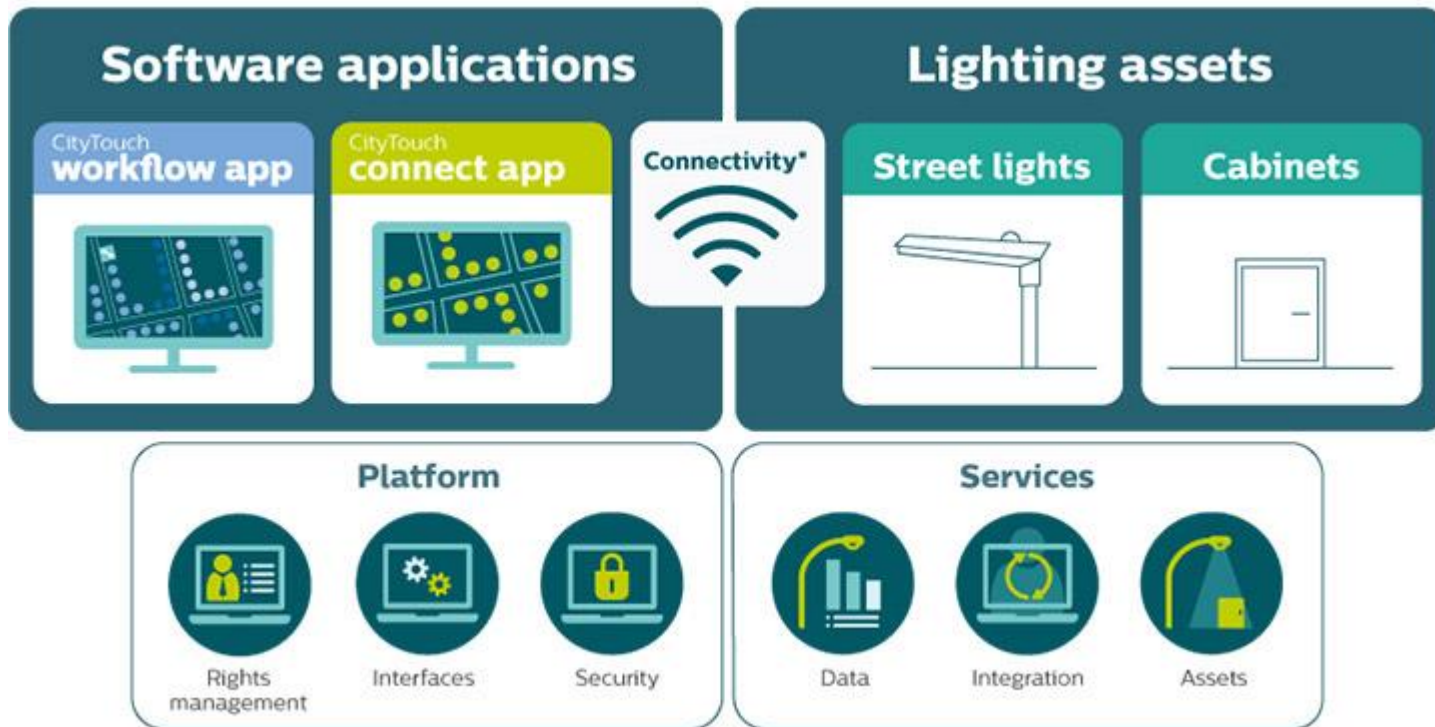
- ▶ Important aspects of a successful tender
  - ▶ Good inventory
  - ▶ A master plan
  - ▶ Demand for samples of the luminaires
  - ▶ Enough time for the proposal
  - ▶ The ability to support the interferences in the process

