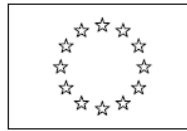


התאגדות מהנדסי חשמל ואלקטרוניקה בישראל 2002 (ע"ר)
הועדה הישראלית להנדסת המאור - CIE ישראל



חיסכון בחשמל בתאורה ניסיון בעולם ובישראל

**Eng. Alex Yarmolinsky,
Or Ad Engineers, Israel**



Brussels, 15.12.2011
COM(2011) 889 final

GREEN PAPER

Lighting the Future

Accelerating the deployment of innovative lighting technologies

Europe 2020

Priorities

- Smart growth
- Sustainable growth
- Inclusive growth
- Economic governance

Reaching the goals

Europe 2020 targets

- Flagship initiatives
- EU tools for growth and jobs
- Monitoring progress

Who does what

- European institutions and bodies
- EU Member States
- Civil society

Documents and reports

FAQs

Europe 2020 targets



To measure progress towards the 2020 goals, 5 headline indicators will be used across the whole EU. This limited set of indicators will be used to monitor progress into national indicators for each country, taking into account specific circumstances.

The 5 targets for the EU in 2020

1. Employment

- 75% of the 20-64 year-olds to be employed

2. R&D / innovation

- 3% of the EU's GDP (public and private combined) to be invested in R&D/innovation

3. Climate change / energy

- greenhouse gas emissions 20% (or even 30%, if the conditions are right) lower than 1990
- 20% of energy from renewables
- 20% increase in energy efficiency

4. Education

- Reducing school drop-out rates below 10%
- at least 40% of 30-34-year-olds completing third level education

5. Poverty / social exclusion

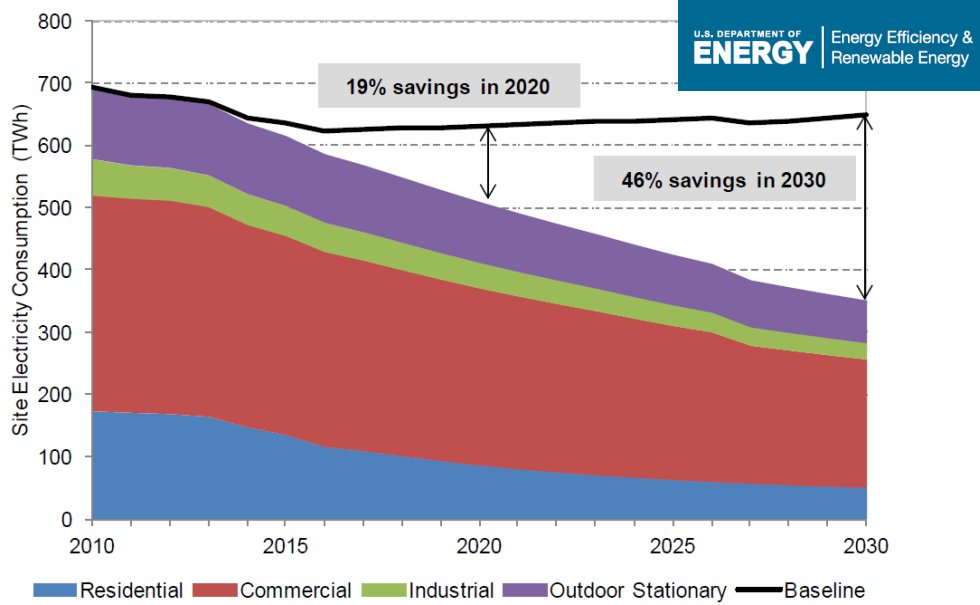
- at least 20 million fewer people in or at risk of poverty and social exclusion

Useful download

- [Europe 2020 Targets \(table\)](#) [307 KB]
- [Energy Transport and Environment indicators](#)
- [EU 27 employment & unemployment levels](#)
- [Income and living conditions in the EU](#)

Energy Savings Potential of Solid-State Lighting in General Illumination Applications

