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Capacity building of regional suppliers' network

Market research of street lighting

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Introduction

The objective of this market research is to collect and analyse the information from the particular target market with a view to green public procurement.

In this case “street lighting” means “stationary lighting devices that are made for the darker hours of the day to ensure good visibility for outdoor traffic areas, to promote road safety, traffic flow, and public security”. The definition is taken from LVS EN 13201 and it does not include tunnel lighting, a private car park lighting, commercial or industrial outdoor lighting, sports field lighting or decorative luminaires (for example, monuments, buildings or tree lighting). However, it includes the functional lighting of pedestrian and bicycle roads, as well as roadway lighting.

Green Public Procurement (GPP) is a voluntary instrument. There are however some EU Directives that define the mandatory requirements for the public procurement of the energy-related products and services. Mandatory requirements could be set also by the national policy targets addressing energy efficiency, climate change or promotion of GPP. Energy and climate policy targets always include a CO₂ emissions reduction to a certain level. Some procurement areas, for example, outdoor lighting, are in the high priority list to reduce CO₂ emissions.

This market research consists of several parts, which together forms a specific product market report. Market research consists of analyses of the legal and political framework, as well as formulating requirements for improvement. This study provides answers to questions that lead to conclusions, based on market research results.

EU GPP criteria are used in this market research because in such a way it's possible to compare the results of market research among other participating countries. However, the national regulation framework is significant, as it may be different in different EU member states.

Cabinet of Ministers regulation No. 359 on lighting, Annex 3 sets the lighting levels for outdoors, depending on the job and the type of work. It should be noted, that the Latvia has no laws or regulations that set (or recommend) lighting measurement, regularity, and frequency, so employers have to decide on the lighting measurements on their own. The obtained results are compared with normative values according to the Cabinet of Ministers regulation No. 359, annex 3.

Regulatory framework of the street lighting

EU defines a set of rules for energy-consuming goods and public procurement (see Annex 1). One of the most important regulations in this field is of the Directive 2012/27/EU of the European Parliament and of The Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC (hereinafter referred to as - of Directive 2012/27 / EU). This Directive in Latvia is implemented through the Energy Efficiency Law.

In turn, the Cabinet of Ministers has developed project “Regulations of the institutions of direct administration organized procurement of energy efficient requirements for goods and services”, which aims to define public procurement requirements that apply to the energy efficiency of goods and services. These requirements also apply to outdoor lighting.

After the conventional fluorescent lamps were banned with EU Directive 2000/55/EC, RoHS Directive 2002/95/EC restricted the use of hazardous materials in the electric equipment and the WEEE Directive 2002/96/EC regulates the end of life electrical utilization, the EU unveiled the Framework Directive 2005/32/EC establishing a framework for the setting of ecodesign requirements for energy-using products (eco-design). In November 2009 this directive was replaced with an updated framework directive, EU Directive 2009/125/EC relating to the ecodesign requirements for energy-related products (ErP). Requirements of the Framework Directive in Latvia has been implemented by the Cabinet of Minister's regulations No.941 (2011) "Regulations on the eco-design requirements for energy-related products."

Directive 2010/30/EU of the European Parliament and Council of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products determine consumer access to consistent and coherent information on the energy and resource consumption by use of different products, e.g. lighting, washing machines, TVs. This Directive has been introduced Latvian legislation by the Cabinet of Minister's regulations No.480 (2011) "Regulations on the procedure for the marked goods related to energy and other resource consumption, as well as their advertising and surveillance."

Several EU regulations also specify specific requirements for different product groups, including lighting:

- Commission Regulation (EC) No 245/2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for fluorescent lamps without integrated ballast, for high-intensity discharge lamps,

and for ballasts and luminaires able to operate such lamps, and repealing Directive 2000/55/EC of the European Parliament and of the Council;

- Commission Regulation (EU) No 1194/2012 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for directional lamps, light emitting diode lamps, and related equipment;
- Commission Regulation (EU) 2015/1428 amending Commission Regulation (EC) No 244/2009 with regard to ecodesign requirements for non-directional household lamps and Commission Regulation (EC) No 245/2009 with regard to ecodesign requirements for fluorescent lamps without integrated ballast, for high intensity discharge lamps, and for ballasts and luminaires able to operate such lamps and repealing Directive 2000/55/EC of the European Parliament and of the Council and Commission Regulation (EU) No 1194/2012 with regard to ecodesign requirements for directional lamps, light emitting diode lamps and related equipment;

However, street lights are not directly marketed to the household consumers, therefore, Commission Regulation No 1194/2012 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for directional lamps, light emitting diode lamps, and related equipment do not directly apply to street lights.

Environmental impacts of the street lights and key GPP criteria

Street lighting and traffic signals most significant impact on the environment are energy consumption and greenhouse gas emissions associated with it. Other possible impacts on the environment may result from certain substances, such as mercury, as well as light pollution depending on lighting location. Therefore GPP criteria focus on energy consumption, particularly on the lamp efficiency and effectiveness of the ballast of street lighting, as well as the promotion of LED traffic signals.

