

Obtrusive Light and The EuP Directive

8th European Symposium for Protection of the Night Sky

22-23 August 2008, Vienna

Martin Morgan-Taylor / Friedel Pas

Background to European Law

- The European Community (or Union) is a trade block
- Concerned with the single market
- Member States (MS) own law applies where there is no EUROPEAN LAW
- Most European Law is brought in by DIRECTIVES
- Directives may either lay down a **minimum** standard, **which a MS can exceed**. Or give **maximum measures which they cannot exceed**

Background to European Law

- Europe is concerned by energy use and import dependency
- Aiming for a 20% cut in energy use by 2020
- (c. 780 MT of CO₂)
- This will secure energy supply and reduce import dependency -
 - European Climate Change Programme
 - Commission Green paper, “A European Strategy for Sustainable, Competitive and Secure Energy”

The EuP Directive

- A direct response to cut energy use to protect energy supplies
- Also to cut energy waste (“standby” buttons)
- It is an environmental measure to aid the single market, not an environmental protection measure per se
- Is supposed to apply to **all** energy using products
- Needs implementing measures

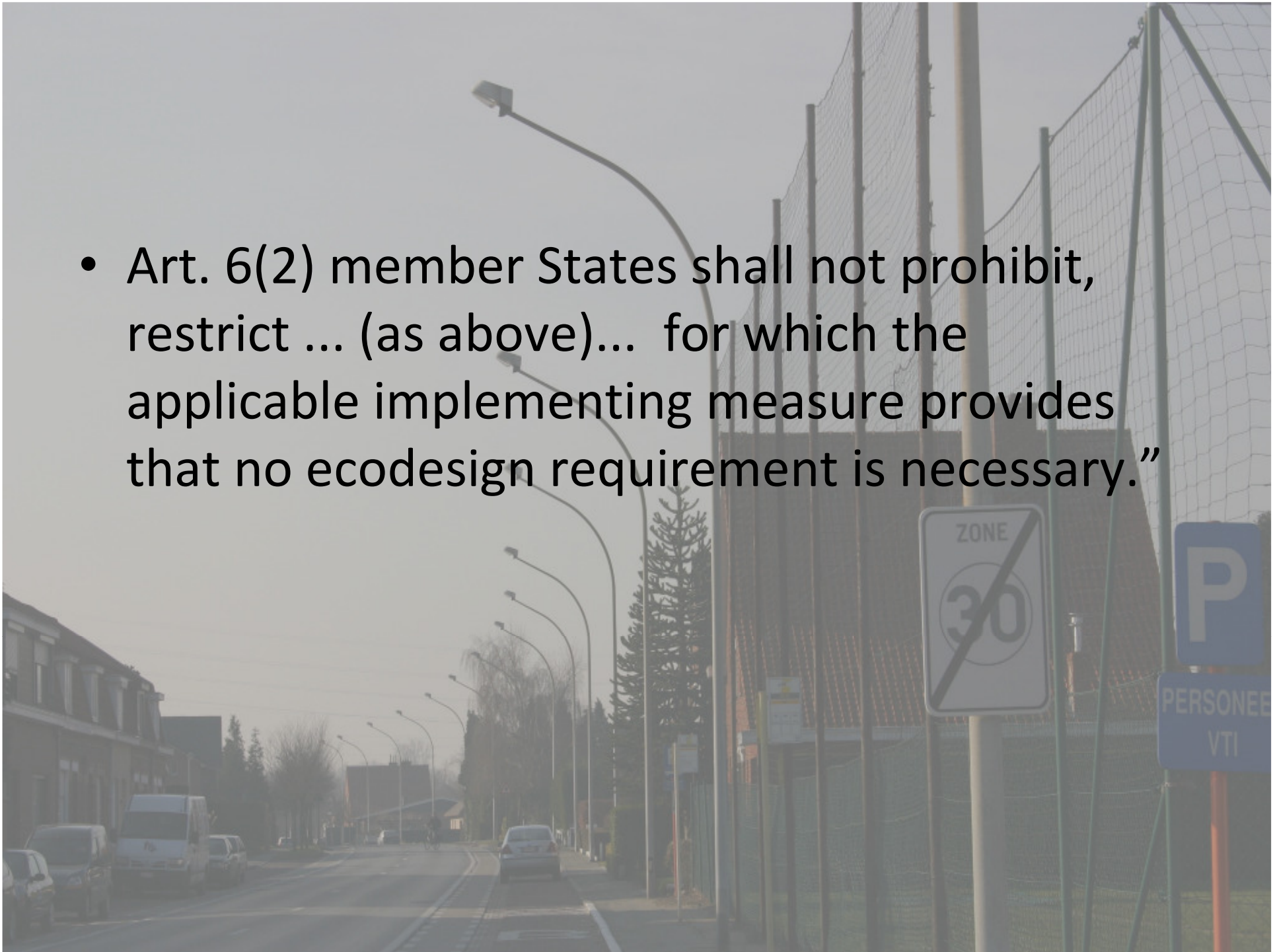
The EuP Directive

- So the EuP Directive should be ideal for dealing with lighting?
- There is a core concept in Europe, the free movement of goods.
- MS cannot discriminate against foreign products to protect home goods. Art. 28
- However, there are defences. Art. 30 and the “Rule of Reason” from Cassis and related case law, can use the environment

However...

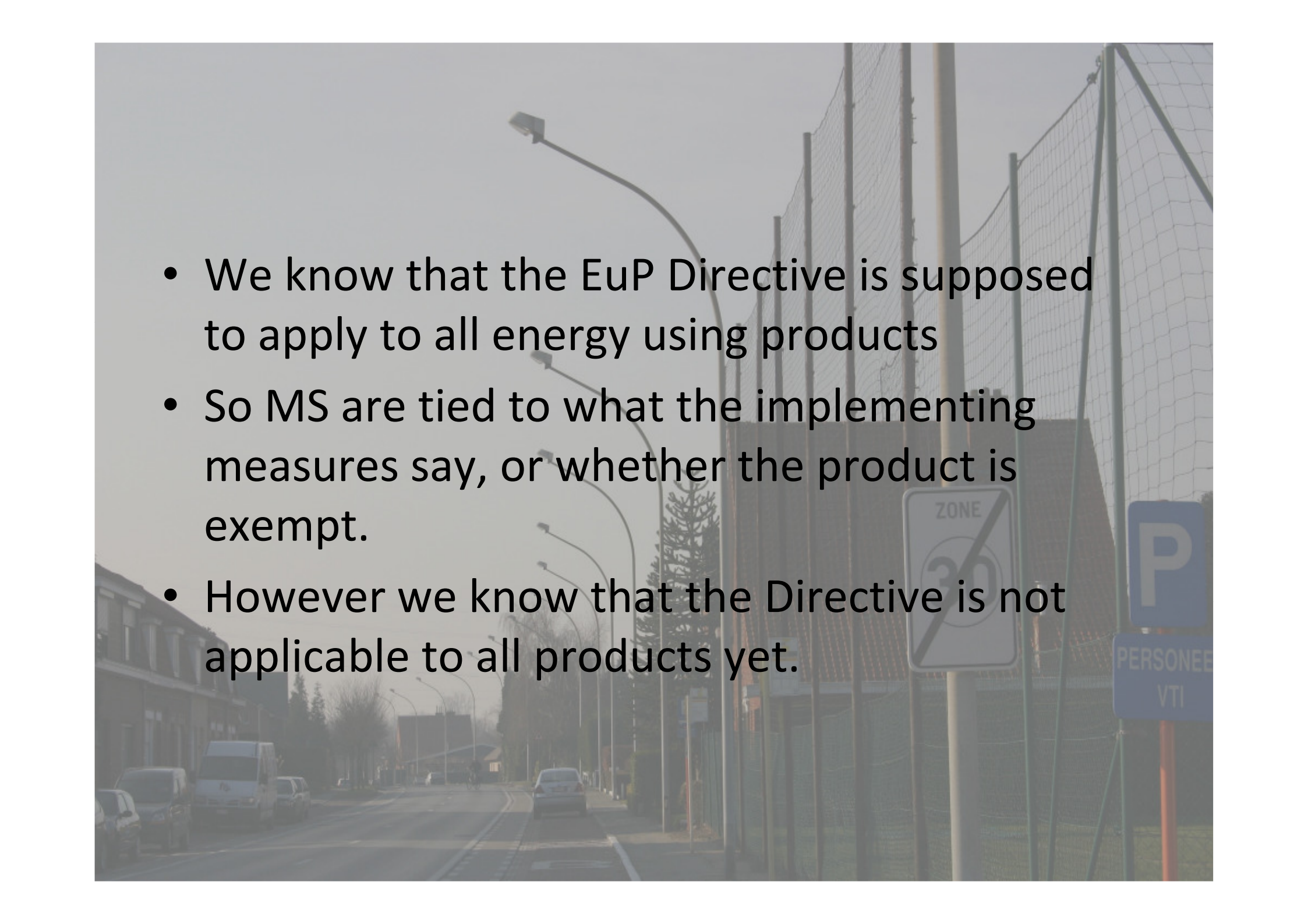
- EuP Article 6 FREE MOVEMENT
- (1) states that “Member States shall not prohibit, restrict or impede the placing on the market and/or putting into service, within their territories, on grounds of ecodesign requirements relating to those ecodesign referred to in Annex 1, Part 1 which are covered by the applicable implementing measure, of an EuP that complies with all the relevant provisions of the applicable implementing measure and bears the CE marking in accordance with Article 5.

