



“The LED Lighting Revolution”

- A breakthrough innovation contributing to a low carbon future -

Harry Verhaar

Head of Global Public & Government Affairs, Philips Lighting

Development Group, Brussels, 4 May, 2016

Breakthrough innovation in energy technologies

- The bigger picture
- Philips Lighting: our journey
- The Energy Efficiency domain
- Speeding-up breakthrough energy innovation

The bigger picture: The World in 2005/6

- Biographies
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Govindasamy Bala

Modeling of long-term fossil fuel consumption shows 14.5-degree hike in Earth's temperature

LIVERMORE, Calif. — If humans continue to use fossil fuels in a business-as-usual manner for centuries, the polar ice caps will be depleted, ocean sea levels will rise by seven meters and mean temperatures will soar to 14.5 degrees warmer than current day.



These are the stunning results of a new climate and carbon cycle model conducted by scientists at the Lawrence Livermore National Laboratory. The model coupled climate and carbon cycle models to look at global climate and carbon cycle changes, the scientists found. The model showed that if humans continue to use fossil fuels at the current rate, the entire planet's average temperature would warm by 14.5 degrees Fahrenheit (8.1 degrees Celsius) by the year 2300.

The jump in temperature would have alarming consequences for the polar ice caps and the ocean, said Govindasamy Bala of the Energy and Environment Division.

In the polar regions alone, the model predicts a temperature spike more than 20 degrees Celsius.

Animation: Michael Wickett

ARCTIC SEA ICE EXTENT - SEPTEMBER TREND, 1978-2005

Extent (million sq km)



Years

SOURCE: National Ice Data Center

♦ The straight line tracks a decline of more than 8% per decade.

BBC NEWS

UK version International version About the versions | Low graphics

Last Updated: Monday, 30 January 2006, 11:00 GMT

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Stark warning over climate change

By Richard Black
Environment Correspondent, BBC News website

Rising concentrations of greenhouse gases may have more serious impacts than previously believed, a major scientific report has said.



The Heritage Foundation

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The Heritage Foundation > Research > Energy and Environment > Energy Shortages

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RESEARCH energy and environment

Energy Shortages In Energy-Rich America: Why?

by The Honorable Denise A. Bode
Heritage Lecture #692

CNN.com

U.S. > story page

Future energy shortages predicted

Study faults U.S. power preparedness

July 26, 1999
Web posted at: 7:34 p.m. EDT (1934 GMT)

In this story:

What

RELATED STORIES, SITES



Extreme heat may lead to power loss in some portions of the nation, as demand exceeds supply.

VIDEO

CNN's Bill Delaney looks at how the heat wave may affect the country's power supply.

Scientists fear global warming higher than expected

In Short:

New scientific modelling suggests the earth's average temperature could rise by 7.8°C by 2300 if fossil fuel consumption remains unchanged, with polar ice caps melting and seas rising by seven meters.

Brief News:

New climate modelling by researchers at the Lawrence Livermore National Laboratory in California suggest the magnitude of global warming could be much higher than expected, with dire consequences for the economy.

Study Shows Escalating Climate Change Impacts on Human Health, the Environment, and the Economy

NEW YORK-November 1, 2005-The Center for Health and the Global Environment at Harvard Medical School, along with co-sponsors Swiss Re and the United Nations Development Programme, today released a study showing that climate change will significantly affect the health of humans and ecosystems and these impacts will have economic consequences.

