

Preparatory study of Ecodesign and Energy Labelling implementing measures for High Pressure Cleaners

The European Commission's
science and knowledge service
Joint Research Centre



European
Commission

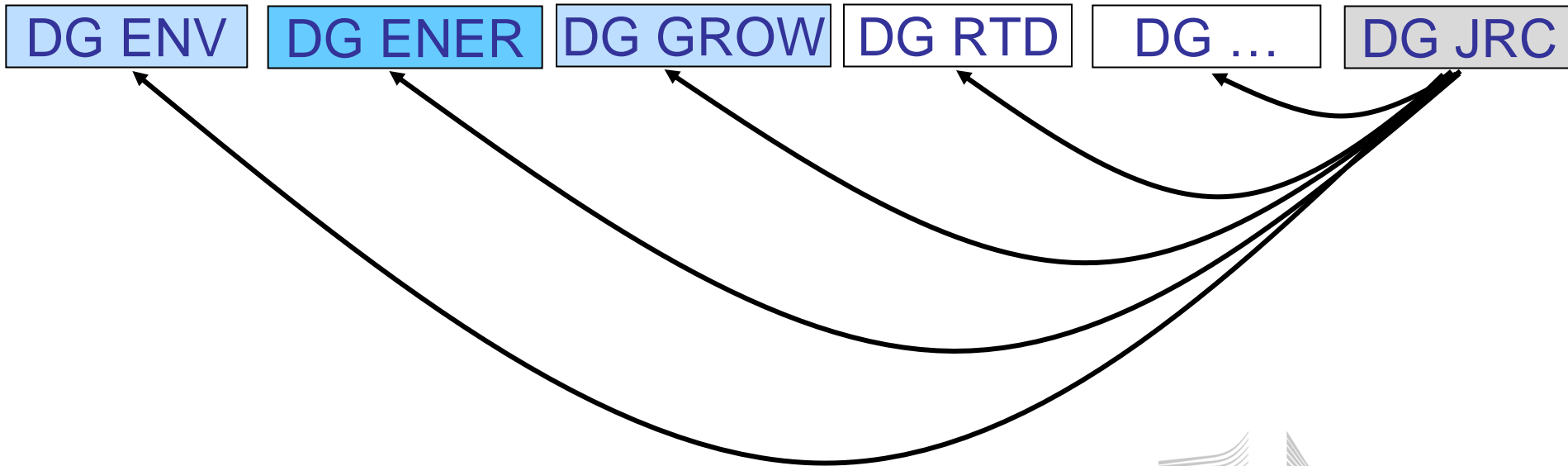
AGENDA

Arrival and registration	09:15 - 09:30
Welcome and introduction	09:30 - 09:45
Preparatory study on high pressure cleaners within the framework of Ecodesign / EU Energy Labelling – Objectives, methodology and timeline	09:45 – 10:15
Product Scope: preliminary scope definition	10:15 - 11:30
Coffee break	11:30 - 11:45
Findings from the first questionnaire and discussion of the main data gaps identified – suggested way forward	11:45 - 12:30
Test standards and legislation – ongoing and expected developments	12.30 - 13.00
Conclusions, next steps and outlook – Wrap-up of the meeting	13.00 - 13.30
Close of the WG meeting	13.30

Introduction

JRC and product policies

Joint Research Centre in the context of the European Commission:



Activities in support of Product Policy

JRC supports the development and implementation of **Sustainable Product Policies**, amongst them:

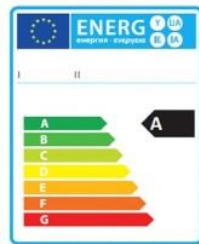
- EU Ecolabel Regulation

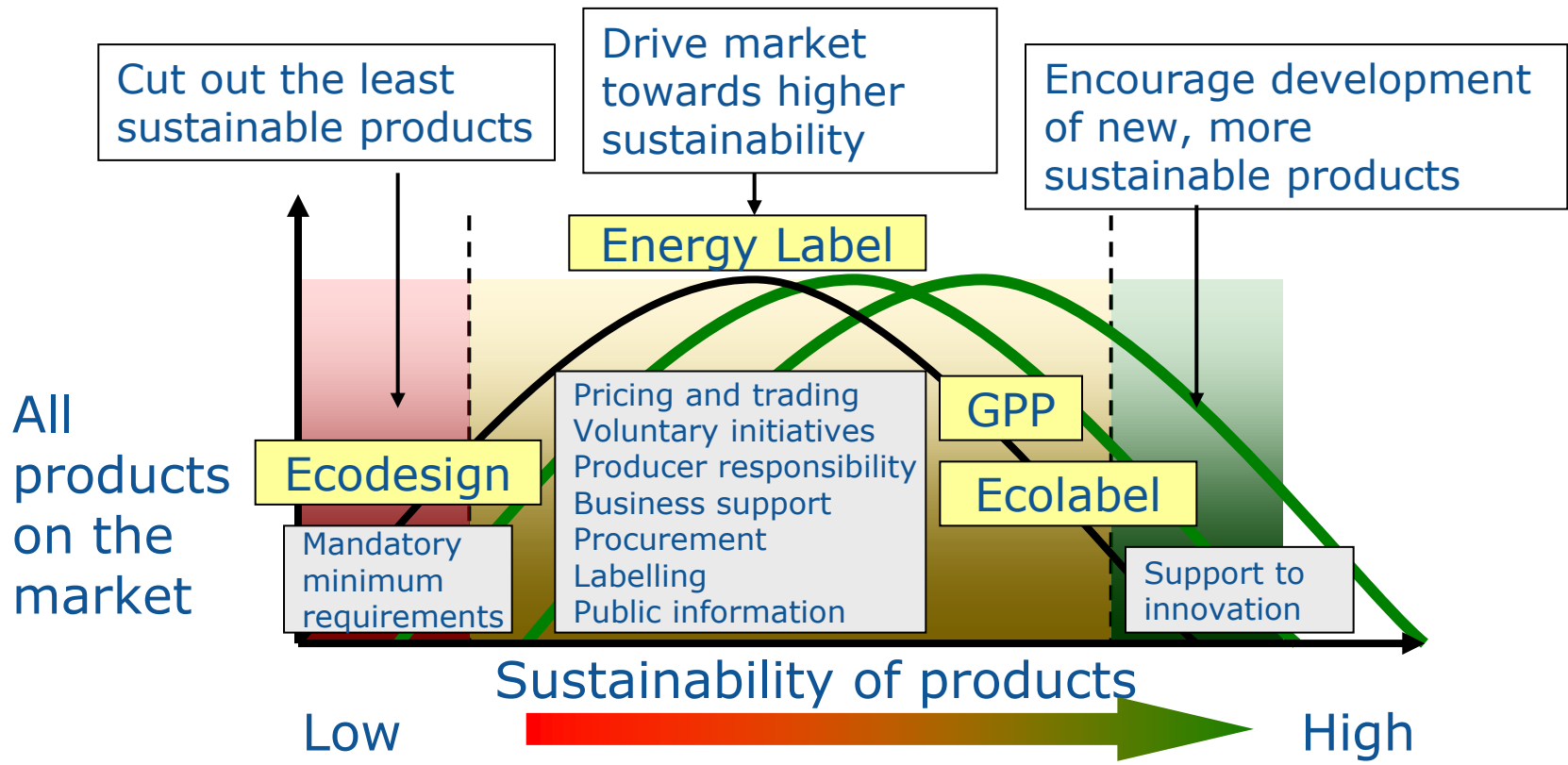


- Green Public Procurement Communication



- **Ecodesign for Energy Related Products Directive and the Energy Labelling Directive**





Objectives, methodology and timeline

Product Policy Support

JRC support to implementation of Directive on **Ecodesign** 2009/125/EC and Regulation on **Energy Labelling** 2017/1369

- Objective → Building a **basis of information** to **support the decision-making on the policy measures to be adopted**
- Contents → **Legislative, Technical Economic** and **Environmental** elements
- Procedure → Independent, neutral, science-based research with **strong stakeholder involvement**

3 phases process

Preparatory phase: 360° assessment (techno-economic-environmental-legislative-user behaviour)

- Methodology for the Ecodesign of Energy Related Products **MEErP**
- **Technical Working Group** (MS, Industry, Academia, NGOs, consultants), >100 members, 3 expert meetings of +40 participants chaired by the JRC, questionnaires, site visits, bilateral contacts on specific issues