January 2012



Forecasted U.S. Lighting Energy Consumption and Savings, 2010 to 2030

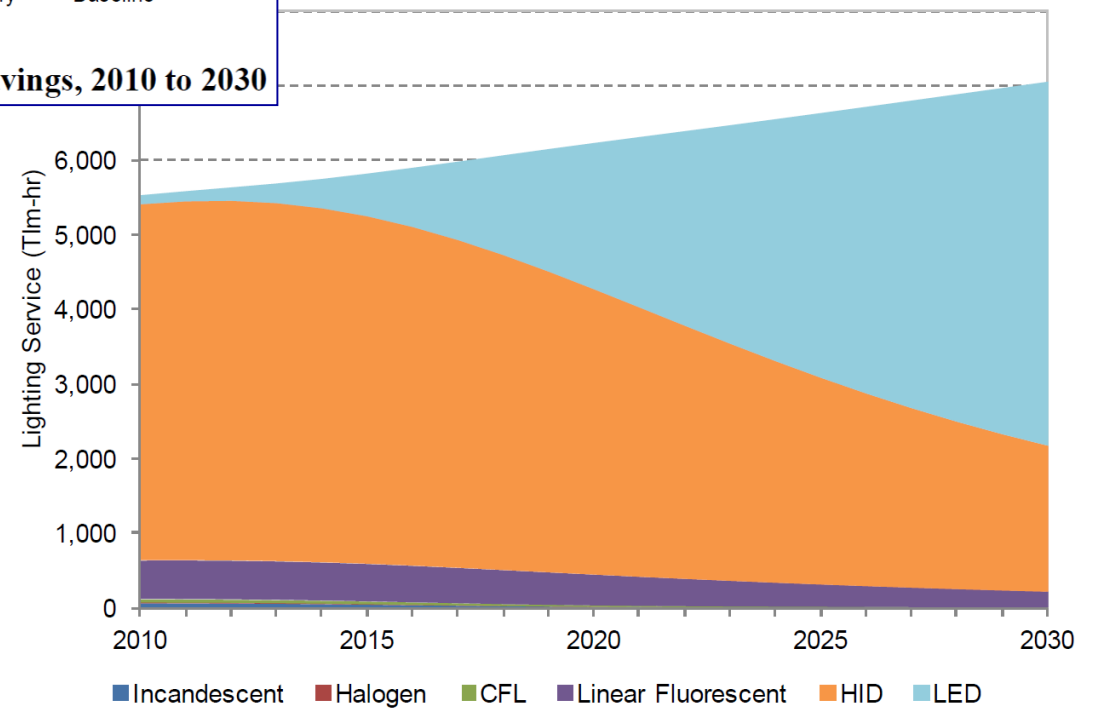


Figure 7.17 Outdoor Stationary Lighting Service Forecast, 2010 to 2030



[Home](#) » [Market-Based Programs](#) » DOE Municipal Solid-State Street Lighting Consortium

DOE MUNICIPAL SOLID-STATE STREET LIGHTING CONSORTIUM

[Home](#)[About the Solid-State Lighting Program](#)[R&D Program](#)[Market-Based Programs](#)[LED Lighting Facts](#)[CALiPER Testing](#)[Standards Development](#)[Technical Information Network](#)[Gateway Demonstrations](#)[Municipal Consortium](#)[About the Consortium](#)[FAQs](#)[Members](#)[News & Events](#)[Financing Guidance](#)[Resources](#)[Design Competitions](#)

The DOE Municipal Solid-State Street Lighting Consortium shares technical information and experiences related to LED street and area lighting demonstrations and serves as an objective resource for evaluating new products on the market intended for those applications. Cities, power providers, and others who invest in street and area lighting are invited to join the Consortium and share their experiences. The goal is to build a repository of valuable field experience and data that will significantly accelerate the learning curve for buying and implementing high-quality, energy-efficient LED lighting. Consortium members are part of an international knowledge base and peer group, receive updates on Consortium tools and resources, receive the Consortium E-Newsletter, and help steer the work of the Consortium by participating on a committee. [Learn more](#) about the Consortium.