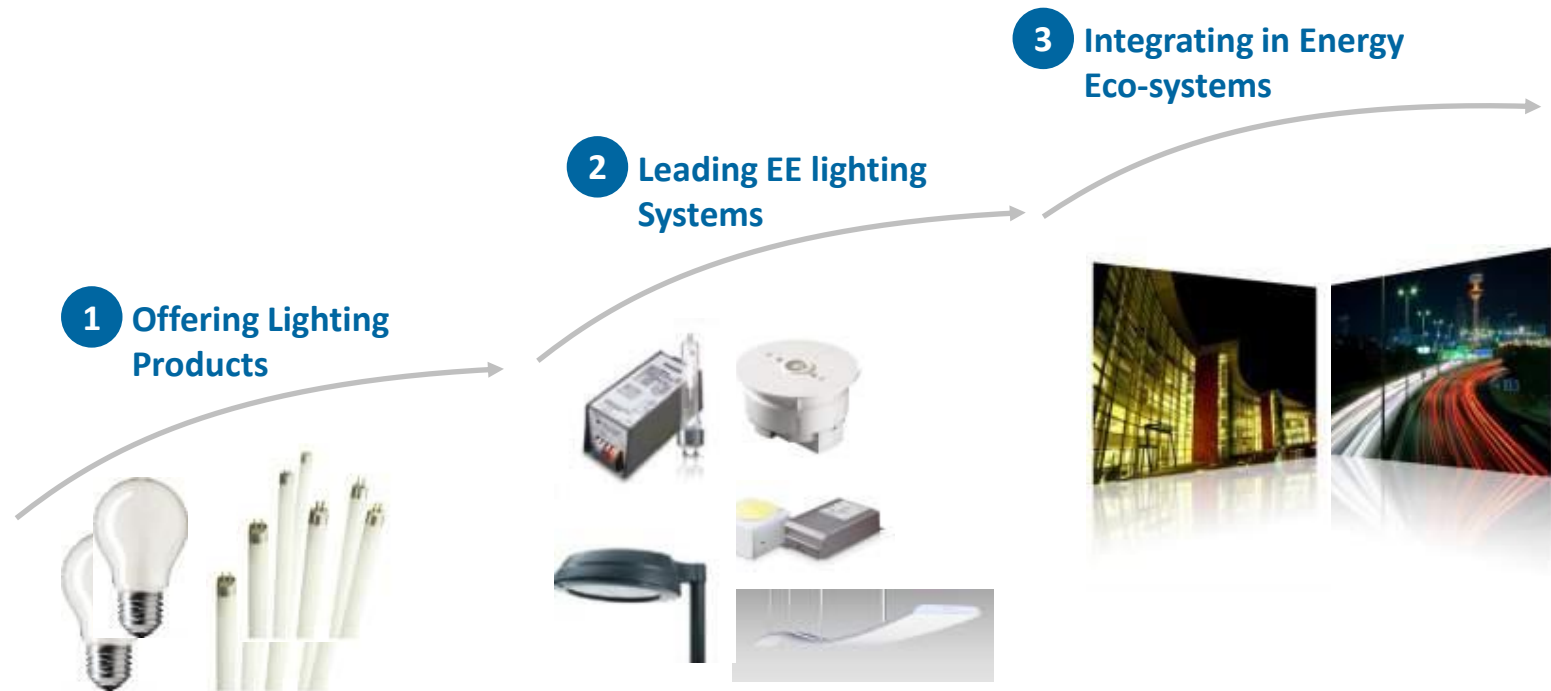
The bigger picture: a Paradigm Shift

- Lowest 1st cost
 - Behaviour
 - Processes
 - Judgement
- Linear Society
 - Extraction
 - Consumption
 - Disposal / emission
- GDP

- 
- Lifecycle value
 - Economical
 - Ecological
 - Social
 - Circular Society
 - Resource efficiency
 - Energy; Materials
 - Water; Food
 - Quality of Life

