



# **Stakeholders meeting for the follow-up of the MEErP Preparatory Study on Taps and Showers**

Madrid

25 October 2018

# Outline

1. Agenda
2. JRC B.5 within the EC
3. Background on taps and showers
4. Policy options for taps and showers
5. Discussion

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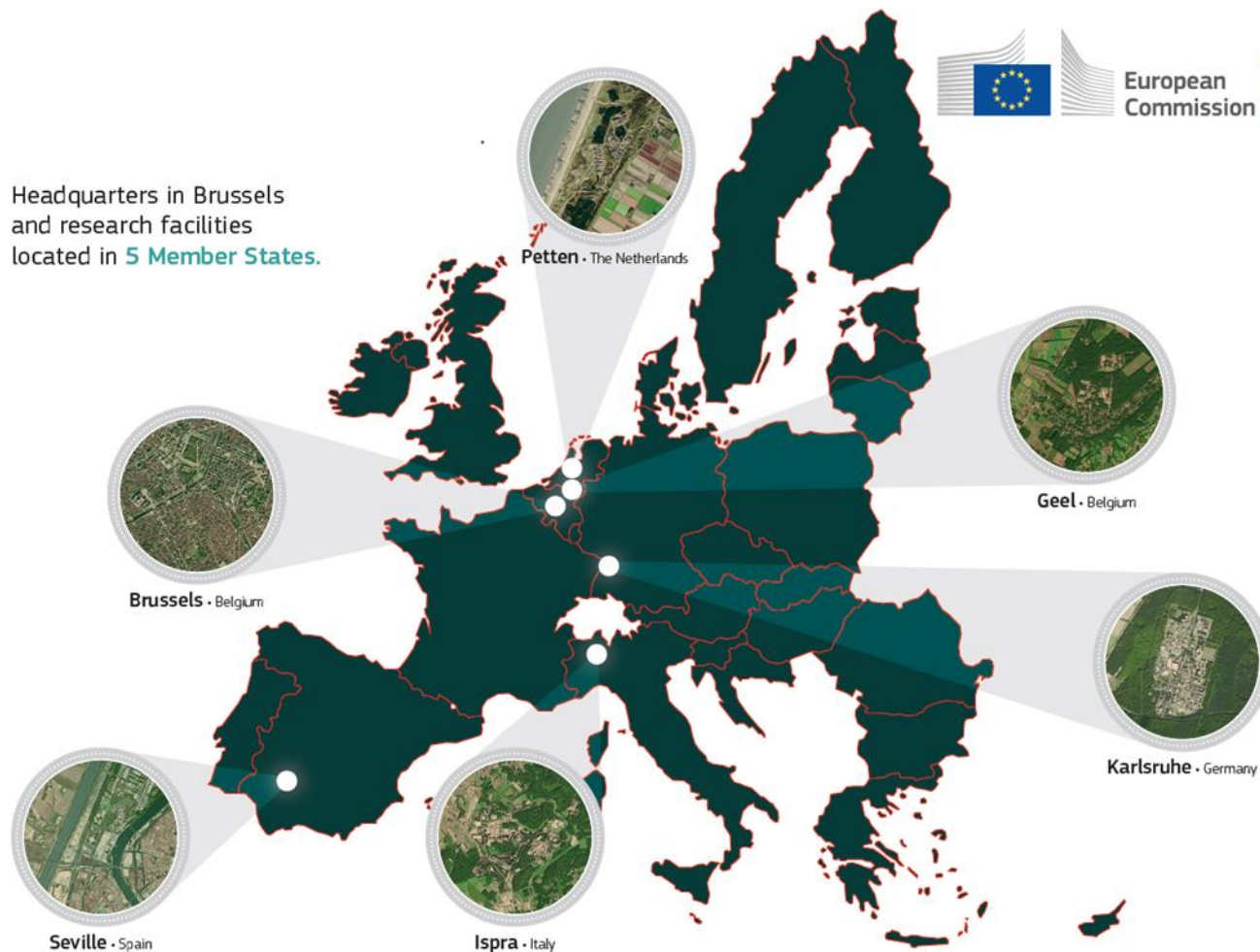
## Agenda