Public Street and Area Lighting Inventory Phase 1: Survey Results

Municipal Solid-State Street
Lighting Consortium

Prepared for the U.S. Department of Energy

September 2014

תפקיד של תאורה בתוכנית עולמית לחיסכון באנרגיה

SIL STRIKING POINT: Solid-state lighting is contributing to US carbon emission reduction

Published on: February 15, 2016

By Prajit Ghosh

Research Director, Americas Power and Renewables Research, Wood Mackenzie

Strategies in Light speaker PRAJIT GHOSH discusses the US carbon-emission reduction goals of the recently proposed Clean Power Plan (CPP) and how efficient LED lighting is already contributing to meeting those goals.



תפקיד של תאורה בתוכנית עולמית לחיסכון באנרגיה

Strategies in Light.



Solid-state lighting (SSL) can help alter the course of an industry. On the surface, it seems like a sound bite — perhaps too grandiose. But the fact is the revolution happening in the lighting industry has already done this to some degree. The question going forward really is: Will the industry be able to meet its technical and commercial

challenges to achieve larger goals that the power industry faces — in terms of rapidly transitioning to lower carbon generation to achieve aggressive carbon reduction goals and combat even larger issues like global climate change?

Let's break this down a bit. Over 190 countries recently met in Paris and agreed on a climate action plan with each country producing national plans. The top two producers of carbon emissions are the US and China by a significant margin. In preparation for the global summit, the US in August 2015 unveiled the Clean Power Plan (CPP), the first national carbon regulation in the US. The plan aims to reduce carbon emissions from the power sector to 32% below 2005 levels by 2030. It covers 47 states and excludes Alaska, Hawaii, and Vermont, all currently exempt since they are either isolated systems or have no fossil plants that qualify to be regulated under the CPP.

Now these targets are onerous, but US is well on its way to achieve them. While CO₂ reduction goals are mandated relative to 2005 levels, emissions were already 15% below 2005 levels at the end of 2014. We estimate 2015 emissions were 18% below 2005 levels. So how did the US achieve this reduction?

That is where the lighting revolution meets climate change. Roughly 40% of this reduction came from a reduction in energy consumed from lighting. While you can attribute a lot of this to the housing crisis and commercial real-estate market downturn post-recession, gains in market saturation of efficient lighting (CFLs, LEDs) was a good chunk of this. While technology and cost trends were factors, favorable policy mandates like lighting standards helped immensely.

LED STREET LIGHTS WORLDWIDE LED REVOLUTION

- **19 million LED** streetlights installed worldwide in **2013** (IHS Technology)

- By **2020** LEDs are expected to account for **100 million** of the installed

(<http://www.forbes.com/sites/uciliawang/2014/09/10/bright-lights-big-profits/>)

2013

2020

Los Angeles (3,928,864)



- In January 2015, the City of Los Angeles Bureau of Street Lighting reported **157,000 units of LED lights**, with energy savings of **63.1%** and annual savings of **US\$8.3 million**.
- Los Angeles becomes **first city in the world** to **SMART CONTROL** its street lighting through mobile and cloud-based technologies

BEFORE

אלכס גולדין, מהנדס תאורה MSc
גולדין לייט-שרותי הנדסת תאורה

AFTER

London (8,538,689)

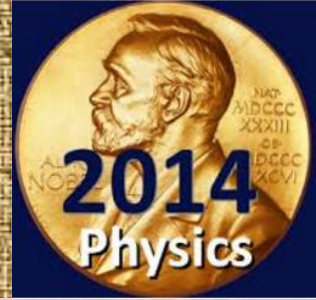


- London announced the largest street modernization project with plans to **replace 350,000** of the 520,000 city streetlights **with LED** lights **by 2016** (The first phase) (<http://www.ledjournal.com>)

Buenos Aires (2,890,151)

- In Buenos Aires **replaced 125,000** existing street lights with new LED luminaires.
- The energy savings of **over 50%**.
- Buenos Aires new lighting can be monitored and controlled from a browser (connected LED lighting)

Japan (126,919,659)



- Japanese market become the **first country** to achieve LED market **penetration rate of 50%**.
- Japan's LED lighting market grew **2.7 times in 2010** to US \$110 million compared to **2009**.
- **By 2020**, Japan's LED lighting market penetration is expected to reach **70%**, and estimated to cut the nation's total energy consumption by 7%, equivalent to reducing energy bills by approximately US \$8.4 billion

India (1,276,267,000)

- The country's Street Light National Program (SLNP) is targeting the overhaul of **35 million streetlights** nationwide with LED
- The Indian government started to promote carbon reduction policies in October 2014, and is promoting replacing the nation's **750 million incandescent bulbs** with LEDs.