Shaping the LED Lighting Revolution

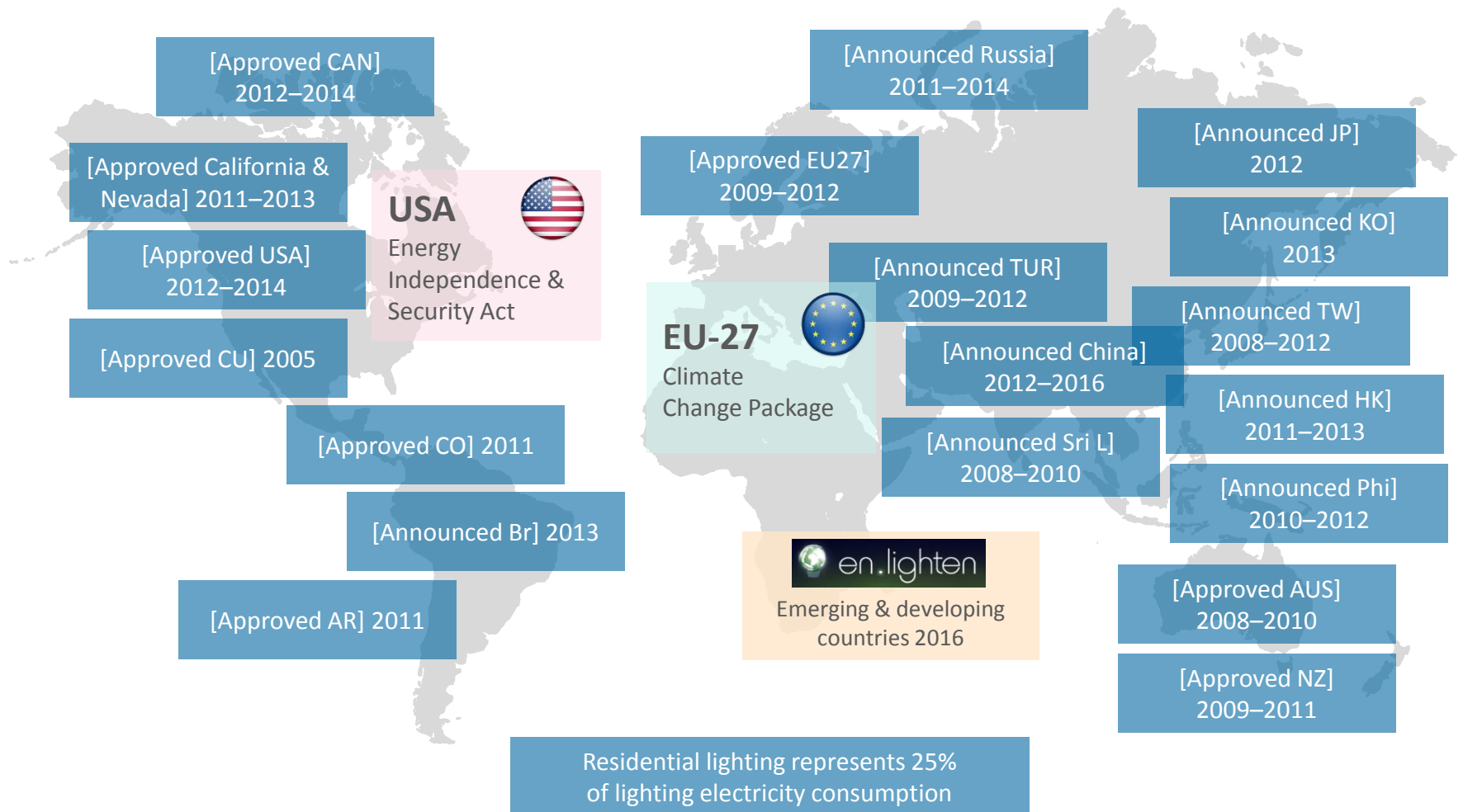
Lighting is evolving beyond offering products



- Analog / Lamps
- Stand-alone / 'Dumb'
- Products / Replacement sales

- Digital / LEDs
- Connected / 'Smart' - IoT
- Systems & Services / Circular / Projects

Global phase-out incandescent lamps



You are here: [Country Support](#) » [Country Lighting Assessments](#)