- Art. 6(2) member States shall not prohibit, restrict ... (as above)... for which the applicable implementing measure provides that no ecodesign requirement is necessary.”



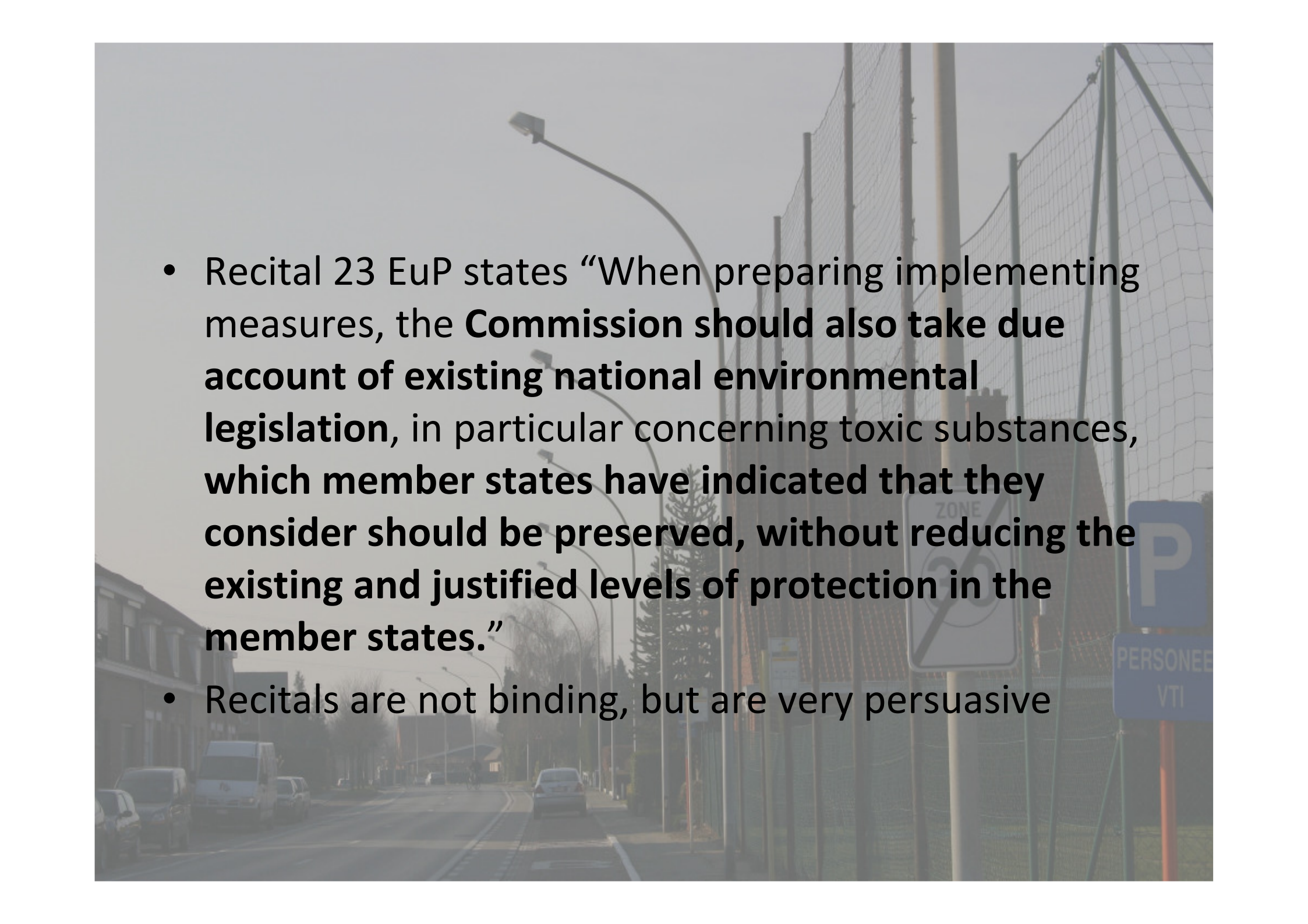
What Does This Mean?