- 11:00 – 11:15 Registration and welcome (EC)
- 11:15 – 11:30 Introduction of participants, context and state of play (EC)
- 11:30 – 13:00 Background information on T&S (EC)
- 13:00 – 14:00 Lunch break
- 14:00 – 14:15 Policy options (EC) – presentation
- 14:15 – 14:45 Best of all initiative (EBF) – pres.
- 14:45 – 15:30 Open discussion on policy options
- 15:30 – 15:45 Coffee break
- 15:45 – 17:30 Open discussion on policy options (cont.)
- 17:30 – 18:00 Wrap-up and conclusions (EC)

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# The JRC: Research in support to policy making



## B. Growth & Innovation

### ➤ B.5 Circular Economy & Industrial Leadership (Seville)

#### ➤ Product Bureau

## C. Energy, Transport & Climate

## D. Sustainable Resources

## E. Space, Security & Migration

## F. Health, Consumers & Reference Materials

## G. Nuclear Safety & Security

## Support on product policy implementation

Directive on the Ecodesign (2009/125/EC) for Energy-related Products (ErP)

[http://ec.europa.eu/growth/industry/sustainability/ecodesign/product-groups\\_en](http://ec.europa.eu/growth/industry/sustainability/ecodesign/product-groups_en)

Regulation on Energy Labelling (Regulation (EU) No 2017/1369) for ErP

<https://ec.europa.eu/energy/en/topics/energy-efficiency/energy-efficient-products>

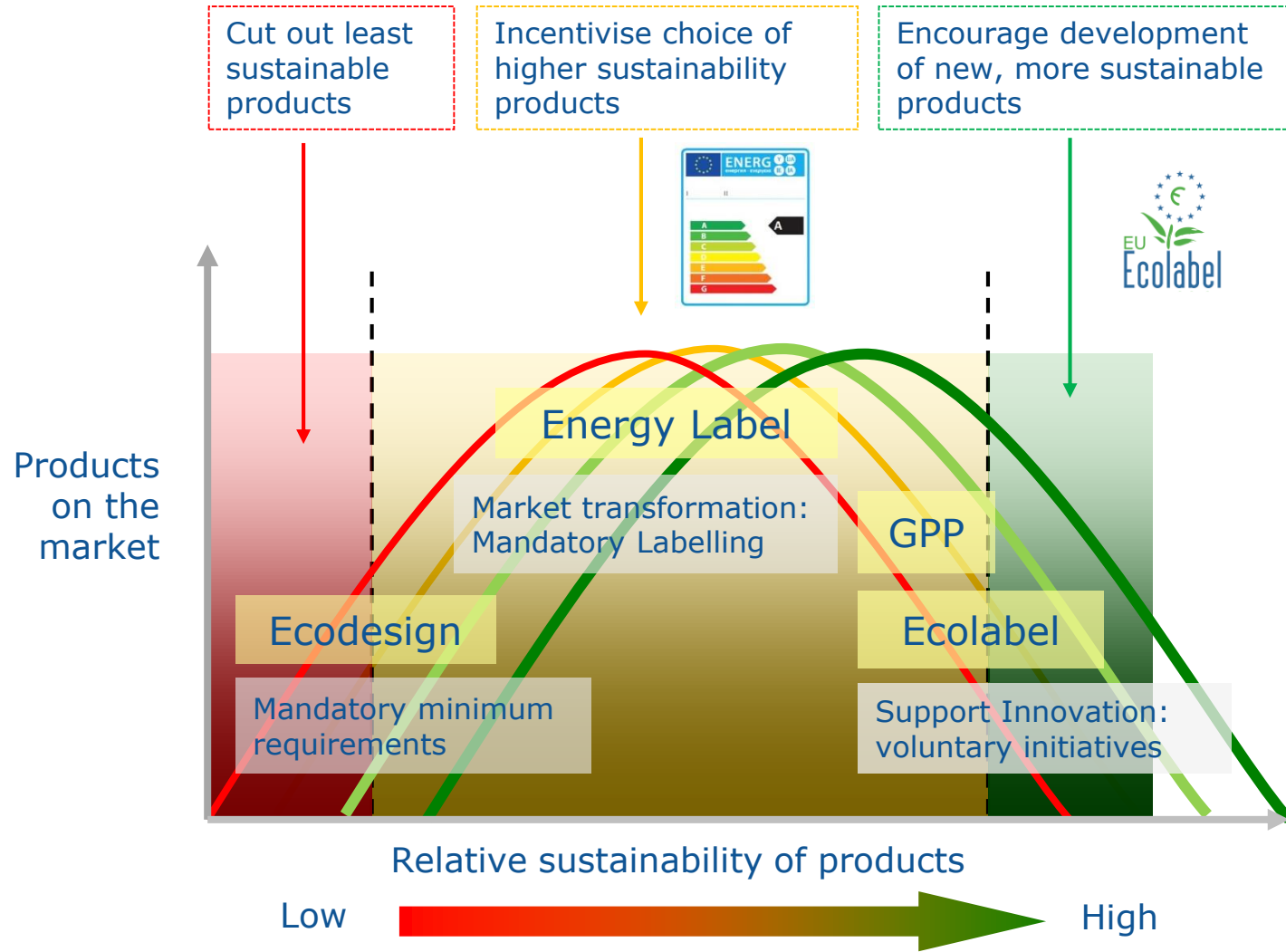
Green Public Procurement Communication (COM(2008)400)

