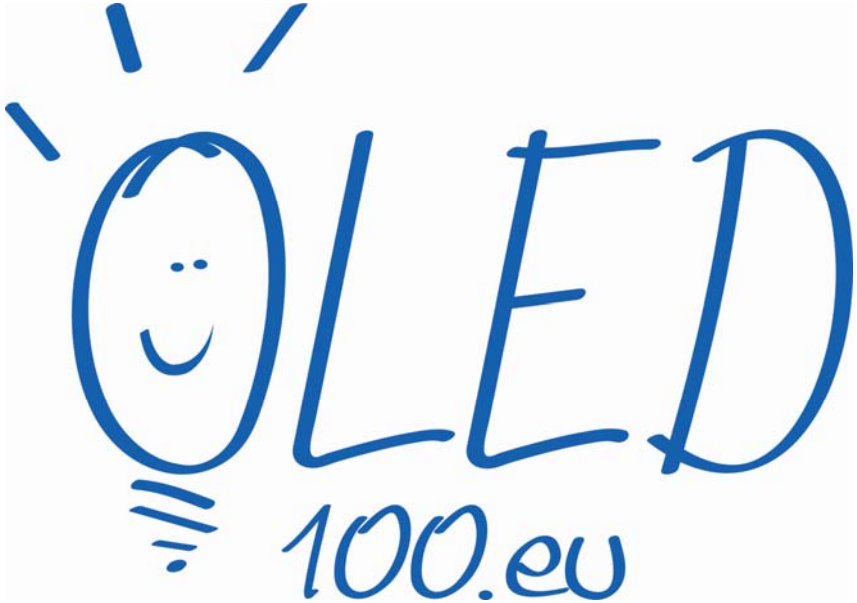

Organic LED Lighting in European Dimensions

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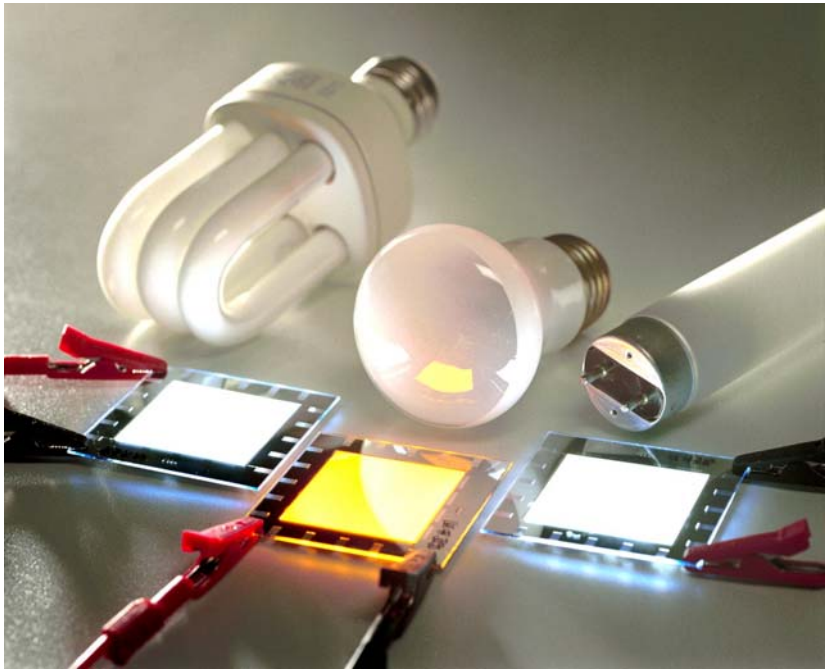
September 18&19 2008, Barcelona