- MS cannot use ecodesign justifications (under Annex 1 part 1) to block products IF there is an implementing measure under the EuP Directive, OR if the provisions say that that product is exempt
- HOWEVER Member States CAN use them for products which are not covered by implementing measures and are not exempt, or for criteria that are not mentioned in Annex 1 part 1

- 
- A street scene with a fence and traffic signs in the background. The image is slightly faded to allow text to be overlaid. In the foreground, there is a tall metal fence with a chain-link mesh. To the left of the fence, a street with several cars and a white van is visible. In the background, there are streetlights and buildings. On the right side of the fence, there are two traffic signs: a white rectangular sign with a black border, a diagonal slash, and the word 'ZONE' above a circular speed limit sign with the number '30', and a blue rectangular sign with a white 'P' and the text 'PERSONEE VTI' below it.
- We know that the EuP Directive is supposed to apply to all energy using products
 - So MS are tied to what the implementing measures say, or whether the product is exempt.
 - However we know that the Directive is not applicable to all products yet.

- So what does this mean for MS with anti-light pollution laws?



- 
- The background image shows a street scene with a tall chain-link fence in the foreground. Behind the fence, there are several streetlights and a road with cars. A blue parking sign with a white 'P' and a sign that says 'PERSONEE VTI' are visible on the right. The overall scene is somewhat hazy or overcast.
- Recital 23 EuP states “When preparing implementing measures, the **Commission should also take due account of existing national environmental legislation**, in particular concerning toxic substances, **which member states have indicated that they consider should be preserved, without reducing the existing and justified levels of protection in the member states.**”
 - Recitals are not binding, but are very persuasive

A Failsafe?

- Art. 95(4) of the Treaty (mentioned in Recital 9) permits a MS to apply to the Commission to keep a pre-existing law-
- “If, after the adoption by the Council or by the Commission of a harmonisation measure, a member State deems it necessary to **maintain** national provisions on grounds of major needs referred to in Article 30, or relating to the protection of the environment or the working environment, it shall notify the Commission of these provisions as well as the grounds for maintaining them
- **If** they are “justified without endangering the unity of the market”

New MS Anti-Light Pollution Laws?

- The Amsterdam Treaty added Article 95(5) to deal “with new scientific evidence relating to the **protection of the environment** or the working environment on grounds of a problem specific to that member State arising **after** adoption of the Community measure”
- This is a measure that is going to be accepted less often as new national legislation that goes against European rules is more likely to jeopardise harmonisation.