[http://ec.europa.eu/environment/gpp/eu\\_gpp\\_criteria\\_en.htm](http://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm)

EU Ecolabel Regulation (Regulation (EC) No 66/2010)

<http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html>

# SPP tools





[http://susproc.jrc.ec.europa.eu/product\\_bureau/index.html](http://susproc.jrc.ec.europa.eu/product_bureau/index.html)

## Ongoing EU Ecolabel and EU Green Public Procurement (EU GPP) criteria development and revisions

<a href="#">Cleaning services</a>	EU GPP criteria revision and EU Ecolabel criteria development
<a href="#">Converted Paper</a>	EU Ecolabel criteria revision
<a href="#">Data Centres</a>	EU GPP criteria development
<a href="#">Food and Catering Services</a>	EU GPP criteria revision
<a href="#">Footwear</a>	EU Ecolabel criteria revision
<a href="#">Imaging equipment</a>	EU GPP criteria revision
<a href="#">Lubricants</a>	EU Ecolabel criteria revision
<a href="#">Hard Coverings</a>	EU Ecolabel criteria revision
<a href="#">Paper Products</a>	EU Ecolabel and EU GPP criteria revision
<a href="#">Printed Paper</a>	EU Ecolabel criteria revision
<a href="#">Publicspace maintenance</a>	EU GPP criteria development
<a href="#">Road Lighting and Traffic Signals</a>	EU GPP criteria revision
<a href="#">Televisions</a>	EU Ecolabel criteria revision
<a href="#">Transport</a>	EU GPP criteria revision

## Ongoing Energy Labelling and EcoDesign development and revisions

<a href="#">Commercial Refrigeration</a>	EU Eco Design - Implementing phase
<a href="#">Taps and Showers</a>	EU Ecolabel, EU GPP, Erp (Ecodesign) Energy / Resource Lab
<a href="#">Washing Machines and washer Dryers</a>	EU Eco Design - Implementing phase
<a href="#">Dishwashers</a>	EU Eco Design - Implementing phase
<a href="#">High-Pressure Cleaners</a>	Erp (Ecodesign) Energy

## Ongoing Circular Economy related research projects

<a href="#">Ecodesign for Circularity</a>	EU Eco Design - Implementing phase
<a href="#">Scoring System on Reparability</a>	

## Ongoing sectoral environmental indicator development projects

<a href="#">Efficient Buildings</a>	Communication (2014) 445 - Implementing phase
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## Ongoing Preparatory study for applying EU sustainable product policy instruments to solar photovoltaics

<a href="#">Solar Photovoltaics</a>	Ecodesign, Energy Label, EU Ecolabel and EU GPP
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## Finalised projects

