

## Intelligent street lighting in Gothenburg saves electricity and lasts longer

**The City of Gothenburg Traffic and Public Transport Authority has been working on intelligent systems for street lighting since 2006. It has been successful with the unusual combination of arranging better lighting with lower electricity consumption and at a lower operating cost. The project is also opening up the prospect of future smart solutions, for example for traffic information.**

Street lighting is expensive. Electricity costs money, and the monitoring and maintenance of the light sources is time-consuming. In a unique project on the two thoroughfares Tuvevägen and Högsboleden, the City of Gothenburg Traffic and Public Transport Authority has succeeded in reducing both types of cost. An intelligent control system makes it possible to reduce the power level at night when traffic is sparse, but also indicates when a light source needs to be replaced.

The project, which has entailed new light sources and better fixtures, has reduced electricity consumption by more than 60 percent, and at the same time has lowered maintenance costs. The project is a good example of how modern street lighting can be made more effective and was carried out in 2006–2009, with grants from the climate investment programme Klimp.

### POSITIVE ENVIRONMENTAL AND ECONOMIC IMPACTS

- Consumption of electricity has decreased by 132 MWh per year.
- A total of 340 lighting fixtures with PCB condensers have been removed.
- Remote control has reduced carbon dioxide emissions by 0.16 tonnes, nitrogen oxides by 85 tonnes and particulates by 1.3 tonnes annually.
- Remote control, fault reporting and longer life for the light sources reduce the need for inspection trips and servicing work.
- The costs of energy and operation have been substantially reduced.

Photograph: Filip Andersson/City of Gothenburg Traffic and Public Transport Authority



## IMPLEMENTATION

In 2007, adaptive street light with intelligent control was introduced on Tuvevägen and Högsboleden in Gothenburg. New light fixtures with better light dispersal reduced the number of light sources by 28 percent, while electronic starters increased the service life of the light sources from four to twelve years. The intelligent control system makes it possible to lower the power level during the night when traffic is very sparse. The system also issues an alert if an individual light source becomes defective, which greatly simplifies maintenance.

The project has attracted great attention in the media and has been demonstrated to a large number of interested parties from within Sweden and from abroad. In the future it will be possible to use the system to connect other road equipment, such as road cameras, information boards and parking meters, reducing the number of electricity connection points in the city.

## POTENTIAL AND FUTURE BENEFIT

Energy efficiency of lighting is an extensive and clear need globally. The fact that many countries are phasing out energy-guzzling lighting and introducing various kinds of need-based control is driving the shift in technology in the area of lighting. There is great potential for similar projects, and the method can be transferred to other county councils, municipalities or countries.

## WHY BEST PRACTICE

The project is unique in having central regulation. It has enhanced knowledge of intelligent lighting and traffic information systems. It also contributes towards various actors being better prepared to meet future market requirements and needs. The project is likely to be emulated elsewhere in Sweden and abroad.

## FOR FURTHER INFORMATION

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Contractors/providers:  
Trivalux AB supplied the light fixtures.  
Capelon AB supplied the software (communication platform) to Svevia.  
Svevia installed and fitted the technology.

The project on the Internet:  
[www.goteborg.se/trafikkontoret](http://www.goteborg.se/trafikkontoret)

For further information on Best Practice:  
[www.naturvardsverket.se/mir](http://www.naturvardsverket.se/mir)  
[www.swedishepa.se/bestpractice](http://www.swedishepa.se/bestpractice)

FACTS  
Klimp Gothenburg 2006  
Action 11  
Environmental investment: SEK 2.8m  
Grant: SEK 900,000