EuP study and implementation

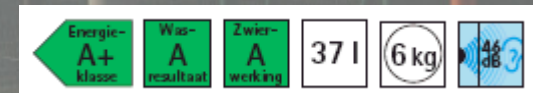


Directive 2005/32/EC

- Part of the European Climate Change Programme (ECCP)
- EuP = Energy using Products
- What: Increasing Ecological Performance of the complete life cycle.
- Purpose: Reduce greenhouse gasses, better use of the resources

What is EuP

- Energy-using Products
 - Directive for eco-design of EuP's
 - The environmental impact during manufacturing and lifetime.
 - As well energy aspect, as water consumption, production impact, used materials...
 - Best solutions selected in co-operation with stakeholders
 - Energy Labels for refrigerators,...



EuP4Light

- Street lighting (final text march 2007)
- Office Lighting (final text may 2007)
- Domestic Lighting is ongoing
- <http://www.eup4light.net>



Research team:

Paul Vantichelen, B.Jansen, T.Geerken, M.Vanden Bosch(Laborelec), V.Van Hoof, L.Vanhooydonk(Kreios),A.Vercalsteren.

IDA Europe Stakeholders:

Friedel Pas, Andreas Haenel (Germany), Dr. Jan Hollan (Czech Republic), Dr. Fabio Falchi (Italy)

Implementation

- Working document on a possible Commission Regulation implementing Directive 2005/32/EC with regard to Tertiary sector lighting products.
- Draft document August 2008
- Download at <http://darksky2008.preventielichthinder.be/documents/impeup.pdf>

Work Document

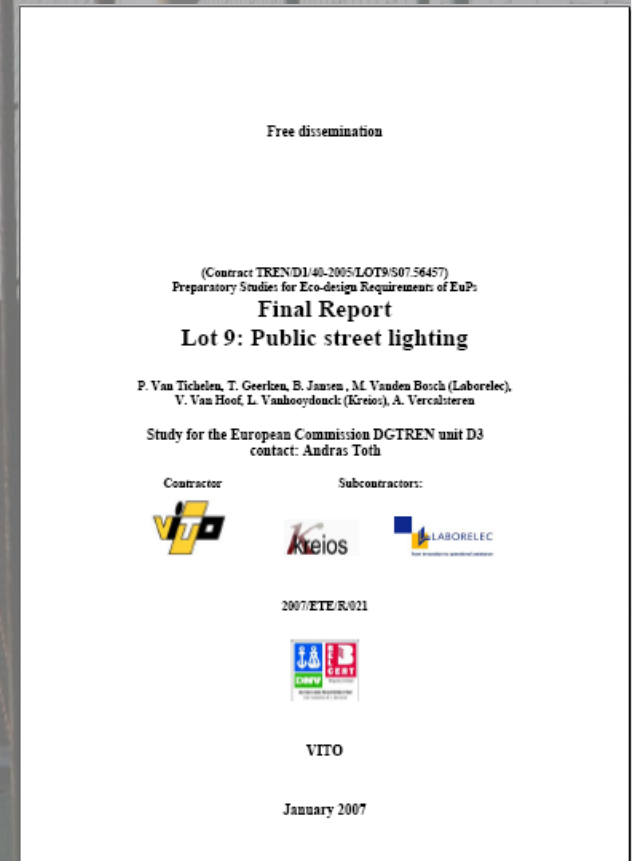
- Tertiary sector lighting products:
 - fluorescent lamps without integrated ballast, and ballasts and luminaires able to operate such lamps;
 - high intensity discharge lamps, and ballasts and luminaires able to operate such lamps;
 - lamps manufactured for use in office lighting, and ballasts and luminaires able to operate such lamps, regardless of their technology;
 - lamps manufactured for use in public street lighting, and ballasts and luminaires able to operate such lamps, regardless of their technology.

Exempts

- Emergency lighting luminaires and emergency sign luminaires
- Luminaires covered by requirements for use in potentially explosive atmospheres, machineries, medical devices, toys and luminaries integrated into equipment covered by these requirements.
- Lamps that are not white lamps except High Pressure Sodium Lamps.