Country Lighting Assessments

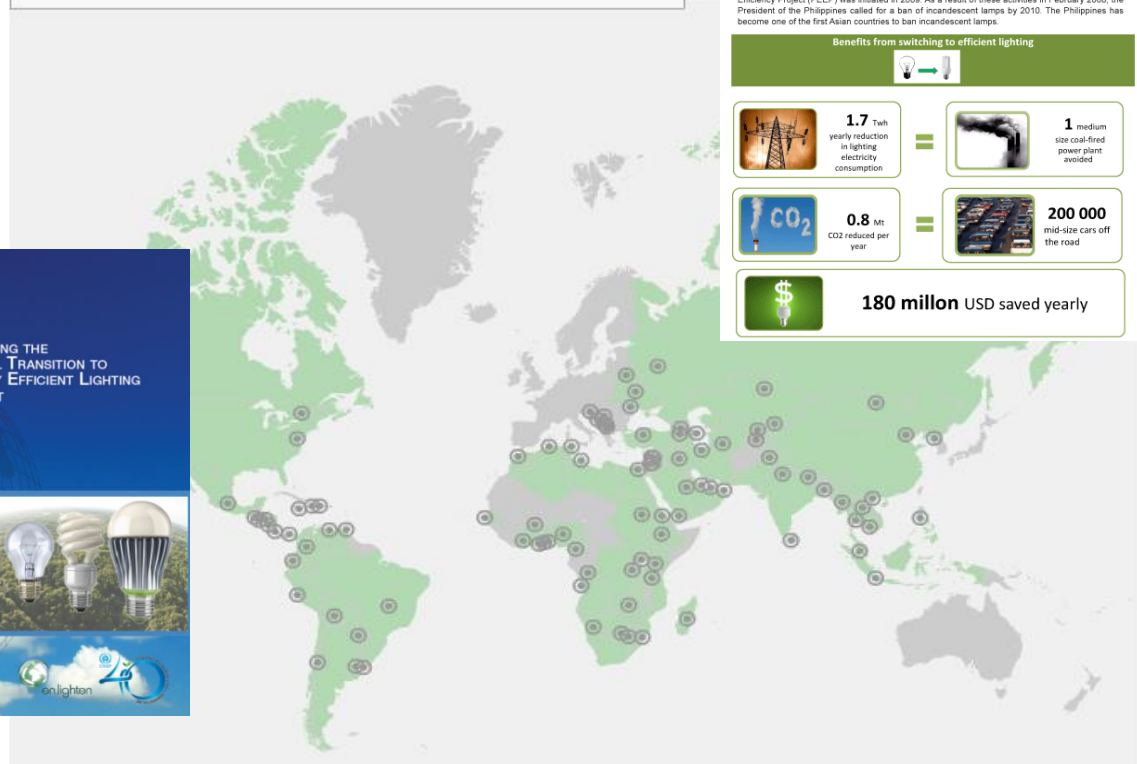
Global Partnership Program
Efficient Lighting Toolkit
Country Lighting Assessments
What are Country Lighting Assessments?
Energy Savings Benefits
Financial Benefits
Climate Change Mitigation Benefits
Conference Material
Regional Conference in Southeast Asia
Regional Conference in the Middle East and North Africa
Regional Conference in Latin America and the Caribbean



tool by ammap.com

Search by Country name:

All



PHILIPPINES



Total Electricity Consumption and CO2 Emissions from Fuel Combustion

49.2 TWh

71.8 Mt of CO₂

Efficient Lighting Policies in place

The Government of the Philippines with GEF support initiated in year 2005 the Philippine Efficient Lighting Market Transformation Project (PELMATP) to move towards efficient lighting by integrating various energy efficient lighting programs and practices into standards, labeling programs and promotional activities. Building on PELMATP achievements, the ADB-supported Philippine Energy Efficiency Project (PEEP) was initiated in 2009. As a result of these activities in February 2008, the President of the Philippines called for a ban of incandescent lamps by 2010. The Philippines has become one of the first Asian countries to ban incandescent lamps.

Benefits from switching to efficient lighting



1.7 Twh
yearly reduction
in lighting
electricity
consumption



1 medium
size coal-fired
power plant
avoided



0.8 Mt
CO₂ reduced per
year



200 000
mid-size cars off
the road



180 million USD saved yearly

Partnership with The Climate Group

Focus on Cities – Call for large scale LED adoption



**or as energy efficient*

[Home](#) » [LED street-lighting pilot program begins in Kolkata, India](#)

Kolkata, the Climate Group and HSBC have launched an outdoor LED lighting project that will cu

A photograph showing a worker on a tall ladder adjusting a large, dark, oval-shaped street light fixture. The worker is wearing a dark shirt and pants. The background is a clear blue sky with some light clouds.