<a href="#">Absorbent hygiene products</a>	EU Ecolabel criteria development
<a href="#">Bed mattresses</a>	EU Ecolabel criteria revision
<a href="#">Computers</a>	EU Ecolabel and EU GPP criteria revision
<a href="#">Detergents</a>	EU Ecolabel criteria revision
<a href="#">Furniture</a>	EU Ecolabel and EU GPP criteria revision
<a href="#">Heating systems</a>	EU Ecolabel and EU GPP criteria revision
<a href="#">Office Buildings</a>	EU GPP criteria development
<a href="#">Paints and varnishes</a>	EU Ecolabel and EU GPP criteria development
<a href="#">Roads</a>	EU GPP criteria revision
<a href="#">Sanitary tapware</a>	EU Ecolabel and EU GPP criteria development
<a href="#">Soaps and shampoos (Rinse - off cosmetics)</a>	EU Ecolabel criteria revision
<a href="#">Soil improvers and growing media</a>	EU Ecolabel criteria revision
<a href="#">Textile products</a>	EU Ecolabel and EU GPP criteria revision
<a href="#">Tourist accommodation and camp sites services</a>	EU Ecolabel criteria revision
<a href="#">Wooden floor coverings</a>	EU Ecolabel criteria revision
<a href="#">Windows and doors</a>	EU GPP criteria development

## Current criteria development and revision projects conducted by stakeholders consortiums

Light Source (For any enquiry please write <a href="#">here</a> )	EU Ecolabel and EU GPP criteria revision
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# The Taps and Showers 'journey' of the EC

- 2010-2013: EU Ecolabel and GPP on sanitary tapware
- 2013-2014: preparatory study  
([http://susproc.jrc.ec.europa.eu/taps\\_and\\_showers/stakeholders.html](http://susproc.jrc.ec.europa.eu/taps_and_showers/stakeholders.html))

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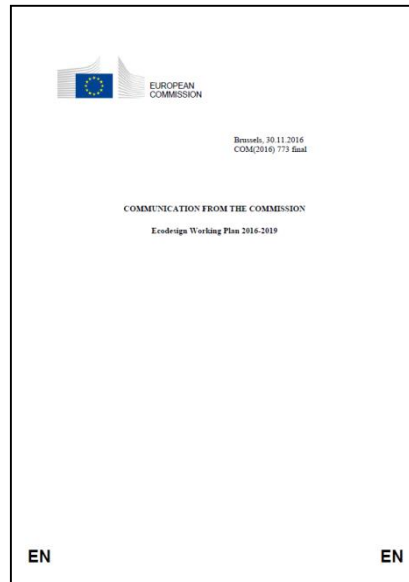
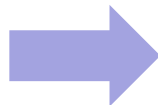
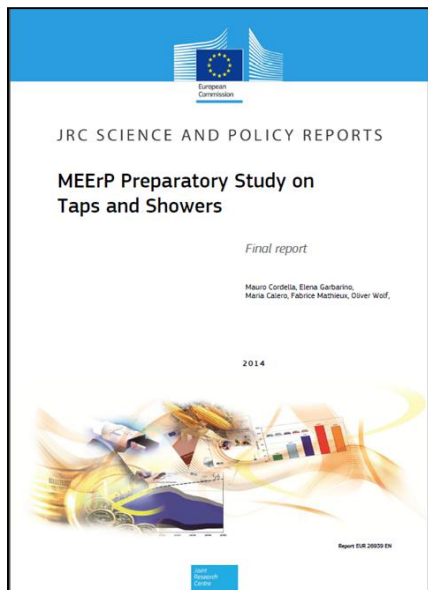
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## Background in 2014:

- Water consumption and scarcity as an increasing problem;
- Different levels of water and energy consumption from T&S;
- Water-saving technologies as effective and affordable;
- Significant saving potential (but uncertain in absolute terms)
- Env. improvements through market transformation and initiatives
- A European mandatory label as potentially able to accelerate the transformation
- Implementing ecodesign requirements not feasible

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- 2016: COM(2016) 773 final 'Ecodesign Working Plan 2016-2019'
- 2017/2018: stakeholders consultation