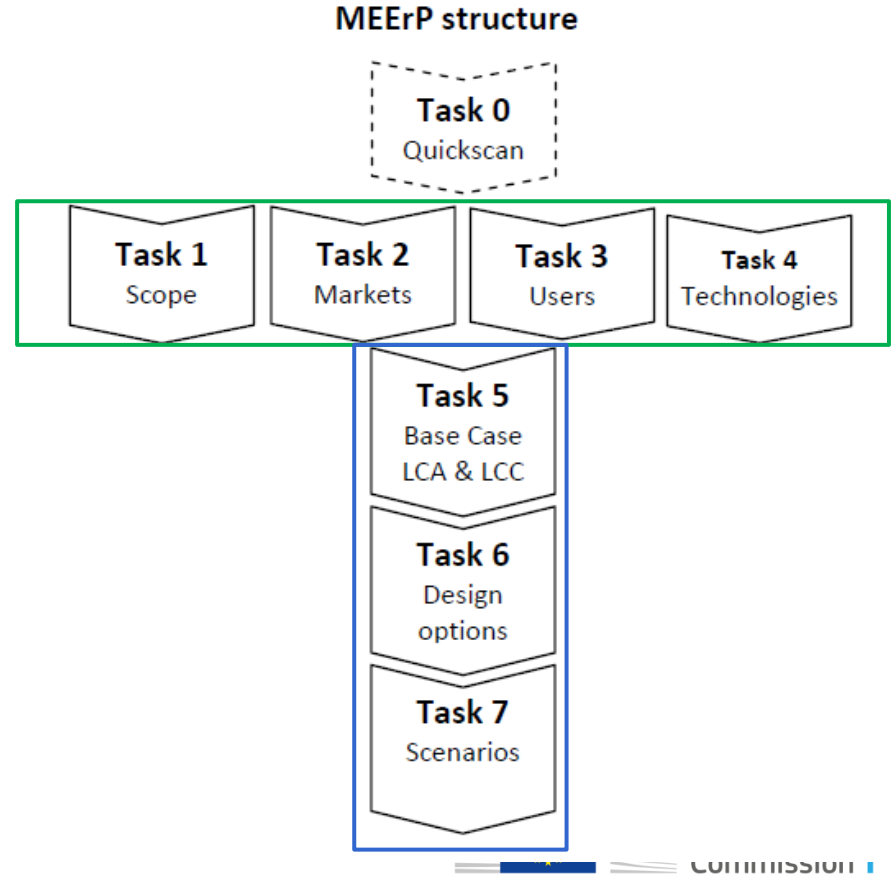
----- Decision-making point -----

Implementation phase: Regulation drafting, including ED and/or EL requirements and any needed calculation and testing methods.

Standardisation/Verification phase

Preparatory phase

- Task 1: Product group def. and scope, standards and legislation
- Task 2: Market analysis
- Task 3: User behaviour and system aspects
- Task 4: Technologies
- Task 5: Environmental and economic assessment
- Task 6: Design options
- Task 7: Policy scenarios analysis



Preparatory phase

- Task 1: Product group def. and scope, standards and legislation
 - Definition product category and system boundaries
 - Test and calculation methods
 - EU and MS legislation + non-EU legislation
- Task 2: Market analysis
 - Market and stock data → needed to model the scenarios
 - Market segmentation, design and technological trends
 - Prices and rates to be used in LCC
- Task 3: User behaviour and system aspects
 - Barriers due to social, cultural or infrastructure factors
 - User-behaviour factors not represented in standards
- Task 4: Technologies
 - Technical analysis of current products in market
 - Best available and not available technologies (BAT, BNAT)