# THE SOLUTION: LUMINARIES PROPOSAL



# THE SOLUTION: PROPOSAL

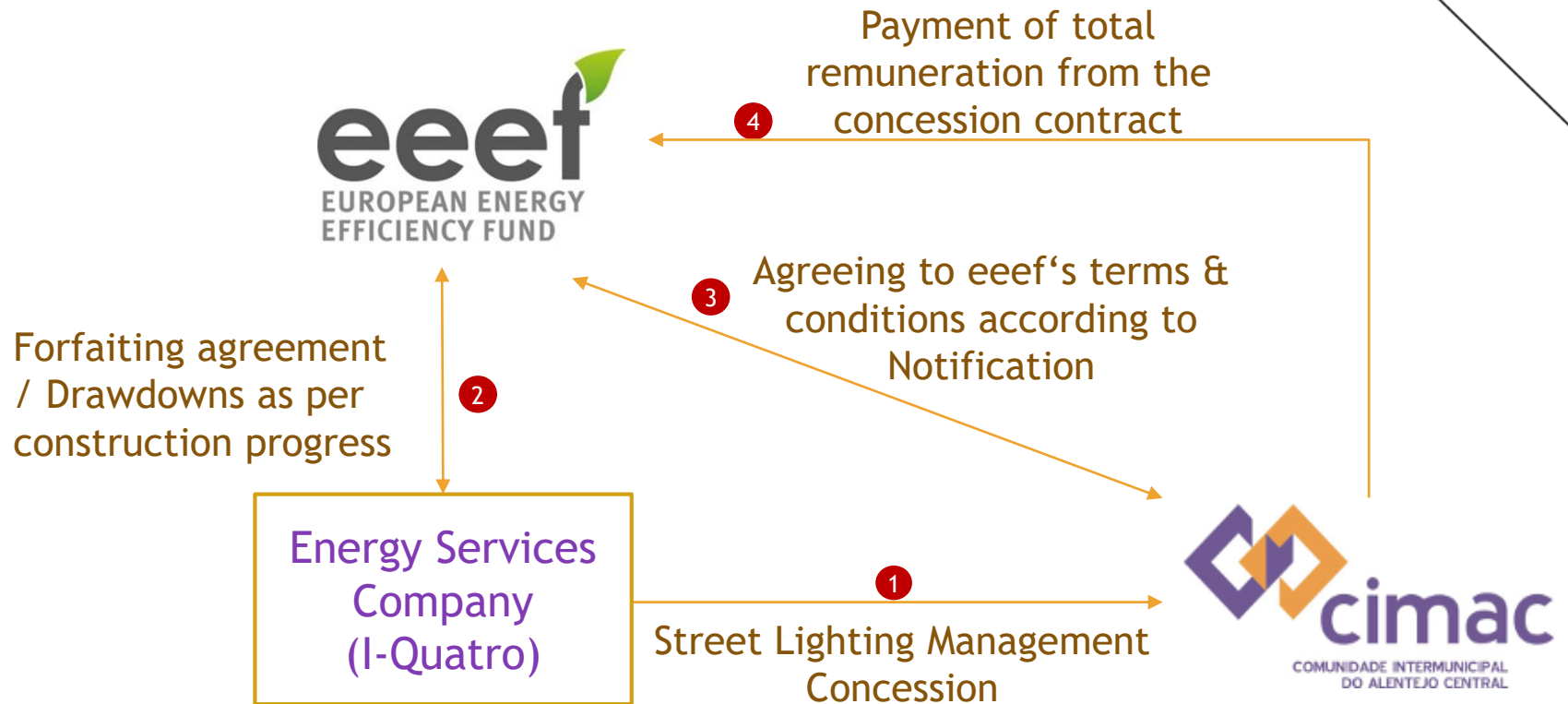
- ▶ The two proposals that we received were based on Philips material



# THE EXPECTATIONS: PROJECT IMPACT

- ▶ The implementation of the proposal
- ▶ Effective cost reduction
- ▶ Light pollution reduction
- ▶ Reduction of CO<sub>2</sub> emissions
- ▶ Improve quality of the service
- ▶ Improve knowledge of the system
- ▶ Change relationship of the municipalities with street lighting
- ▶ Build information system of public lighting
- ▶ Prepare the post-ESCO period

# FINANCING STRUCTURE



# THE FUTURE

- ▶ Develop the energy efficiency team
- ▶ Transform the project specifications in municipal tender obligations
- ▶ Enlarge the number of points under remote management
- ▶ Reduce de costs of management
- ▶ Develop the model for the post ESCO period



**THANK YOU**