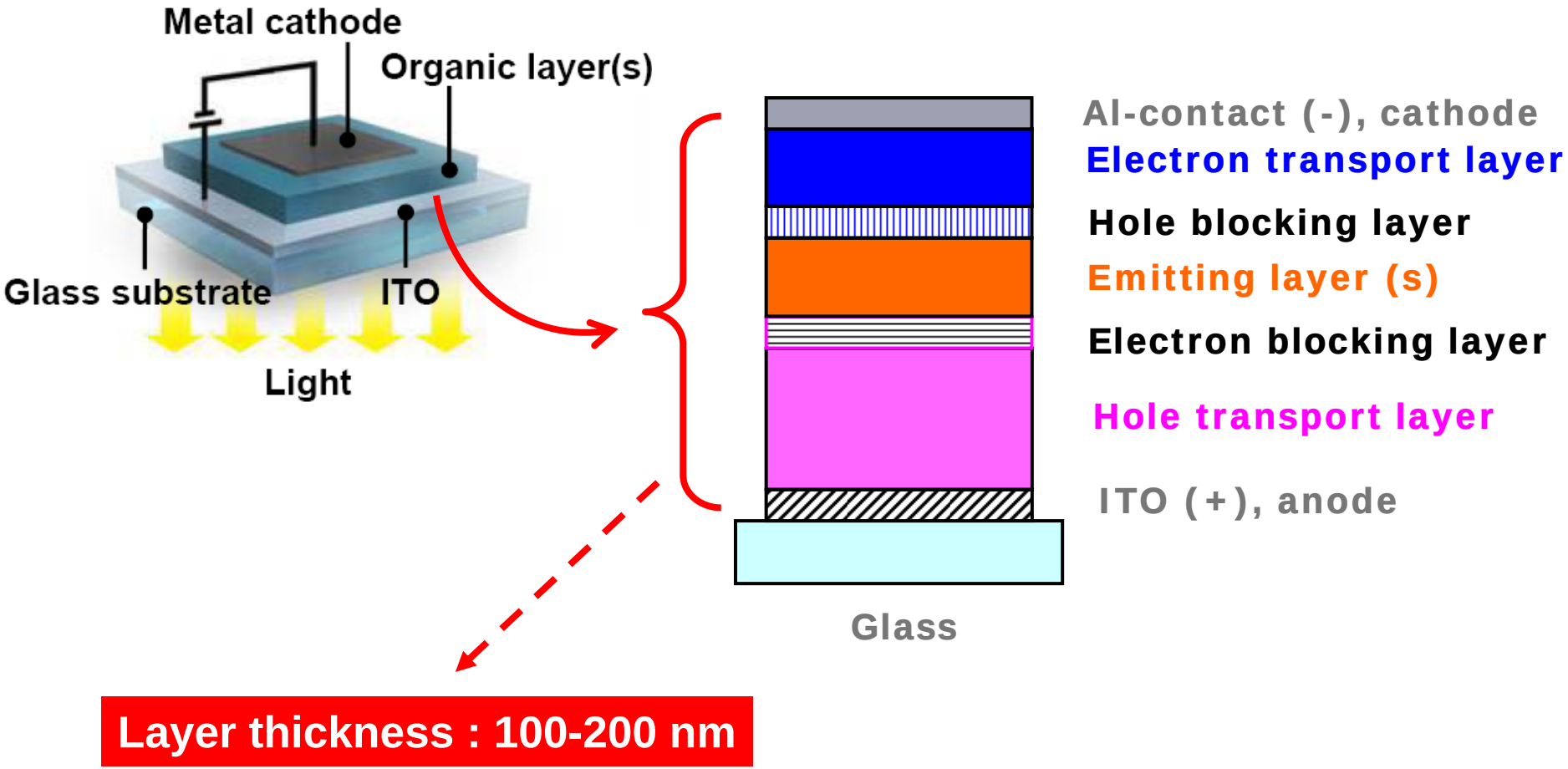
Grant Agreement No.
FP7-224122

Overall goal

Develop all the necessary technologies forming the basis for efficient Organic LED (OLED) applications for the general lighting industry in Europe