The report

- Handles about eco-design of:
 - Lamps
 - Ballasts
 - Luminaires
 - Combination of all
 - Market analyse
 - Expected growth of lighting in Europe.
 - BAT & BNAT



“fixed lighting installation intended to provide good visibility to users of outdoor public traffic areas during the hours of darkness to support traffic safety, traffic flow and public security” (EN13201)

Data

- Data is underestimated.
 - Only several countries give real data
 - Other data incomplete, not available or no response.
 - Most data estimations on road data.

- Data for 2005 in EU-25:

- Road length:
- Number of luminaires:
- Nbr luminaires/capita:
- Nbr luminaires/km road: 11,075 ->

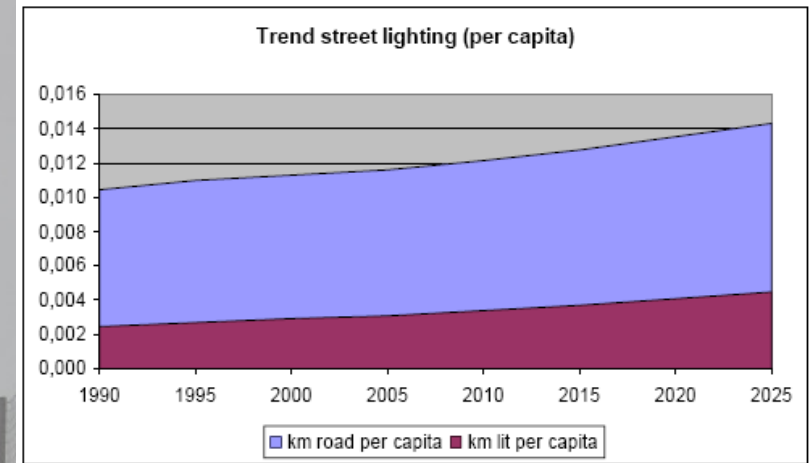
5318766 km

58,904 mlj

0,12

1 lum./90m

when 1lum./30m->1767120km
lit roads => 33,2% illuminated.



Crime and lighting

- The absolute reduction of crime by public lighting is not proven and controversial:
 - Exist no good studies until now.
 - Light alone is no cure => need social control.
 - Lighting CAN improve social control.
 - Lighting increase safety feeling.



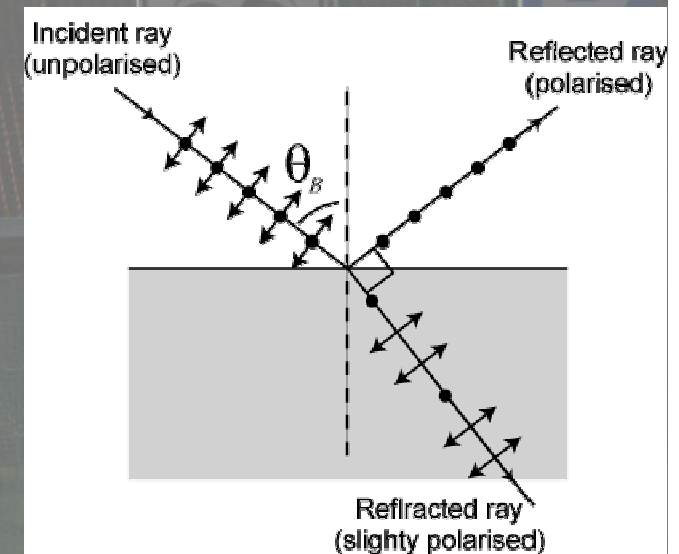
BAT and BNAT

- IP66
- Self Cleaning Glasses
- Improve of Utilisation Factor
 - Limiting ULOR
 - Maximizing DLOR



Space Height Ratio (SHR)

- Higher SHR have less lighting poles, less installation cost and less energy.
 - Curved glass have average SHR: 5.
 - FCO with flat glass have average SHR: 4
 - > not energy efficient solution.
 - Brewster angle effect
 - More internal reflection.
- More light reflected to the sky because more light on the road -> more sky glow.



Space Height Ratio (SHR)

- Where the Lombardy law is active:
 - Flat glass FCO luminaires with SHR 5 to 5,7
 - By the use of anti-reflection coating.
- Study not recommend it because it is not common available
- Light manufactures said they not offer it everywhere because of a pattend
 - Pattend is from 1978
 - Is expired at the moment.