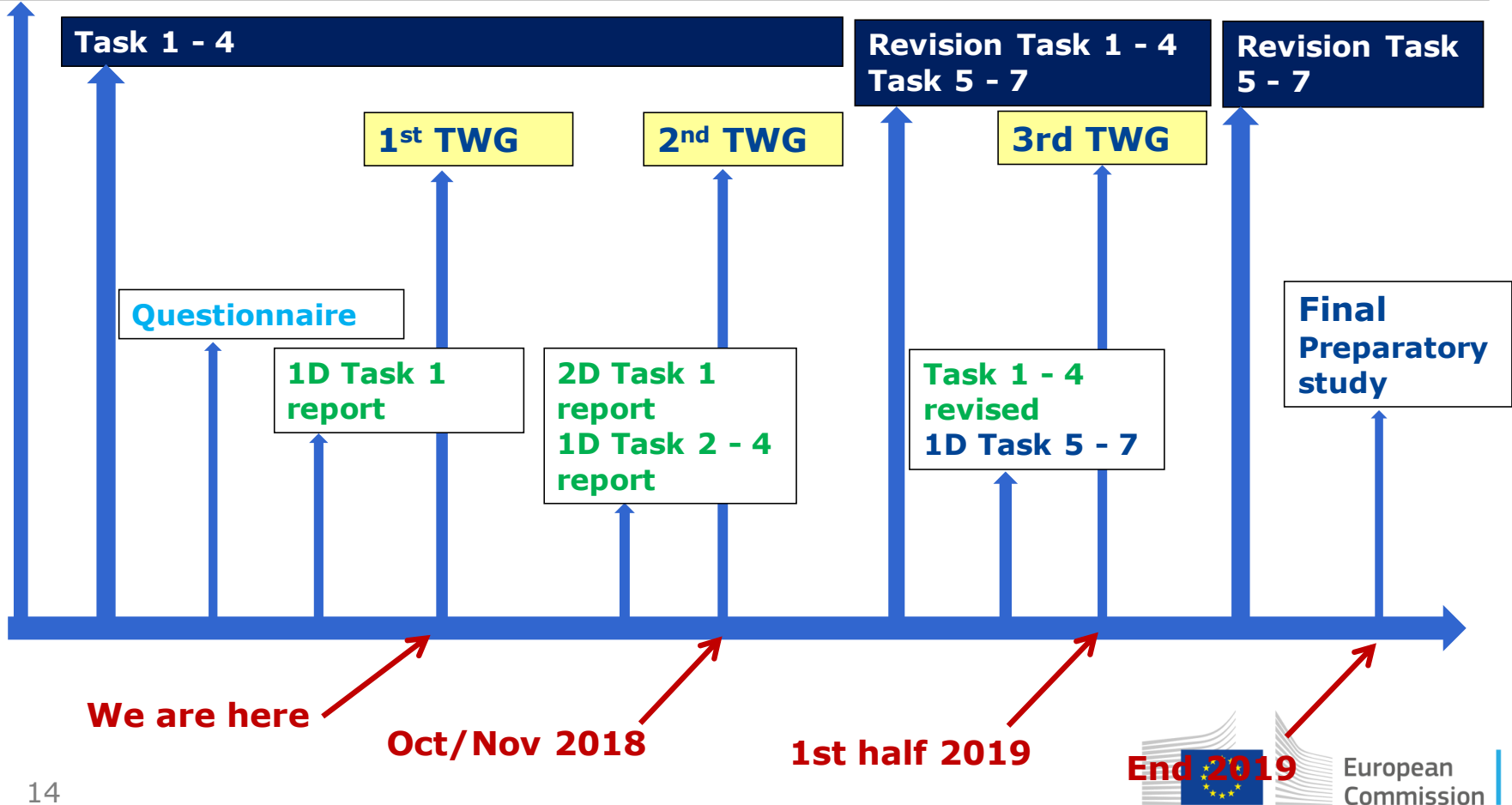
Preparatory phase

- Task 5: Environmental and economic assessment
 - Definition and description of 'base-case' → representative product category
 - Environmental and economic assessment → LCA and LCC
 - Built on the results of Task 1-4 and reference for Task 6-7
- Task 6: Design options
 - Design options + LCC/LCA → Least Life Cycle Cost (LLCC) and BAT
 - BAT = medium-term target for promotion measures
 - Distance between LLCC and BAT → product differentiation
- Task 7: Policy scenarios analysis
 - Suitable policy means to achieve the improvement potential
 - Scenarios quantifying the improvements vs Business-as-usual scenario
 - Estimates the impact on consumers and industry

How stakeholders can participate?

- **Register** as a stakeholder
 - ✓ Via the study website
- **Respond** to questionnaires
 - ✓ Sent out during the first year of study
- **Comment** on draft working documents
 - ✓ Registered stakeholders will be able to comment within defined time frames
- **Participate** in stakeholder meetings
 - ✓ Three meetings will take place
- **Share** information and data
 - ✓ Bi-lateral basis or as part of technical sub-groups

Preparatory phase



Questions?

Preparatory Study for High-Pressure Cleaners



Project website: <http://susproc.jrc.ec.europa.eu/HighPressureCleaners/index.html>

Preparatory study

- Building a basis of information in accordance with the **MEErP**
→ Legislative, Technical Economic and Environmental elements

Task 1 – Scope definition, standard methods and legislation

Task 2 – Market analysis

Task 3 – Analysis of user behaviour and system aspects

Task 4 – Analysis of technologies

Task 5 – Environmental and economic assessment of base cases

Task 6 – Assessment of design options

Task 7 – Assessment of policy options

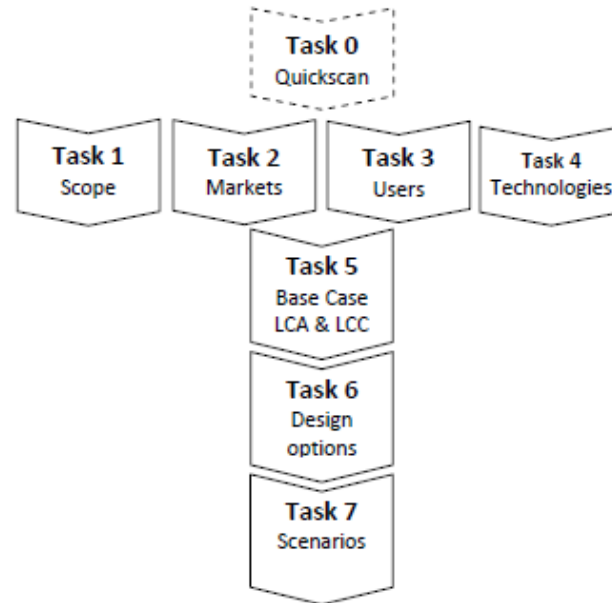


Figure 1: MEErP¹ structure

Task 1: Product Scope – definitions



JRC TECHNICAL REPORTS

Preparatory study of Ecodesign and Energy Labelling implementing measures for High Pressure Cleaners