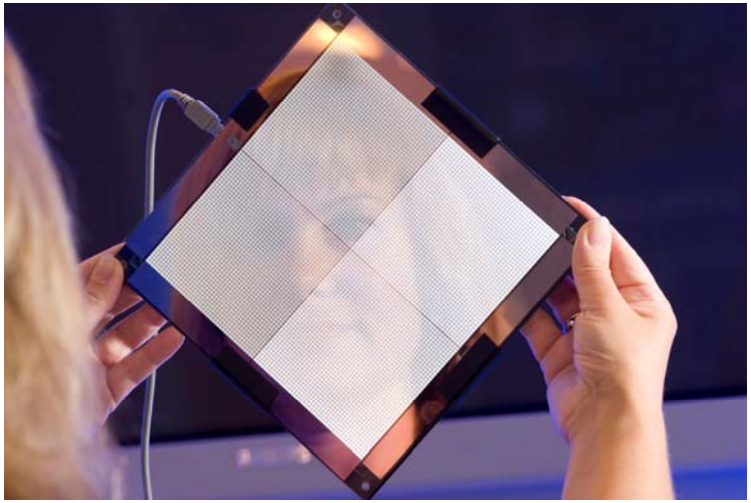


Device setup small molecule OLED



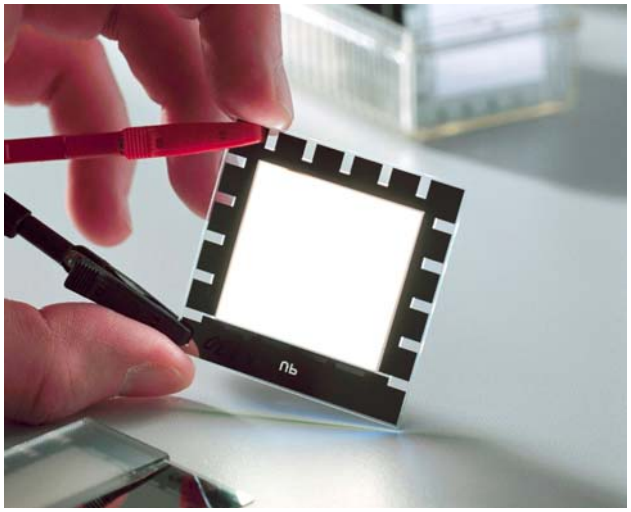

In homes and offices
20-50% of total energy
usage is due to lighting.

OLED properties



Large-area

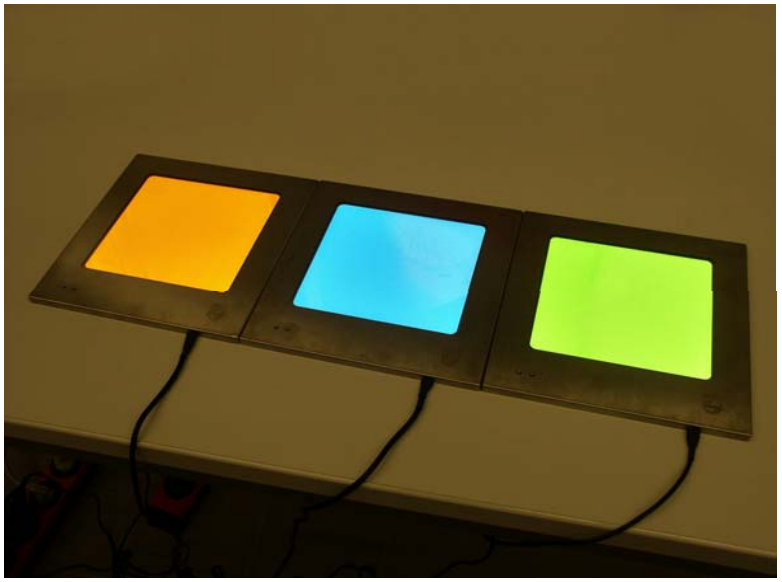
Thin



Efficient

(Transparent)

(Flexible)