Machine tools and welding equipment	Consultation forum took place on 6.05.14 Impact assessment ongoing	9 (VA on metal working machine tools; regulation on welding equipment)
Professional washing machines, dryers and dishwashers	Consultation forum took place on 29.11.13 Standardisation work ongoing.	4
Enterprise servers, data storage and ancillary equipment	Preparatory study finished in 08.15	Up to 43 for full product requirements Important resource-saving potential
Water-related products	Preparatory study finished in 12.14 (not yet published)	Up to 70 (and 1900 Mm <sup>3</sup> of abstracted water) in 2025; up to 17 (and 700 Mm <sup>3</sup> of abstracted water) in 2020. (only energy labelling requirements)
Smart appliances	Preparatory study ongoing	
Lighting controls/systems	Preparatory study ongoing	
Industrial and laboratory furnaces and ovens	Consultation forum took place on 16.05.14. ED/EL Regulations will not be proposed for the time being (*)	
Power Cables	ED/EL Regulations will not be proposed for the time being (*)	
Steam boilers	ED/EL Regulations will not be proposed for the time being (*)	

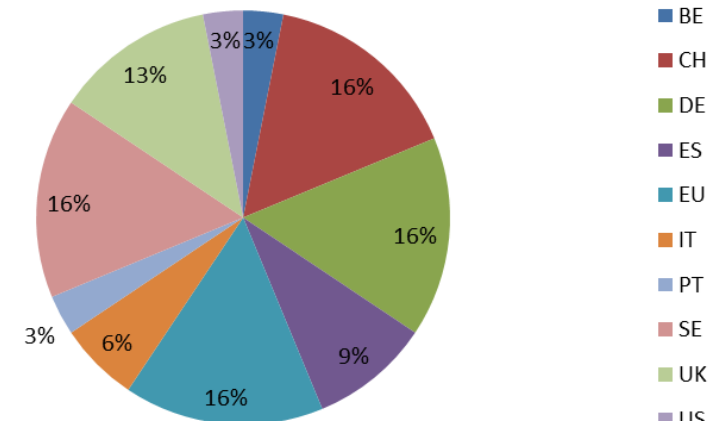


# 2014-2018

## Filling the gap

# Questionnaire (Jul-Sep 2017)

- Information update
- 32 replies received: 23 from industry members (74%), 7 from governments or national institutes (22%), 2 from NGO (6%)
- Broad geographical scope
- Preliminary views:
  - Harmonised label for industry representatives
  - No clear preference / policy intervention for others
- Followed by workshop on testing and standardisation (Seville, 24 Apr 2018)



# Market

Preparatory study (EU, 2012):

- 82 million units of taps sold;
- 27 million units of shower valves sold;
- 43 million units of shower outlets sold.
- A slight increase of sales in 2015 (+1%) and 2020 (+2%)

From elaboration of EBF data (EU, 2015):

- About 30 million units of taps sold;
- About 10 million units of showers sold;
- About 16 million units of shower outlets sold.
- +15% from 2015 to 2020
- Much lower in abs terms compared to prep study (~37%)



- Different levels of consumption from taps and showers
- Apparent increased penetration of existing labels (e.g. EWL, WELL, Swedish Energy Label, ...) and water-saving technologies
- Estimation for 2014-2017:
  - From 7.3 L/min to 6.5 L/min (-10%) for Taps;
  - From 8.7 L/min to 7.5 L/min (-13%) for Showers
- New sales = renovation of the installed stock (delayed effect)

Number of taps and showers registered under the European Water Label scheme (~60% of the EU market)

Flow rate (L/min)	Taps				Showers			
	(Jun 2014)		(Oct 2017)		(Jun 2014)		(Oct 2017)	
	nr.	%	nr.	%	nr.	%	nr.	%
< 6	592	30%	1715	54%	75	5%	462	23%
6-8	315	16%	297	10%	258	18%	267	13%
8-10	714	35%	559	18%	280	19%	252	13%
10-13	20	1%	115	4%	247	17%	213	11%
> 13	365	18%	437	14%	608	41%	801	40%
Tot.	2006	→	3123		1468	→	1995	