*Task 1 - Scope
First draft*

Rodríguez-Quintero, R. (JRC),
Bennett, M.J. (JRC)
Baraskevicius, D. (JRC)
Rizzo, M. (VM)
Viegand, J. (VM)
Sweeney, K. (Intertek)
Rhodes, P. (Intertek)

April 2018



Available on the project webpage

Stakeholders can comment* on Task 1 either through:

- BATIS Platform (comments are visible to all stakeholders)

A screenshot of the BATIS Account Login page. The page has a blue header with the European Commission logo and the text "JOINT RESEARCH CENTRE" and "BATIS - Best Available Techniques Information System". Below the header, there is a login form with fields for "Username" and "Password", and a "Log in" button. There is also a link for "Forgot password?".

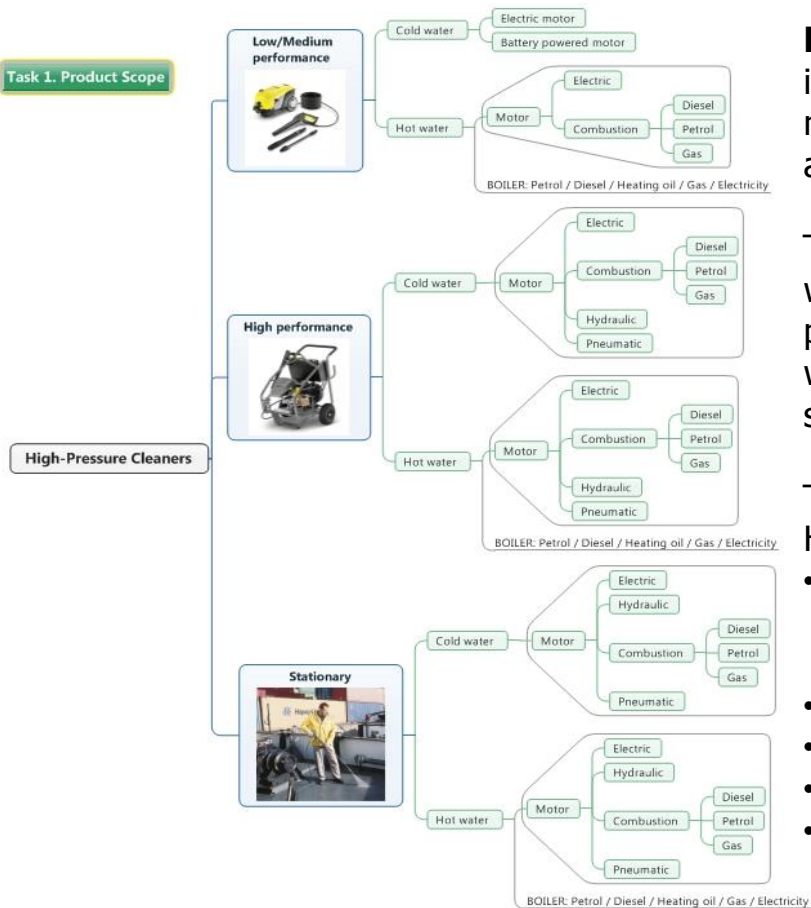
- Or by sending their comments, suggestion, relevant data and recommendations to the project mailbox:

JRC-B5-HIGH-PRESSURE-CLEANERS@ec.europa.eu

Deadline: 12th of May 2018

Preliminary product scope

Task 1. Product Scope



High pressure cleaner without traction drive, intended for indoor or outdoor use, having a rated maximum water pressure not less than 2.5 MPa and not exceeding 60 MPa.