Installing LED street lights

C40 global cities climate network

Enter Keywords

WHO WE ARE WHAT WE DO THE CLEAN REVOLUTION SUPPORT US 10 YEARS OF

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Infographic - Lighting the Clean Revolution: The rise of LEDs and what it means for cities

Before and after LED lighting
from City of Sydney on Flickr

veyed by the City said they found the
quarters said the LEDs improved

[Home](#) > [News](#) > [Technology](#) > [Efficiency](#)

By [BusinessGreen staff](#)
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03 Dec 2013

3 Comments



Around 35,000 of the capital's 52,000 street lights will be replaced by energy-efficient LEDs by 2016, while a new system will also be introduced to remotely manage and control lighting levels in line with traffic flows and road usage.

COP21: Philips Messaging

Global trends => Need to double the rate of EE improvement



Energy demand growing 2x fast (3% p.yr)
as rate of EE improvement (1.5% p.yr)

1. Energy efficiency and the need to **accelerate renovation** of existing infrastructure, primarily in developed counties
2. Energy efficiency and the need to **leapfrog** to the most efficient and clean tech solutions for emerging and developing countries
3. At Philips, we will become **carbon neutral** by 2020
4. At Philips, we will continue to strongly lead the **Global Lighting Sector Transition**

Philips to become carbon neutral by 2020

"Leadership by example"

– *Achim Steiner,
Executive Director
UNEP*

"This is great!"

– *Robert Orr, Under
Secretary General, UN -
Executive Office of the
Secretary General*

"Philips leadership offers the real possibility of extending sustainable energy to all. Efficiency is at the heart of a new pathway of low carbon growth that leaves no one behind - it's a solution for climate change and inequality."

– *Rachel Kyte, VP World Bank and designated CEO and Special representative to the UN SG on Sustainable Energy for All (SE4All)*

"What a great announcement!"

– *Mark Watts, Executive
Director, C40 Cities Climate
Leadership Group*

"Wow, that is fantastic and so consistent with Philips' reputation for leadership! Congratulations from all of us!"

– *Kathy Calvin, President & Chief
Executive Officer UN Foundation*

"This very timely and relevant commitment from Philips. It is not a surprise because of the company long experience in promoting energy efficiency and innovative low carbon technologies on the global market. Congratulations to Philips!"

– *Benoit Lebot, Executive Director, IPEEC
(Int'l Partnership Energy Efficiency
Coalition)*

"Great to see Philips continuing to lead"

– *Nigel Topping, CEO We Mean Business*

"Thank you very much for sharing this exciting news - and a very warm congratulations on this ambitious goal! Of course, Philips is a forerunner on the matter, and I really admire your efforts to push this forward. I will happily share this within my networks."

– *Jennifer Lenhart, IISD (the media reporting organization of all global UN events)*

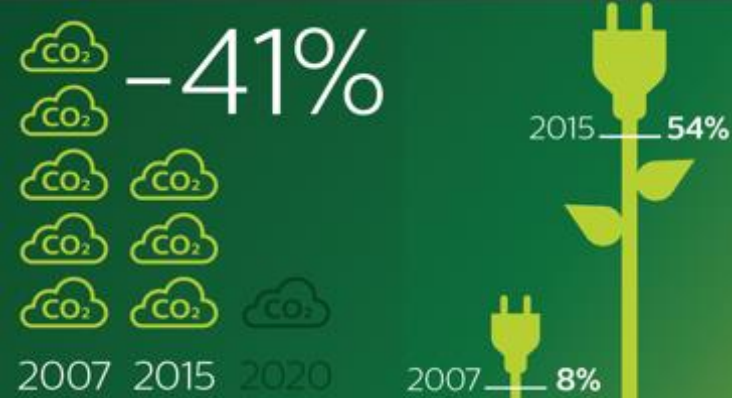
"This is indeed excellent news! It is a big step and a step that surely will inspire others to follow. We are very happy to have Philips with us in Climate Neutral Now!!"

