

# Kolding's procurement of climate-friendly lighting solutions

CITY OF KOLDING, DENMARK

## Procurement objectives

Led by the city's Environment Department, a call for tender was published at the end of January 2011 for the supply of highly energy efficient replacement light bulbs (such as light emitting diodes - LEDs). The tender was presented in cooperation with the Danish 12-City Purchasing Group. The 12-City Purchasing Group is comprised of the cities Esbjerg, Fredericia, Herning, Holstebro, Ikast-Brande, Kolding, Middelfart, Odense, Randers, Silkeborg, Svendborg, Sønderborg, Vejle and Århus.

Apart from fulfilling local lighting needs, the procurement action aims to encourage sustainable product innovation for energy efficient lighting technologies.

## Background

Kolding City Council has 8,000 employees and is the largest single business enterprise in the Region of Southern Denmark.

Kolding's first GPP activities began in 1998 with the adoption of a municipal GPP policy. Today, GPP is integrated in the procurement of goods, services and construction - virtually 100% of tenders - ensuring compliance with environmental requirements, as well as applying environmental award criteria. Kolding is regarded as one of the local government pioneers in GPP internationally.



## Criteria used

Kolding published a call for tender for the supply of innovative, energy efficient LED replacement light bulbs, for indoor and outdoor use. To give smaller sized companies (or SMEs) the possibility to participate in the bidding process, the tender was divided into three sub-groups :

- Low voltage lights bulbs
- 230 Volt halogen light bulbs and pins
- 230 Volt light bulbs

The option for bidding for one or more of the three sub-groups is available.

### Technical specifications:

#### Indoor lighting:

CRI (Colour Rendering Index) > 80  
 Colour temperature (Kelvin) 2700-3000  
 General lighting-efficiency (lumen/watt) > 50  
 Effect lighting -efficiency (lumen/watt) > 40  
 Life-span (hours at L70) > 20000

#### Outdoor lighting:

CRI (Colour Rendering Index) > 75  
 Colour temperature (Kelvin) 3000-4000  
 General lighting-efficiency (lumen/watt) > 50  
 Life-span (hours at L70) > 20000

### Award criteria:

- Life-cycle costs have been given a weighting of 55%. These are broken down by: purchase price (35%), lifetime (35%) and operating costs (30%)
- Energy-efficiency (lumen/watt) (25%)
- Light quality (CRI) (20%).

The technical characteristics were developed through a pre-procurement dialogue involving Kolding and a number of potential

## Kolding's procurement of climate-friendly lighting solutions

---

suppliers during mid-2010 in view of the upcoming tender. The approach was informed by the EU [SMART SPP](#) project, which Kolding is a partner in.

### Results

The deadline for responding to the call for tender is set for the end of February. The results of the tender will be available on the [SMART SPP website](#) when the process is completed.

### Environmental impacts

According to the [Energy Star website](#), LED lighting "has the potential to revolutionise the efficiency, appearance, and quality of lighting as we know it", with the US Department of Energy estimating that rapid adoption of LED lighting in the US over the next 20 years could result in savings of about 265 billion USD. This is equivalent to avoiding 40 new power plants and reducing lighting demand by 33% (figures from 2007).

Specific calculations have not yet been made by Kolding City Council to quantify the environmental savings from the procurement action. The call for tender published, however, includes a pilot project for replacing light bulbs with LED in two public buildings in Kolding. Energy consumption will be calculated based on the results of the pilot project.

### Lessons learned

When seeking to fulfill purchasing needs with more innovative solutions, it can be very difficult to obtain a complete overview of what the market has to offer, particularly in terms of product performance. This is despite sounding out the market during the pre-purchase phase.

In preparation of the current call for tender, for example, Kolding prepared a list of the light bulbs they would aim to replace with LED technology, during the course of the contract period. The list was prepared with the support of the Danish Lighting Centre. Nevertheless, the enquiries received from the market seem to indicate that replacing some of the current light bulbs during the contract period with more energy efficient solutions may present difficulties, as LED lighting does not always have a better energy efficiency measured in lumen/watt. This issue will require consideration when evaluating bids and life cycle costs will be taken into account.

For more information, please see [European GPP criteria](#) and [background report](#) for street lighting and traffic signals.