Outdoor lighting effects on environment and corresponding GPP criteria:

Key Environmental Impacts	GPP Approach
Energy consumption, in all phases, but especially the use phase of street lighting and traffic signals	Purchase lamps with high lamp efficacy Purchase efficient ballasts Promote the purchase of lighting systems with a low energy consumption for the light provided Promote the use of LEDs in traffic signals Encourage the use of dimmable ballasts where

	circumstances allow
Use of natural resources and materials and generation of waste (hazardous and non-hazardous)	Promote lamps with a lower mercury content
Potential pollution of air, land and water due to the use of hazardous materials e.g. mercury	
Light pollution from street lighting	Promote the use of luminaires that limit light emitted above the horizon

In order to improve the quality of the procurement of materials (LED lighting), to ensure fair competition and to encourage procurers and tenderers cooperation, Latvian Electricity Traders Association (LEMTA) has summarized the most pressing issues with which suppliers have to face in public procurement competitions, and in cooperation with the Procurement monitoring bureau has developed recommendations¹ to eliminate them.

Market analyses

In order to assess the situation in the Latvia’s lighting market and compliance with the GPP criteria and willingness to offer such products in public procurement, on 7 July 2016, a meeting was arranged with market participants. Overall, 17 companies were invited to the meeting. However, only 4 companies (Ltd. Tamara, Ltd. Teliko, LEDEKSPERTS and Ltd. Oninnen) responded and attended the meeting.

The traditional high-intensity discharge lamps (HID) consume a lot of energy and generate a lot of heat. Thus, with the growing awareness and the need to reduce the carbon footprints globally, countries have started replacing the street lights with smart LED lights. The smart street lighting poles can be turned “ON” or “OFF” through the smart devices. Most of the smart poles are enabled with motion sensors which turn “ON” whenever there is movement near the pole. According to Infoholic’s analyst, the Smart Street Lighting market will grow at an estimated CAGR of 40.3% during the forecast period 2016–2022. Europe is the biggest market for the smart street lighting followed by Americas.

The public outdoor lighting market is currently undergoing a period of change where legacy streetlights are being replaced with new and more efficient LED or solid-state lighting

¹ http://www.iub.gov.lv/sites/default/files/upload/ieteikumi_LEMTA_020315_FINAL.pdf

technology. Taking this new technology a step further, these LED streetlights are also being networked together with communications to become “smart” streetlights. Therefore the market for street lights is growing and dynamic, fuelled by quality luminaires and a municipal ability to reduce their operating costs. Overall, the LED and smart street lighting market remain young, and some challenges must be overcome.

LEDs offer longer lifetimes, lower energy consumption, and reduced maintenance costs when compared with legacy streetlight technologies. LEDs are already an economically beneficial alternative to existing streetlights over the lifetime of the light when energy savings are considered, despite their higher upfront cost. There are also EU and climate protection funds available in Latvia to compensate up-front capital investment costs for installing energy efficient street light systems.

Data from Procurement monitoring bureau demonstrates that outdoor lighting (street lights - 34993000-4 & street light equipment - 34928500-3) represents only small part of the total public procurement – 1.9 M EUR or 0.1% (see Table 1). According to official information in 2015 none of the tenders have highlighted that they have included environmental criteria in their procurement. However, we believe most of the street light tenders include some of the environmental criteria, especially energy related.

Table 1. Total number and amount of procurements in 2015 (Procurement Monitoring Bureau)

CPV	Nr. of procurements		Total costs in EUR (without VAT)	
	Total	including GPP	Total	including GPP
34993000-4				
34928500-3	16	0	1 885 256	0

Key global players in the street light market are GE Lighting, Philips Lighting, Acuity Brands, Osram and Honeywell Lighting. In Latvia also Oland, Swell, DKenergy, CREE, SBP, Zumtobel and others are present. Also, several local companies are active not only distributing street lights but also producing them and designing different energy solution, e.g. LatLed, RoadSpark, SIA Moduls interjers, SIA "Teliko", "Krāsainie lējumi"

According to the data of Procurement monitoring bureau database² some of the biggest distributors in this section over the last years are:

- Moduls interjers, Ltd
- ELFA, Ltd

² <http://www.iub.gov.lv/lv/mekletiepirkumus>

- EdAnElectro, Ltd
- Indigo būve, Ltd
- LHD, Ltd,
- SIA "Teliko"

The main conclusion from the market research is that energy efficient LED street lights are freely available in Latvia and there is a high competition among the distributors, however, procurers have to pay more attention to the quality and longevity of the products they are procuring for.

EU legislation that is relevant to Outdoor Lighting (street lighting and traffic lights).