# Stock

Preparatory study (EU, 2012):

- 1268 million units of taps (average lifetime of 15.5 years);
- 423 million units of shower valves (average lifetime of 15.7 years);
- 423 million units of shower outlets (average lifetime of 9.8 years).
- A slight increase in 2015 (+1%) and 2020 (+2%)

From elaboration of EBF data (EU, 2015):

- 1348 million units of taps (182 million units in second/vacant homes);
- 449 million units of shower valves (61 million units in second/vacant homes);
- 449 million units of shower outlets (61 million units in second/vacant homes).
- Slightly higher in abs terms compared to prep study (+6%)

# Labelling

- **European labels:** EWL, WELL, Swedish Energy Label, Swiss Energy Label, ANQIP → EBF (EWL and Swiss, 60% of market)
- Others: Watersense (US), WELS (AS/NZ)
- **Functionality** based (Sweden) vs. **water-flow** based
- **Additional technical parameters** tested, e.g.
  - spray area and force for showers in Watersense (US)
  - spray area, temp drop and endurance of flow controllers in WELS (AS/NZ)
  - spray area under consideration for showers by EBF + testing of water flow of taps at different pressures (tbc)

# Testing (1)

- **Standard approach:**
  - 1) Nominal flow rate [L/min] → energy consumption
  - 2) Definition of classes / consumption levels
- **Nominal water flow rate** is the only aspect which can be satisfactorily measured by internationally standards
- Related to **energy** through physical considerations but water as main issue, system aspects related to energy
- **Functional aspects** for ensuring fitness for use (e.g. rinsing efficiency, comfort)
- Is the water flow enough...?

## Testing (2)

- **Min. requirements:** spread and force of water are parameters that partially cover comfort/functional aspects (subjectivity)
- **Swedish Standards:**
  - setting of activities involving the use of taps and showers (e.g. rinse a textile, use cold water, use hot water, ...)
  - measuring and summing up water/energy consumption for each action
  - subjectivity and complexity
  - not supported by majority of EU industry)
- **NO satisfactorily representative standard:** change in testing conditions could significantly alter the assessment and rating
- **Update of existing EN standards** within CEN/TC 164. A formal mandate to CEN/CENELEC could require at least 3-4 years

# Testing (3)

## Inherent elements of subjectivity:

- The use of T&S involves direct interaction with human body and subjective comfort expectations (e.g. the shower experience);
- Rinsing is important but is not the only function
- There are parameters that go beyond the equipment and that can vary significantly: type of application, difference in user habits, body characteristics and sensorial perception (e.g. bald vs. long-haired persons), water hardness.

Taking the example of Washing Machines (less complex situation):

- Cycles = representative activities
- Main function = clean the laundry → conventional washing performance on laundry
- Interaction with human body → testing e.g. softness of laundry

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# Policy options

1. Business as Usual;
2. Mandatory label at EU level based on testing of functionalities;
3. Voluntary agreement between EC and industry including a harmonised label;
4. Industry-led harmonised label without a voluntary agreement with the EC (BAU+)



# BAU and BAU+

- No policy intervention, self-evolving labelling context
- An evolution towards more efficient products could be still expected due to the public awareness on water and energy saving
- Typical focus on water flows as relevant and easy to understand
- Risk of confusion due to absence of a common evaluation ground
- Best of All initiatives covering more than 60% of market at the moment

# Mandatory Energy Label

- Provision of harmonised information for the entire market
- To be kept simple to avoid confusion
- More effective shift of the market towards water- and energy-saving technology options
- Impacting on existing initiatives
- Standards to test the functionality are needed, as well as time for its development
- No satisfactory method is available for this type of label and time is a critical factor

# Voluntary Agreement

- Industry proactively working towards a VA
- Basic conditions:
  - The market coverage is significant (i.e. above 80%);
  - Similar effects can be achieved;
  - The performance of products and the comfort of users are not compromised.
- Minimum requirements + information on performance
- More flexibility but similar difficulties of Energy Label

# Characteristics of an ideal label

## Product categories :

- Showers, shower valves and shower systems with/without water/energy-saving devices;
- Washbasin taps with/without water/energy-saving devices;
- Kitchen taps with/without water/energy-saving devices;
- Flow regulators;
- Self-closing taps.