– *Niclas Svenningsen, Manager
Strategy & Relationships, UNFCCC*

"Doubling the annual rate of energy efficiency improvement using available technologies would deliver half the emission reductions needed to meet the 2°C climate goal. Philips can play a major role in achieving this by tackling its corporate carbon footprint, and by strengthening its innovation across all markets"

– *Amory B Lovins, Chief Scientist & Co-Founder,
Rocky Mountains Institute*





2.5 planets

The world is currently consuming over 2.5 times the amount of resources than the Earth can sustainably support

Our Commitment

Carbon neutral by 2020

Our commitment

We are committed to carbon neutrality for our global operations by 2020, including combustion in operations, purchased electricity, logistics and business travel

Drivers of becoming carbon neutral by 2020

- Drive down carbon emissions in own operations, logistics, and business travel by becoming more energy efficient
- Purchase our energy from renewable sources and compensate remaining emissions via carbon credits

Our progress

- Since 2007 we reduced our carbon footprint by 41%
- We increased our use of renewable energy from 8% in 2007 to 54% in 2015
- We became member of the [RE100 program](#)

UN SE4All Partnership

Global Energy Efficiency Accelerator Platform

Launched @UN Climate Summit NYC

EE Accelerators

- Buildings
- Lighting & Appliances
- District Heating
- Transport

Partnership for global progress

- UN (UNF; UNEP; SE4All; UNFCCC)
- Sub-national governments



Achim Steiner (UNEP), Sarah Watson (FIA), Harry Verhaar (Philips), Ban Ki Moon (UN), Kandeh Yumkella (SE4All), Clay Nesler (JCI), Amanda Eichel (C40), Reid Detchon (UNF)



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FLAGSHIP PROGRAMMES

GLOBAL ENERGY EFFICIENCY ACCELERATOR PLATFORM

- UN Secretary-General Video Message
- Appliances and Equipment
- Building Efficiency
- District Energy
- Lighting
- Transport and Motor Vehicle Fuel Efficiency
- Industrial Energy Efficiency
- SE4ALL Energy Efficiency Committee Report
- Contact

COUNTRY LEVEL ACTIONS

HIGH IMPACT OPPORTUNITIES



Global Energy Efficiency Accelerator Platform

Sustainable Energy for All, an initiative led by the UN Secretary-General and the President of the World Bank, has as one of its three objectives for 2030 a doubling of the global rate of improvement in energy efficiency.

The Global Energy Efficiency Accelerator Platform was established to help reach this objective. It will do so by driving action and commitments by national and sub-national leaders at the country, city, state, region, or sector level.

A key deliverable will be Integrated Policy and Investment Roadmaps prepared with committed public and private partners. These Roadmaps will guide project implementation supported by a global network of experts, institutions and businesses.



[Download the Global Energy Efficiency Accelerator Platform Flyer and read more](#)