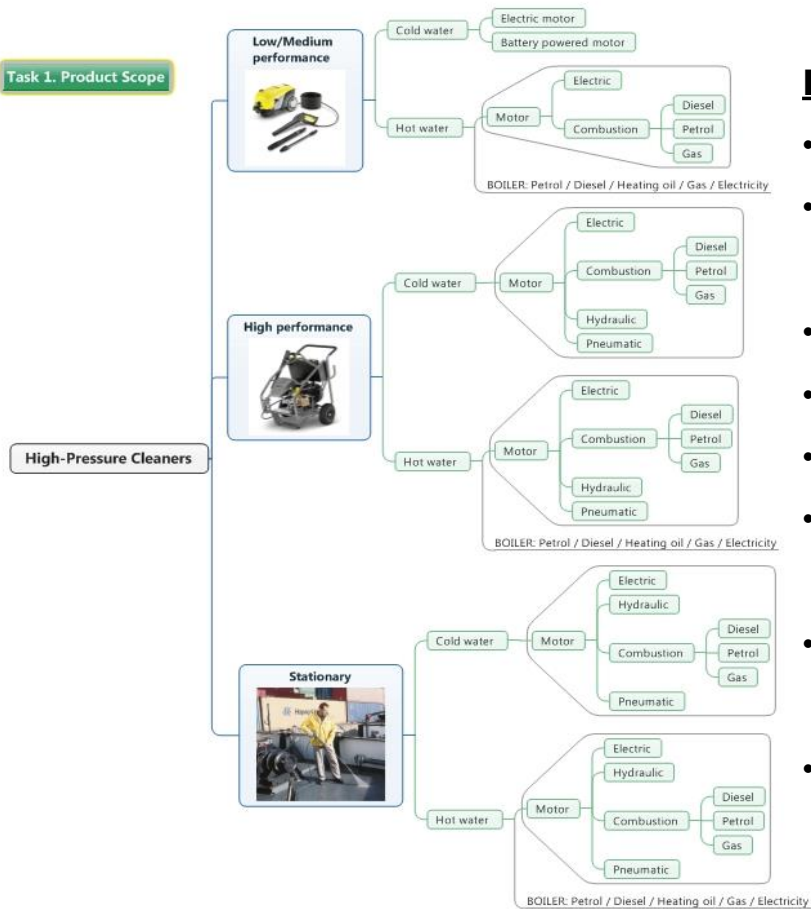
The high pressure cleaner may be fitted with a water heater (boiler or burner) for hot water production and can be **mobile** or **stationary**. Hot water high pressure cleaners may incorporate a steam stage.

The following power systems of the drive for the HPC are covered:

- mains powered motors up to a rated voltage of 250 V for single-phase machines and 480 V for other machines;
- battery powered motors;
- battery and electric powered (hybrid)
- internal combustion engines;
- hydraulic or pneumatic motors.

Preliminary product scope

Task 1. Product Scope



Exclusions proposed:

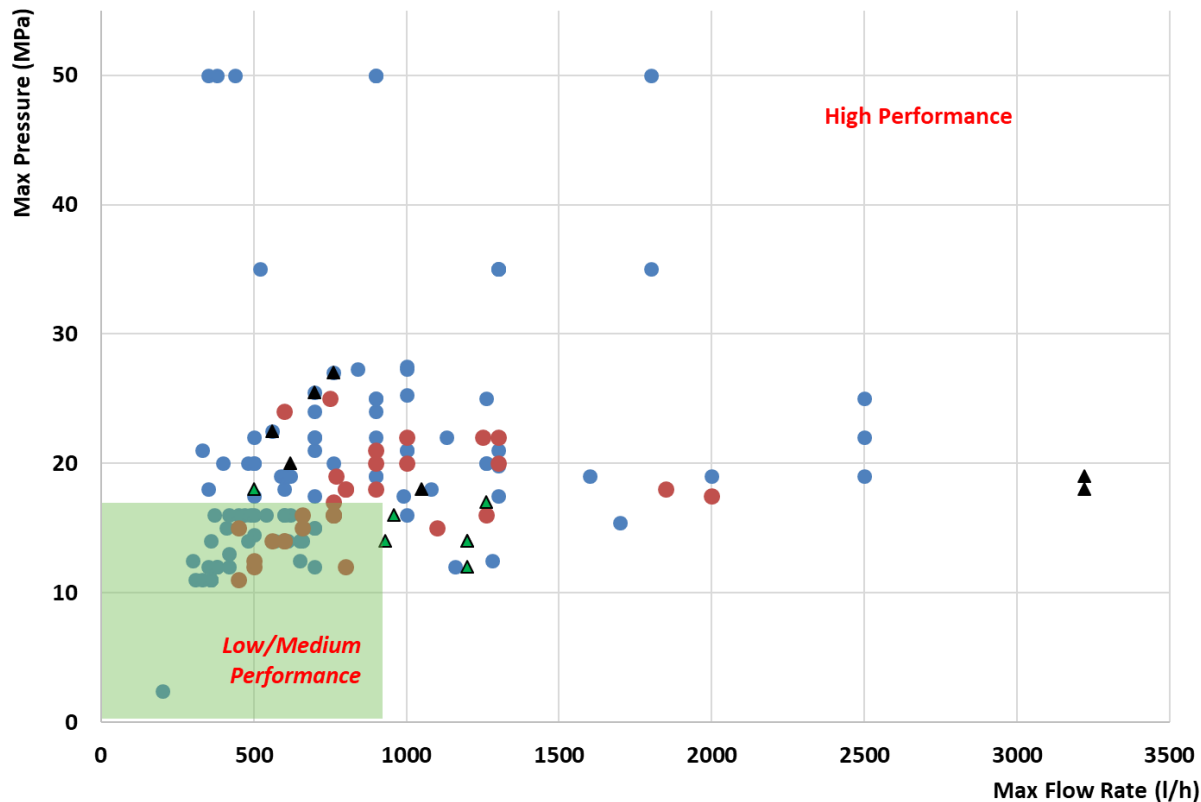
- HPC having a rated pressure exceeding 60 MPa;
- Steam cleaners *per se* (i.e., steam cleaning technology only);
- Appliances for medical purposes;
- Agricultural sprayers;
- Non-liquid, solid abrasive cleaners;
- Machines designed to be part of a production process;
- Machines designed for use in corrosive or explosive environments (dust, vapour or gas);
- Machines designed for use in vehicles or on board of ships or aircraft.