## Possible information:

- Nominal water flow rate(s)
- Average energy and water consumption per year
- Rating of energy and/or water efficiency (based on functionality)
- Additional information on functioning of the products (e.g. water pressure conditions, spray pattern and force) and economy setting features
- ...

# Material Efficiency

Not a priority for T&S based on the preparatory study:

1. the **average lifetime** of taps and showers is already satisfactory and typically longer than the bathroom renovation cycle;
2. **replacement** of malfunctioning/broken parts is **seldom** during their lifetime;
3. the products are **typically recycled** at the end of life;
4. the contribution of material efficiency aspects to the environmental impacts is low compared to the **consumption of energy and water.**

# Water and energy saving estimations

## Information needs:

1. Water consumption of products in past/future years and market share
2. Estimation of how policy options can influence the market
3. User behaviour factors (e.g. opening factors)
4. Stock, sales and lifetimes of products in the EU (renewal of installed products)
5. Energy associated to water consumption

## High uncertainty

- Modelling of the possible effects due to different levels of harmonisation
- Interpretation of the results and policy option matching

# Water and energy saving - scenarios

## 5 scenarios:

1. BAU
2. Moderate harmonisation (~ BAU+)
3. Satisfactory harmonisation (~ BAU+, VA)
4. Full harmonisation (~ VA, EL)
5. Max potential (possible only in theory)

	<b>BAU</b>	<b>Mod.</b>	<b>Satisf.</b>	<b>Full</b>	<b>Extreme</b>
Market coverage 2020	60%	60%	80%	100%	100%
Market coverage 2030	60%	80%	90%	100%	100%
Max pot. saving NEW taps (ref 2015)					
- 2020	14%	14%	18%	14%	53%
- 2025		17%	22%	25%	
- 2030		18%	23%	35%	
Max pot. saving NEW showers (ref 2015)					
- 2020	6%	6%	7%	6%	40%
- 2025		7%	8%	9%	
- 2030		7%	8%	9%	

# Water and energy saving - assumptions

**Correction** of water flow rates and associated saving:

- T&S are not always used at their **nominal flow rate** (hp. products are on average used at 85% of their nominal flow)
- No saving can be achieved when **filling volumes** (hp. saving for taps can be achieved in 35% of uses in terms of water delivery)
- The primary energy needed to heat up a cubic meter of water has been estimated to decrease by 10% in 2020, by 20% in 2025 and by 30% in 2030. This means that **heating systems** are more efficient and therefore they allow a higher saving of energy.
- **Annual replacement** of stock by new sale is about 6% for taps and 10% for showers (based on preparatory study; 2% in case of data from EBF).



# Water and energy saving - results

- Environmental improvements through market transformation and existing policy (BAU): 1.7 Gm<sup>3</sup>/a; 910 PJ/a in 2030
- Additional saving through broader labelling of products: 0.1-0.4 Gm<sup>3</sup>/a; 11-40 PJ/a in 2030 (market and time issue)
- Max additional saving: 2.5 Gm<sup>3</sup>/a; 250 PJ/a in 2030 (unreal)