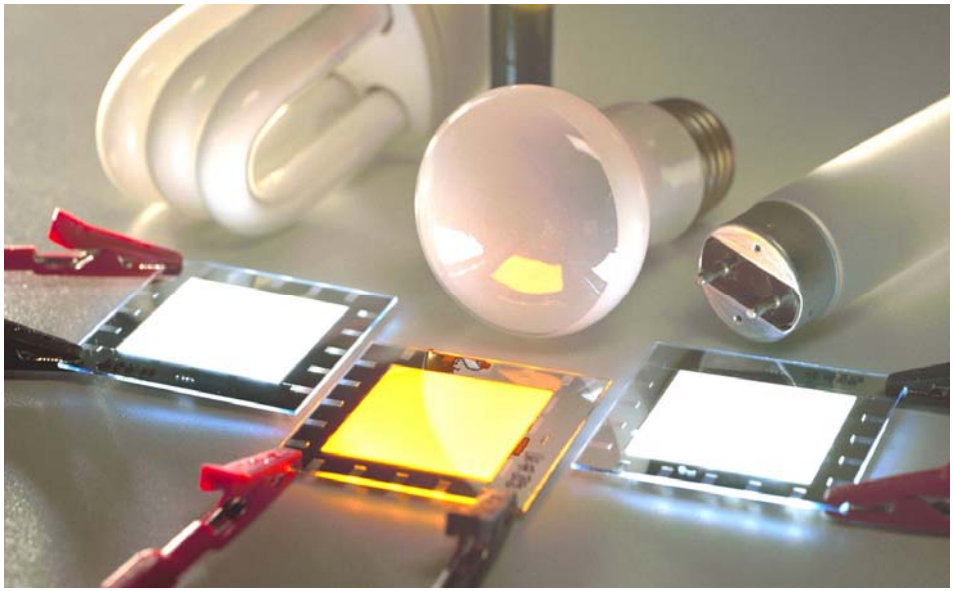
Colorful

Vision

- ...a thin, flat, large area light source
- ...a highly efficient light source
- ...an eco-friendly light source

Existing light sources

Technology	Power	Luminous Flux	Efficacy	Lifetime
Light Bulb	100 W	1.360 lm	14 lm/W	1.000 h
Halogen lamp, Standard	50 W	910 lm	18 lm/W	2.000 h
White LED	3 W	> 180 lm	> 70 lm/W	**70.000 h**
Fluorescent lamp	35 W	3.300 lm	**90 lm/W**	16.000 h
Compact fluorescent lamp	11 W	630 lm	57 lm/W	12.000 h



State-of-the-art in white OLED

Company/Institution	Year	Efficacy at 1.000 cd/m^2	Lifetime at 1.000 cd/m^2	Emitter type R, G, B
Novaled / Philips	2006	32 lm/W	20.000 h	P, P, F
Konica-Minolta	2006	64 lm/W	10.000 h	P, P, P
The OLLA-Project	2007	25 lm/W	5.000 h	P, P, F
Idemitsu Kosan	2007	17 lm/W at 10 mA/cm^2	30.000 h	F, F, F
Osram	2008	46 lm/W	5.000 h	P, P, F
Novaled	2008	35 lm/W	100.000 h	P, P, F
The OLLA-Project Philips / Novaled	2008	51 lm/W (80 lm/W)*	>10.000 h	P, P, F
UDC	2008	(102 lm/W)*	8.000 h	P, P, P

