



A closer look with an expert
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Energy Performance Contracts are increasingly favoured by local authorities to meet their public lighting needs.

Explanations with Séverine Champ, lighting engineer at ENGIE Ineo

41 % of the total electricity used by local authorities in France is devoted to public lighting. Over 4 million obsolete lighting points consume excessive amounts of energy. So, faced with the urgent need to reduce overall energy consumption, local authorities are taking action. Since 2009, the Energy Performance Contract (EPC) has been the method of choice. We invited Séverine Champ, lighting engineer at ENGIE Ineo, to explain the issues of these contracts in terms of public lighting. Connected cities, biodiversity or savings in energy expenditure and operating costs, it seems we are only just scratching the surface of all that public lighting EPCs can do.

EPC for public lighting: the right tool for the issues?

According to ADEME, in terms of electricity consumption due to lighting, local authorities account for almost a quarter of total consumption. The association also revealed that in 2018, public lighting represented 41 % of their energy consumption. This is a formidable amount and a significant economic factor, as public lighting represents 37 % of electricity expenditure for a local authority. Such authorities are already invested in reducing their energy consumption, but now can use specific tools such as Energy Performance Contracts (EPC) which offer multiple benefits. These contracts were identified by France's "Grenelle I" environmental laws as potentially contributing to achieving the objective of at least a 40 % reduction the energy consumption of government buildings and public sector establishments by 2020. Depending on the building assets, an EPC could in fact help generate between 40 and 80 % energy savings on refurbished buildings (replacement, modernisation, renovation of facilities).

Furthermore, an EPC offers genuine reassurance to the local authorities, guaranteed by the firm carrying out the renovation work. Of course, it covers energy savings but also includes preventive or curative maintenance operations (availability rate, time to repair) and overall results. At ENGIE Ineo, we define the energy savings that we propose to achieve at the outset of the design phase and the tender procedure. Penalties may be applied if we fail to respect the objectives. The savings are therefore fundamentally positive for the local authorities.

Do the EPC that ENGIE Ineo enters into with local authorities take account of the influence of lighting (especially at night time) on biodiversity?

Absolutely, and it is a highly sensitive subject. Almost 30 % of vertebrates and 60 % of invertebrates are partially or totally active at night-time*. This means that night-time diffusion of artificial light has major consequences on flora and fauna.

The issue is obviously considered in the EPC we sign with local authorities, while remembering the balance required between the protection of local biodiversity and nocturnal safety for local residents.

In Niort for example, where we signed an EPC last June, it is a priority issue. The town was voted the French capital of biodiversity by Natureparif in 2013. It pays considerable attention to managing light pollution and disturbances. To deliver a response on a par with their needs, we carried out a precise field diagnostic which enabled us to jointly define with the town leadership the measures to implement, such as time-controlled scenarios, which are infrequent in France. The "black zone" system is also a solution to this issue. This involves a network of corridors that are left in darkness to preserve areas with high biodiversity. An increasing number of local authorities now use innovative technologies or techniques, including remote control, which can enable the remote implementation of public lighting programming scenarios (switch on/off, graduation etc.).

On 27 December 2018, an order was published in the Official Bulletin on limiting light pollution during the night. In addition to new technical characteristics, it imposes new operating hours when lights must be switched off to help preserve biodiversity. It was a requirement of the Conseil d'Etat, to fully implement the decree emanating from the 2011 Grenelle environmental laws. This order is fully aligned with the Biodiversity Plan presented in 2018, which includes arrangements on reducing light pollution.

On that point, in concrete terms, how does a public lighting EPC contribute to the emergence of the "smart city"?

In general, most of the public lighting stock needs to be replaced. Of the 10 million lighting points in France, 75 % are at least 25 years old and 30 % still contain mercury vapour lamps (prohibited on the market since 2015). The current renewal rate is 3 % per year**, so there remains a lot of ground still to be covered! The first step was clearly taken with the arrival of LED technology, which has already enabled extensive energy savings and the strategic use of lighting in urban environments (savings, safety, biodiversity). However, future solutions are emerging, and we are fully committed to their joint development with the town and city authorities that we are working with. Today, the future of public lighting is strongly associated with connected objects and consequently the smart city. As an example, connected lighting could enable use of the network to collect and report data, thereby informing other urban systems. One thing is certain, the public lighting of the future must be suited to our uses and needs. This includes finding the right level of lighting and being able to adjust it when a passer-by is detected, or even switching lights off in certain cases. We need to know how to innovate and adapt our solutions to new regulatory restrictions and to the needs of our (local authority) customers and their residents.

* Data from Association Française de l'Eclairage, 2018

** Data from FNCCR (Fédération nationale des collectivités concédantes et régies)

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Press contact:

Cécile de Bentzmann

Tel: +33 (0)139 535 333

e-mail: cdebentzmann@planbconseil.com