LABELLING SCENARIO	WATER CONSUMPTION (Gm <sup>3</sup> /year)			EQUIVALENT PRIMARY ENERGY DEMAND (PJ/year)		
	2015	2030	2050	2015	2030	2050
1) Business As Usual (BAU)						
- absolute result	24.9	23.2	22.6	2580	1670	1620
(% var. 2015-2030)		(-7%)	(-9%)		(-35%)	(-37%)
2) Moderate harmonisation of labelling						
- absolute result	24.9	23.1	22.3	2580	1660	1610
(% var. 2015-2030)		(-7%)	(-10%)		(-36%)	(-38%)
Saving compared to the reference	0.0	0.1	0.3	0	10	10
(% var. with reference)	(0%)	(0%)	(-1%)	(0%)	(0%)	(-1%)
3) Satisfactory harmonisation of labelling						
- absolute result	24.9	22.9	22.0	2580	1650	1580
(% var. 2015-2030)		(-8%)	(-11%)		(-36%)	(-39%)
Saving compared to the reference	0.0	0.3	0.6	0	20	40
(% var. with reference)	(0%)	(-1%)	(-3%)	(0%)	(-1%)	(-2%)
4) Full harmonisation of labelling						
- absolute result	24.9	22.8	21.3	2580	1630	1530
(% var. 2015-2030)		(-8%)	(-14%)		(-37%)	(-41%)
Saving compared to the reference	0.0	0.4	1.3	0	40	90
(% var. with reference)	(0%)	(-2%)	(-6%)	(0%)	(-2%)	(-6%)
5) Maximum saving potential						
- absolute result	24.9	20.7	17.7	2580	1420	1160
(% var. 2015-2030)		(-17%)	(-29%)		(-45%)	(-55%)
Saving compared to the reference	0.0	2.5	4.9	0	250	460
(% var. with reference)	(0%)	(-11%)	(-22%)	(0%)	(-15%)	(-28%)

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> Luxemburg  
< Denmark

~ Lithuania

< Malta

~ Finland,  
Sweden

- **Savings** of water and energy **also in the current context**:
  - 1) existing regulation on heating systems and
  - 2) “natural” technical evolution of products.
- There is some **additional saving** that could be achieved in the future in case of further harmonisation of labelling.
- Due to their typical lifespan, the **effective replacement** of the installed stock by water-saving products may require decades.
- Either a mandatory label or an industry-led harmonised label could produce **similar benefits**, under the condition of:
  - **entering soon** into the market (condition favourable for an industry-led harmonised label),
  - **covering a significant portion** of it (condition favourable for a mandatory label).

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# To sum up

- **Labelling:** heterogeneous context in Europe, although EBF has managed to cluster an important portion of the market (~60%, also influenced by the awaited decision on how to regulate T&S)
- **Standards:** only water flow rates can be satisfactorily measured (no viable for a potential Energy Label, to be discussed for formal Voluntary Agreement)
- **Market:** cont. progress towards more efficient products (?)
- **Water and energy:** different estimations for the same outcome, there is some saving potential
  - Heating systems + Market transformation
  - Policy options: Mandatory EL; VA; BAU+ voluntary label
- **Key factors:** broad and harmonised adoption by the market in the short term

Option	Pros	Cons
BAU	<ul style="list-style-type: none"> <li>• <b>No interference</b> on existing schemes and no re-allocation of resources</li> <li>• <b>Saving</b> could occur also in this case</li> </ul>	<ul style="list-style-type: none"> <li>• Risk of <b>confusing</b> consumers or having limited information at the point of sale</li> <li>• More <b>limited and uncertain</b> possibility to exploit the water and saving potential</li> </ul>
Mandatory label (based on testing of functionality)	<ul style="list-style-type: none"> <li>• <b>Full market coverage</b></li> <li>• Potentially more coherent</li> </ul>	<ul style="list-style-type: none"> <li>• Developing representative and widely agreed <b>standard definitions and methods</b> is very challenging</li> </ul>
VA between EC and industry (incl. harmonised label)	<ul style="list-style-type: none"> <li>• <b>Industry could be proactively working</b> for the promotion of common rules</li> </ul>	<ul style="list-style-type: none"> <li>• More uncertainty about the <b>market coverage</b></li> <li>• More <b>limited control</b> by the European Commission on tools and methods</li> </ul>
Industry-led harmonised label (without a VA)	<ul style="list-style-type: none"> <li>• <b>Easier to implement</b> and <b>faster</b> to enforce and modify <b>to adapt</b></li> <li>• <b>Industry self-ensuring</b> that products on the market meet consumer needs without dissatisfactions.</li> </ul>	<ul style="list-style-type: none"> <li>• More uncertainty about the <b>market coverage</b></li> <li>• <b>No control</b> by the European Commission on tools and methods</li> </ul>

# Thanks for your attention

functional mailbox:  
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