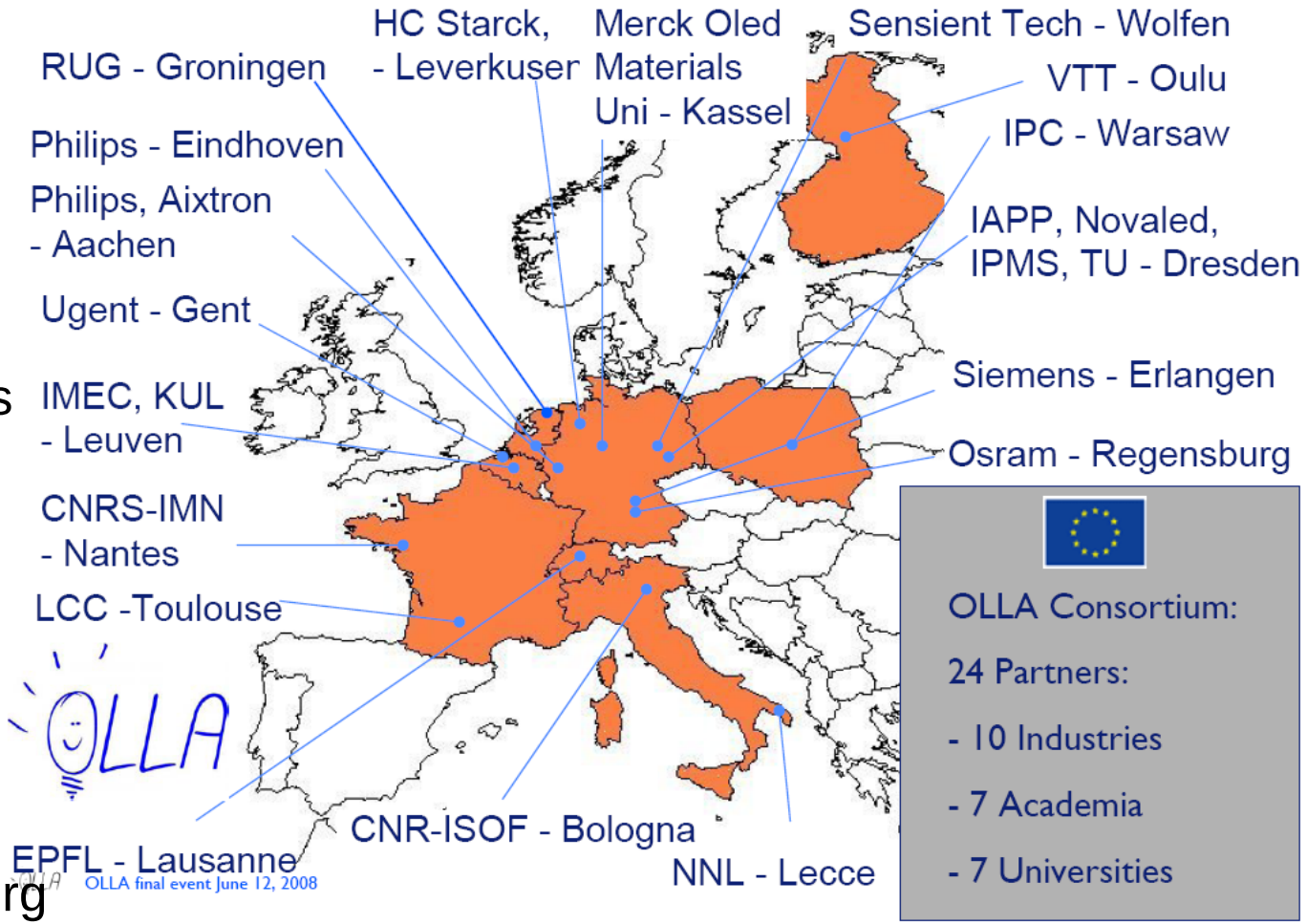
P: Phosphorescent
F: Fluorescent

*: Measured with macro-extractor

- 30-60 lm/W in combination with a decent lifetime

OLLA-project

High brightness Organic LEDs for Information and Communication Technology (ICT) & next generation Lighting Applications