Malaysia (30,825,000)

- The Malaysian government estimates by **2020 streetlights nationwide** will be switched to LED.
- The state government is offering **5 to 10 year tax free incentive** to Chinese manufacturers establishing factories in the state

1.6m lamp order is biggest LED retrofit in history



The massive LED order will cover the company's headquarters at Chase Tower, Chicago and a projected 25 million square feet of retail banking space.

The biggest single LED order in history will see some 1.6 million lamps installed across 5,000 branches of the Chase bank.

אלכס גולדין, מהנדס תאורה MSc
גולדין לייט-שרותי הנדסת תאורה

השימוש בנורות לזד
אינו
איינו כרוך בסכנת
לבריאות האדם

11.03.2015

מדינת ישראל
משרד הבריאות
Ministry of Health Israel



טכנולוגיה - לד



תאורת חוץ – לד vs נל"ג



Color rendering of LEDs as compared to HPS

תאורת חוץ – לד vs מ"ה



**400W Metal Halide (458W)
(3000K, 65 CRI)**



**209W LED
(4000K, 70 CRI)**



כפר סבא, שכונה ירוקה



חיפה, שדרות הנדיב



**Media company
Atlanta, Georgia**



Before

210W per fixture

53W per fixture

After



לד וספורט





הועדה הישראלית להנדסת המאור - CIE ישראל





LEDs: Come along way quickly!

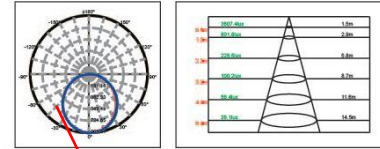


WILD AND CRAZY!

כל זה לד!!!



PL31-1436



Features:

Operating temperatures: -15°C ~ +45°C

Standard series 25000H

Economic series 15000H

Guarantee: 2 years

PF: > 0.9

Code No.	Watt(W)	Driver model	Ra	LED type	LED QTY	Lumen(lm)	Dimension(mm)
PL31-1118	18	20W500I	>80	SMD 4014	108	1350	296x296x10.5
PL31-1228	28	30W1050I	>80	SMD 4014	162	2100	296x596x10.5
PL31-2236	36	36W1200I	>80	SMD 4014	180	2700	596x596x10.5
PL31-1436	36	36W1200I	>80	SMD 4014	180	2700	296x1196x10.5



1. דוח מבקר המדינה 2014

- ▶ בחודשים נובמבר 2013 עד מרץ 2014 עשה משרד מבקר המדינה ביקורת בנושא טיפול הרשויות המקומיות במערכות תאורת הרחובות בתחום שיפוטן, ובכלל זה תחזוקתן של המערכות.
- ▶ הביקורת נעשתה בשמונה רשויות מקומיות: עיריית אור עקיבא, בת ים, חדרה, טבריה, טמרה וקריית ים, המועצה המקומית כאבול והמועצה האזורית בוסתאן אלמרג'.