Definitions



- "**High pressure cleaner**" means a device that ejects water at high speed with the aim to remove dirt, dust, mould, paint etc. from a soiled surface or structure.
- "**Hot water high pressure cleaner**" means a high pressure cleaner that incorporates a water heater to raise the temperature of the input water.
- "**Low/medium performance high pressure cleaner unit**" means: the maximum water pressure does exceed 2.5 MPa but does not exceed 16 MPa, and the maximum water flow rate does not exceed 900 liter per hour (l/h).
- "**High performance high pressure cleaner unit**" means a unit where: the maximum water pressure does exceed 16 MPa but does not exceed 60 MPa, or the maximum water flow rate does exceed 900 liter per hour (l/h).
- "**Stationary high pressure cleaner unit**" means: A unit that is designed to be used at one site for a length of time but capable of being moved to another site with suitable equipment. Generally they are skid or frame-mounted with the supply line capable of being disconnected.
- "**Steam cleaner**" means: A unit that are designed for steam cleaning only.
- "**Agricultural sprayer**" means: A unit that is used to apply liquid fertilizers, pesticides, or other liquids to crops during their growth cycle.

Available HPC models



161 HPC models

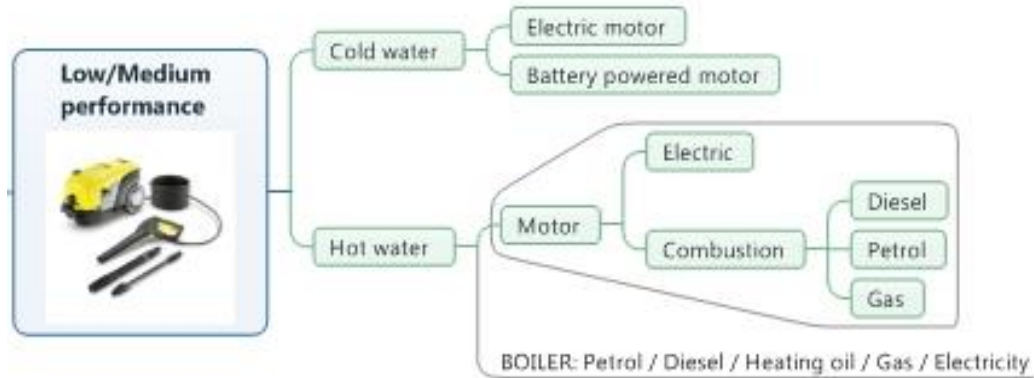
Max pressure:
2.4MPa – 50 MPa

Max flow rate:
200l/h up to 3.200 l/h
(2 models much higher)

63.4% Cold Water & Mobile
25.5% Hot water & Mobile
9.9% Stationary

8.1% Combustion engine
90.7% Electric motor
1.2% Battery driven

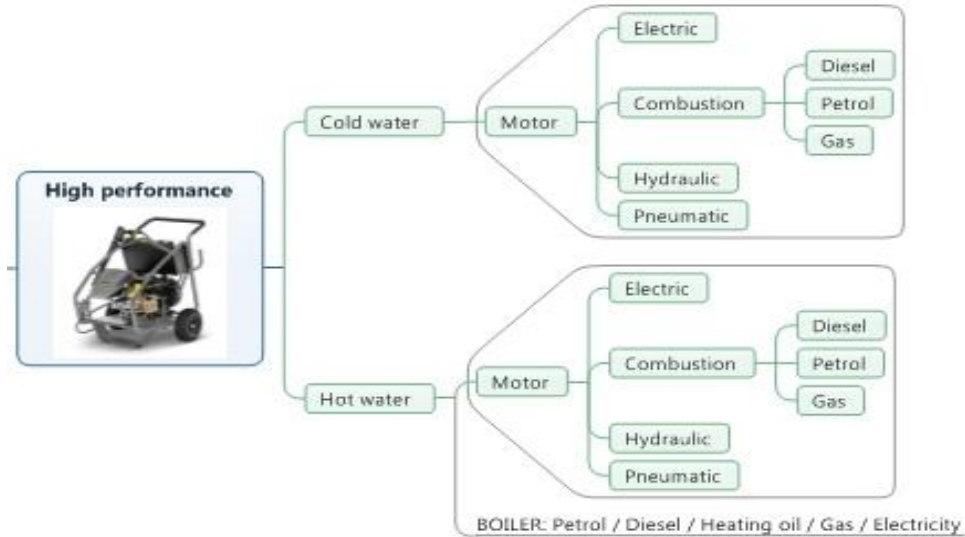
Preliminary product scope



- Cold water low/medium performance HPC
- Hot water medium/low performance HPC

(2.5-16MPa max. pressure & ≤ 900 l/h max. flow rate)