Energy Efficiency Accelerators

Stimulating Innovation = Stimulating Energy Efficiency

EE capabilities are a European strength

Lighting



Appliances & Equipment



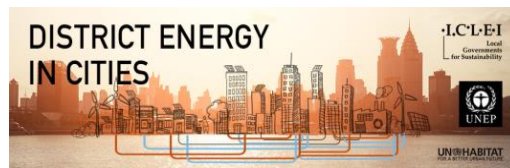
Vehicle Fuel Efficiency



Buildings



District Energy

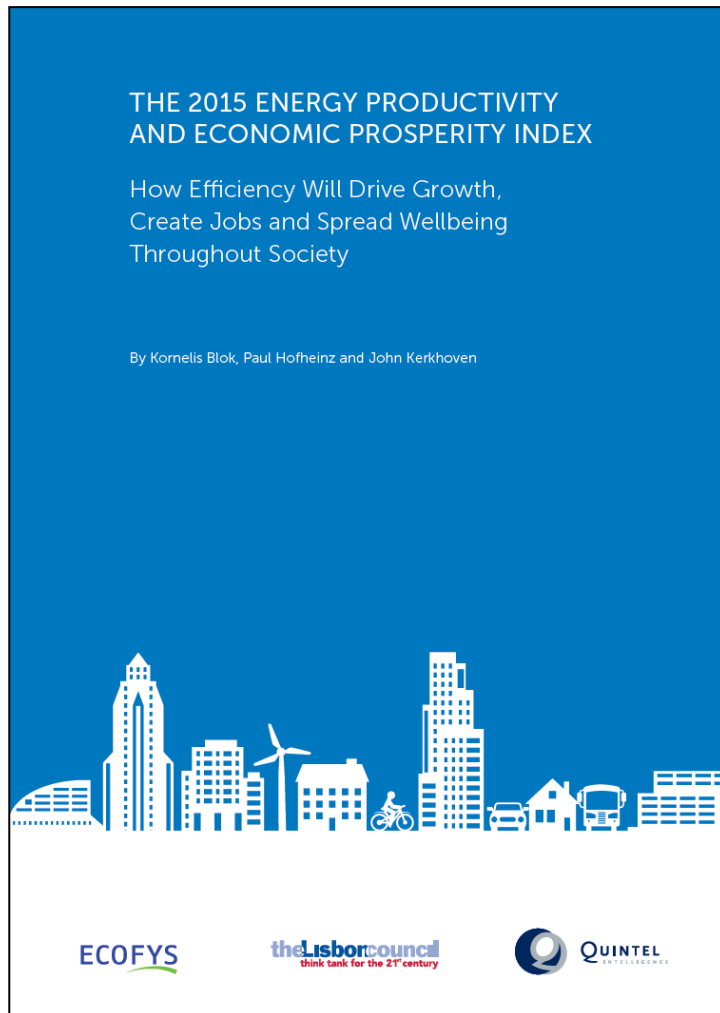


Industry



Speeding-up breakthrough energy innovation

Benefits of doubling the rate of EE improvement (from 1.5 to 3% p.yr)



EU Impact

1. Reduction of energy expenditure by one third
2. Improved security of energy supply
3. Job creation 1.2 million by 2020 (renovation; innovation)
4. Quality of life
5. Competitiveness / Trade

Speeding-up breakthrough energy innovation

Revision Energy Efficiency Directive

ART 1 Subject matter and scope

- Our key ask: Reduce opt-outs/flexibility clauses and adopt a streamlined legislation to improve enforcement at national level

ART. 2: Energy efficiency target

- Our key ask: Align the EE target with the Paris Agreement supporting an EU 40% EE target for 2030 in both primary and final energy consumption

ART. 6: Purchasing by public bodies of EE buildings, goods and services

- Our key ask: EED aligned with art. 67 PPD (i.e. life cycle cost approach) and extension to all public authorities to cover all public contracts

ART. 7: Energy Efficiency Obligation Schemes

- Our key asks: keep art 7!; remove sunset clauses;
- Doubling of EE improvement rate to $\geq 3\%$ p.yr (>2020)



EUROPEAN ALLIANCE TO
SAVE ENERGY
Creating an Energy-Efficient Europe

Speeding-up breakthrough energy innovation

Barriers and solutions

Ambition without Policies = Dreaming
Policies without Ambition = Sleepwalking

1. Technology innovation

- R&D investment at **3%**
- Stimulating development & uptake new (smart) technologies

2. Policy innovation

- Energy neutral infrastructure by 2050
 - **Accelerated renovation** (buildings 3% p.yr)
 - Net zero energy new built
- EE Ambition **>=40%** by 2030; leverage EED; EPBD; EuP

3. Financing innovation

- **Performance based** ('Green') procurement
- **Off-balance sheet** financing mechanisms (IFRS)

4. Communication / Partnership innovation

- Engaging **narrative** (mobilizing the 'eco-majority')
- Horizontal: **Sectoral** programs; Vertical: Public Private **Partnerships**