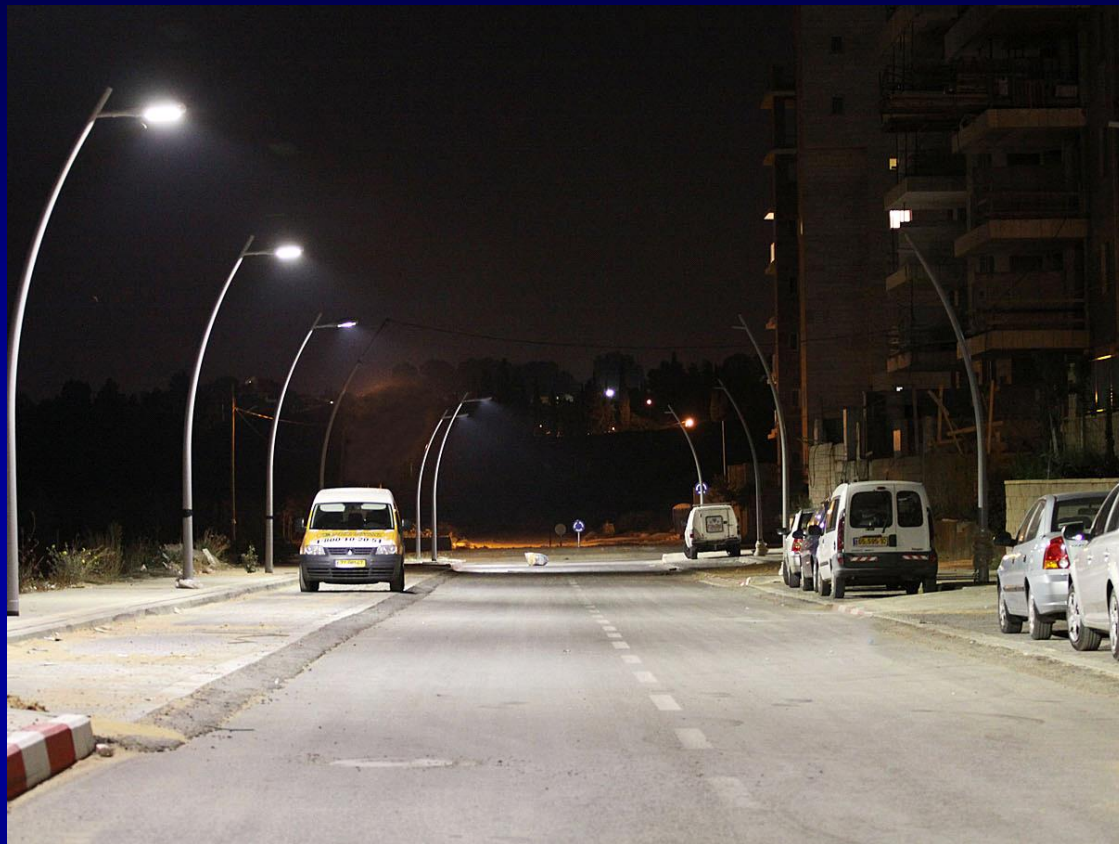
ממצאי דוח 2014 – ליקויים עיקריים

1. היעדר מיפוי של רשת תאורת הרחובות.
2. היעדר מוקד עירוני לדיווח על תקלות.
3. היעדר תכנית לביצוע סיורים יזומים לאיתור תקלות.
4. טיפול לקוי בתאורת הרחובות.
5. אי-תקינות המרכזיות המזינות את רשת תאורת הרחובות.
6. תחזוקה לקויה של רשתות התאורה ואי-התקנת תאורה.
7. הימצאות עמודי תאורה באמצע הכביש.
8. חיבורי חשמל שאינם חוקיים.
9. היעדר התייחסות למערכת התאורה כגורם לתאונות דרכים.

מסקנות והמלצות

1. תאורת רחובות תקינה מפחיתה באופן משמעותי את תאונות הדרכים.
2. תאורת הלד משפרת את פני העיר.
3. במקרים רבים אפשר להגיע לחסכון בכ- 50-70% מצריכת החשמל בשדרוג לתאורת לד במאור רחובות.
4. הממשלה מעודדת חסכון באנרגיה ונותנת מענקים שונים להתייעלות אנרגטית בשלטון המקומי .

- אין גוף ממשלתי שמרכז נושא חיסכון באנרגיה בתאורה.
- אין מערך דיווחים לאחר ביצוע פרויקט:
רמת חיסכון, תקינות רמות הארה, אמינות של גופי תאורה,
חיסכון בהוצאות לתחזוקה!



תודה רבה !

הועדה הישראלית להנדסת המאור - CIE ישראל