Recommendations & Implementations



Implementation

- Stage 1, 1 year after entry into force:
 - Phase out HP Hg vapour lamps and halophosphate
- Stage 2, 5 year after entry into force:
 - Phase out old types of HP Na and halide lamps
 - Some luminaires need to be replaced
- Stage 3, 8 years after entry into force:
 - Phase out of magnetic ballasts, replacing with dimable ballast
 - Replacement of luminaires.

Recomendations

- Products need an information sheet (label) (public website)
 - Information about eco-design parameters
 - Luminaires:
 - Street light indication + road category
 - Photometric data or CEN flux
 - LMF for first 4 years
 - Maintenance instructions.
 - UF for standard road conditions.
 - Installation instructions for optimize UF
 - Installation instructions to minimize light pollution.

Recomendations

- Generic eco-design requirements on reducing light pollution:
 - Require manufactures during design reducing light pollution.
 - When no negative effect on energy efficiency.
 - (When more evidence on environmental significance standardization commissions have to develop harmonized standards.)



Recommendations

- Luminary efficiency requirements:

	ULOR max	DLOR min	UFF
Cat. F+M All lamp wattages	5%	75%	6,25%
Cat. S 150W<=lamp	5%	75%	6,25%
Cat. S 100W<=lamp<150W	10%	75%	11,76%
Cat. S 50W<=lamp<100W	15%	70%	17,65%
Cat. S lamp<50W	20%	65%	23,53%

Implementation

Road classes / light source	UFF
ME1 to ME5 and MEW1 to MEW5, all lumen outputs	3%
CE0 to CE5, S1 to S6, ES, EV and A	
12000 lm \leq light source	5%
8500 lm \leq light source < 12000 lm	10%
3300 lm \leq light source < 8500 lm	15%
Light source < 3300 lm	20%

Luminaires are compatible installations equipped with appropriate dimming and control systems that take account of daylight availability, traffic and weather conditions and also compensate for the variation over time in surface reflection and for the initial dimensioning of the installation due to the lamp lumen maintenance factor.

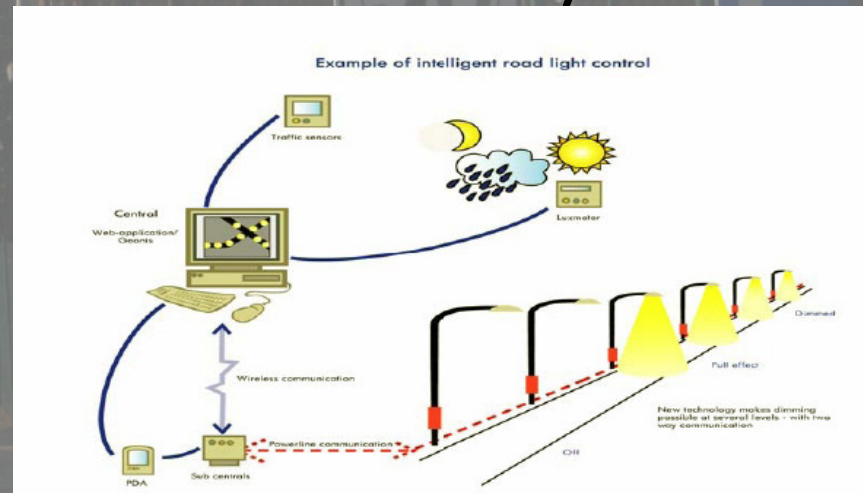
Recommendations -> Implementation

- Optional use of dimmable ballasts
 - Cat.F +M: implementing before 2010, $\geq 70W$ before 2015
- Implementation will be obligated in stage 3



Additional recommendations

- EN-13201:
 - Maximum light levels.
 - Performance requirements for traffic density on hourly base.
- Member states need to invest in inventory of their infrastructure.



Revision

- No later than 5 years after entry into force of this Regulation the Commission shall review it (including the annexes) in the light of technological progress and present the results of this review to the Consultation Forum

ACTION NEEDED NOW!