EU legislation act	Requirements	Affected products
<p>Regulation (EC) No 245/2009 with regard to eco-design requirements for fluorescent lamps without integrated ballast, for high-intensity discharge lamps, and for ballasts and luminaires able to operate such lamps, repealing Directive 2000/55/EC (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:076:0017:0044:EN:PDF)</p> <p>And Regulation 347/2010 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:104:0020:0028:EN:PDF</p>	<p>on energy efficiency related to the eco-design</p>	<ul style="list-style-type: none"> • Fluorescent lamps without integrated ballast, • High-intensity discharge (HID) lamps, • Ballasts and luminaires able to operate such lamps
<p>Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility</p> <p>Latvia: Cabinet of Ministers regulation No. 208 (2016) –“Electromagnetic compatibility rules”</p>	<p>Electromagnetic compatibility (EMC) of the equipment regulation</p>	<p>electrical and electronic equipment</p>
<p>Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)</p> <p>http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002L0095&from=en</p> <p>Latvia: Nature resource tax Dabas resursu nodokļa likums</p> <p>Dabas resursu nodokļa (turpmāk — nodoklis) mērķis ir veicināt dabas resursu ekonomiski efektīvu izmantošanu, ierobežot vides piesārņošanu, samazināt vidi piesārņojošas produkcijas ražošanu un realizāciju, veicināt jaunu, vidi saudzējošu tehnoloģiju ieviešanu, atbalstīt tautsaimniecības ilgtspējīgu attīstību, kā arī finansiāli nodrošināt vides aizsardzības pasākumus.</p> <p>http://likumi.lv/doc.php?id=124707</p>	<ul style="list-style-type: none"> • for the treatment and recovery of WEEE. • for labelling 	<p>electrical and electronic equipment</p>
<p>Directive 2002/95/EC of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment</p> <p>http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002L0095&from=en</p> <p>LV: Cabinet of Minister regulations No.723 Regulations on chemical substances restriction in electrical and electronic equipment (Zaudējis spēku 08.03.2013.)</p>	<p>on the restriction of the use of certain hazardous substances in electrical and electronic equipment</p>	<p>Electrical and electronic equipment. Exemptions relate to lamps (allows the use of mercury in fluorescent and discharge lamps, allows the use of lead</p>

		in glass of lamp tubes). Energy-saving light bulbs are temporarily exempted from the directive.
Regulation (EC) 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:037:0019:0023:EN:PDF	on registration, evaluation, authorisation and restriction of chemicals	electrical and electronic equipment
UNECE Convention on Long-range Transboundary Air Pollution (CLRT AP) Protocol on Heavy Metals (1998)	on reduction and prevention of air pollution, especially on the reduction of the emissions of heavy metals (Hg, Cd, Pb).	High-intensity discharge (HID) lamps especially
Directive 2010/30/EU of the European Parliament and of the Council on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:153:0001:0012:en:PDF Latvia: On the Concept of the European Parliament and of the Council of 25 October 2012 of Directive 2012/27 / EU on energy efficiency and amending Directive 2009/125 / EC and 2010/30 / EU and repealing Directives 2004/8 / EC and 2006/32 / EC, the transfer of regulatory enactments. http://likumi.lv/doc.php?id=262535	on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products	electrical and electronic equipment
Directive 2012/27/EU of the European Parliament and of the Council on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:315:0001:0056:en:PDF	Determine the public bodies of exemplary energy efficient in public procurement field, which is settled in Latvia with appropriate framework in Public procurement law	
Directive 2009/125/EC establishing a framework for the setting of ecodesign requirements for energy-related products http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:142:0001:0008:en:PDF	Framework for the setting of ecodesign requirements for energy-related	The directive doesn't set binding requirements, but it defines

9:093:0003:0010:EN:PDF	products	the conditions and criteria surroundings
Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling, and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 http://eur-lex.europa.eu/legal-content/LV/TXT/HTML/?uri=CELEX:32008R1272&from=EN		
Commission Delegated Regulation (EU) No 874/2012 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of electrical lamps and luminaires http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:258:0001:0020:en:PDF		
Commission Regulation (EU) 2015/1428 amending Commission Regulation (EC) No 244/2009 with regard to ecodesign requirements for non-directional household lamps and Commission Regulation (EC) No 245/2009 with regard to ecodesign requirements for fluorescent lamps without integrated ballast, for high intensity discharge lamps, and for ballasts and luminaires able to operate such lamps and repealing Directive 2000/55/EC of the European Parliament and of the Council and Commission Regulation (EU) No 1194/2012 with regard to ecodesign requirements for directional lamps, light emitting diode lamps and related equipment (Text with EEA relevance) http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R1428&from=EN		Light lamps, LED lamps and related products

Cabinet Regulations No.359 (28.04.2009)

“Levels of outdoor lighting depending on the workplace and the type of work”

No.	Place of work or work type	Em – minimum level of illumination over work area (lux)	Remarks
1.	Traffic areas outside the workplaces:		
1.1.	Roads designed exclusively for pedestrian traffic	5	No workplace
1.2.	Traffic area for slowly moving vehicles (max 10km/h), for example, bicycles, trucks, excavators	10	
1.3.	Permanent vehicle traffic (max 40km/h)	20	
1.4.	Pedestrian crossings, vehicle turns, loading and unloading places	50	
2.	Airports:		1.Avoid direct lighting control towers and airplane landing directions 2. Direct light, which is emitted from the spotlights above the horizontal, should be minimized