- Ended June 2008
- www.olla-project.org

Sixth Framework Programme

OLED100.eu

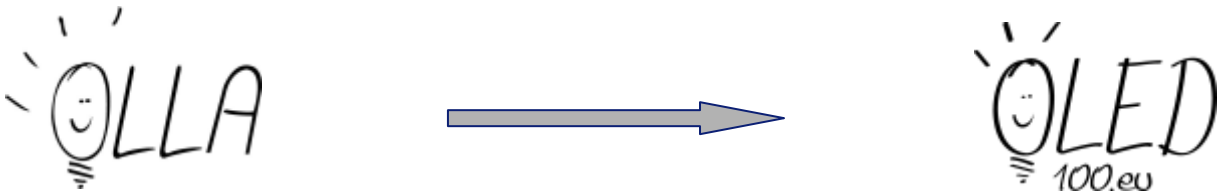
Organic LED Lighting in European Dimensions

	Efficacy (lm/W)	Lifetime (h)	Size (cm2)
High efficacy	**100**	10.000	15x15
Long lifetime	50	**100.000**	15x15
Large area	50	10.000	**100x100**

2007 - 2013 SEVENTH FRAMEWORK PROGRAMME

- Start: Sept. 2008
- Philips coordinator
- 14 partners
- 6 countries
- www.oled100.eu

From OLLA to OLED100.eu



- Materials
- SM devices
- Polymer devices
- Optics & ITO replacement
- Systems & Applications

- SM devices
- Optical outcoupling
- Large area
- Low cost
- Application research

2x higher luminous efficacy
10x longer operational lifetime
10x larger light-emitting area

➢ **OLED100.eu is a continuation of OLLA**

Partners:

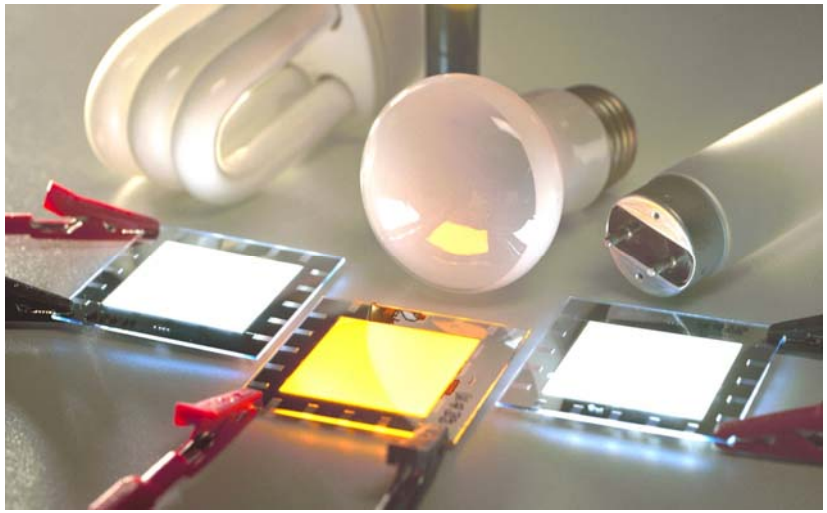
14 partners from 6 countries

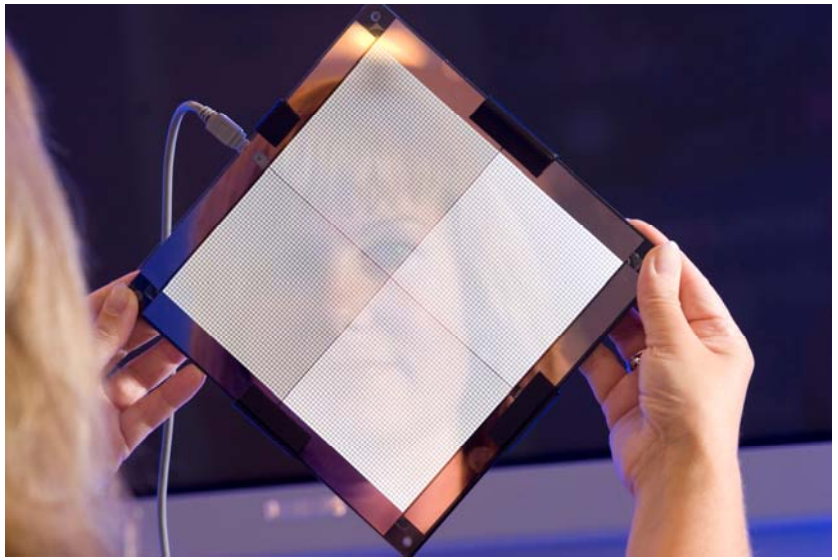
Conclusions

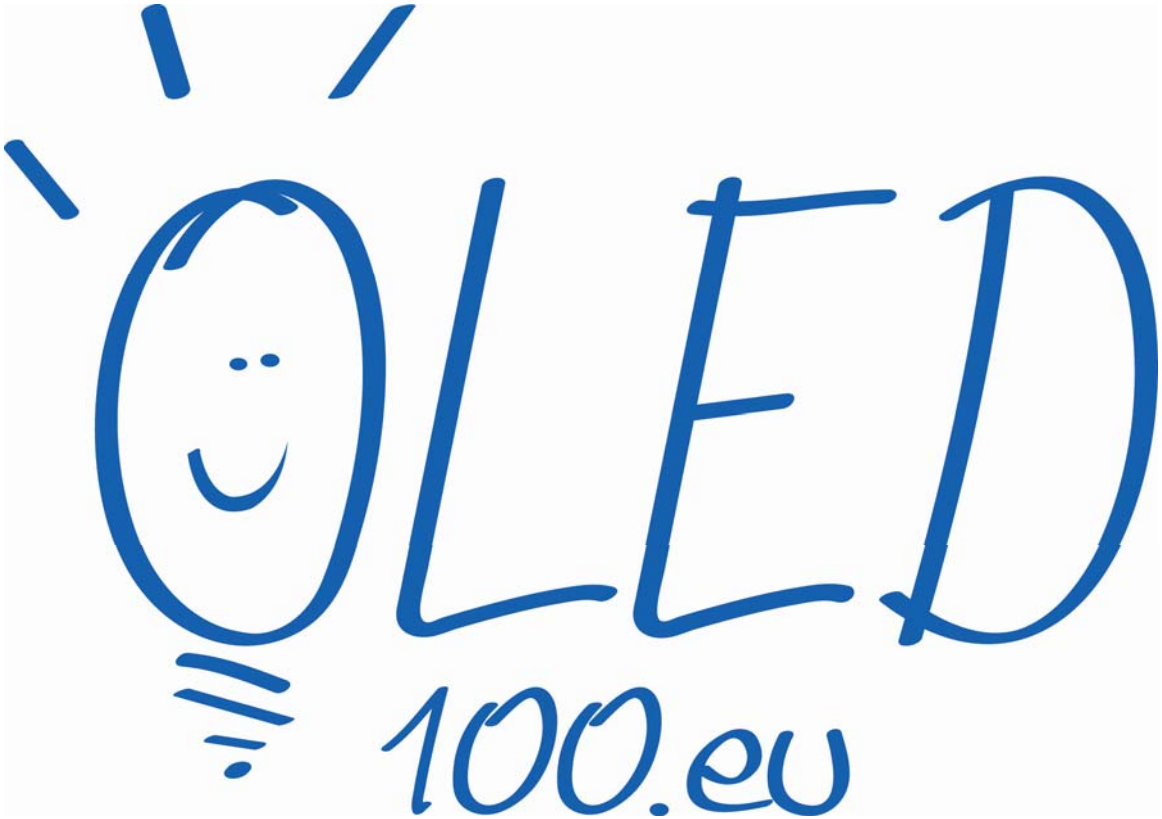
<u>OLED100.eu targets:</u>

OLEDs with

- High efficacy ~100 lm/W in white
- Long operational lifetime ~100.000 h
- Large area processing ~1m^2
- Low cost production (<100€/m^2)







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