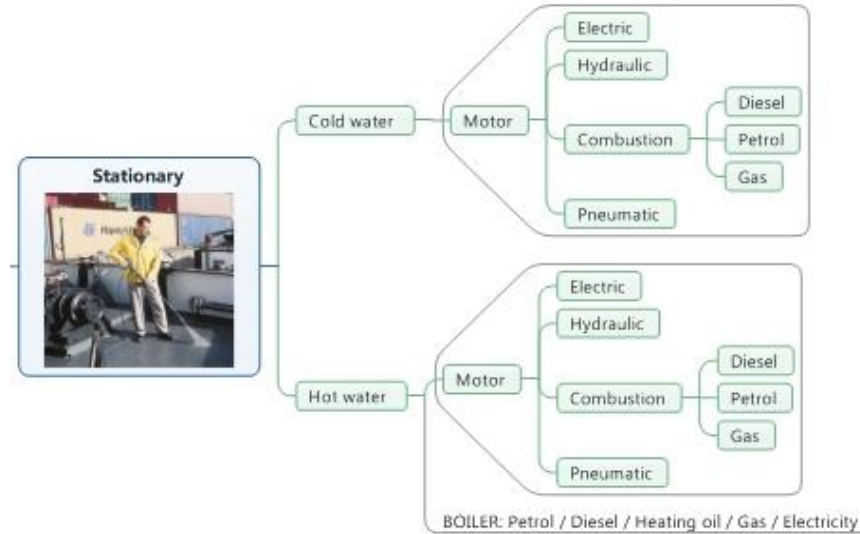
Preliminary product scope



- Cold water high performance HPC
- Hot water high performance HPC

(16-60MPa max. pressure **or** > 900 l/h max. flow rate)

Preliminary product scope



- Cold water stationary high pressure cleaners
- Hot water stationary high pressure cleaners

Questions and discussion

- Do you agree with the scope proposed*?
- Are the proposed limits on pressure and flow appropriate to differentiate the categories of high pressure cleaners?
- Do you agree with the inclusion of stationary high pressure cleaners as a separate subcategory?
- Any other comments are very welcome!

**In case of major change requests please provide as much as possible supporting information to justify the request.*

Findings from the 1st questionnaire

Gaps identified and way forward

Questionnaire results

7 questionnaires received

- 4 Manufacturers (3 large and 1 medium size)
- 2 trade/manufacturers associations
- 1 Consumer/Environmental Organisation

Sufficient Input on Task 1: Product Scope

No sufficient input on Tasks 2-4

- On Task 2 – 3 replies.

Info on market information (stocks and sales) & segmentation are not sufficient

- On Task 3 Users – 4 stakeholder replied
- On Task 4 Technologies: 2 replies however with very few information

Suggested way forward..

Manufacturers & Manufacturers/Trade Associations:

Data* and expert estimations on Task 2-4 in sufficient level of detail

Market data & segmentation

- Volumes of cold & hot water HPC (EU – trade info: imported & exported) for the last 5-10 years – (no country & company split)
- Volumes of stationary HPC (EU – trade info: imported & exported)* for the last 5-10 years (no country & company split)
- Information of market segmentation & growth
(e.g. % of sales: electric vs combustion vs battery driven HPC)

User information & system aspects

Technologies

*Data are anonymised and aggregated. Sensitive data are not exposed and are treated as highly confidential. Many options - no confidentiality issues.

Suggested way forward..

Supporting information:

Measurements

(e.g. energy measurements at different modes/loads)

Eco-design innovations

Material efficiency (e.g. BOM), durability and repairability aspects

Cleaning performance tests

Optimal or recommended parameters per surface type

*Sensitive company data are not exposed and are treated as highly confidential.

Test standards Legislation

Current legislation and test standards

- Safety requirements
 - **EN 60335:** *Household and similar appliances – Safety*
 - **EN 1829:** *High pressure water jet machines – Safety requirements (> 35 Mpa)*

Harmonised under the Machinery Directive
- Electromagnetic Compatibility
 - **EN 55014, EN 61000** *Electromagnetic compatibility*

Harmonised under the Machinery Directive
- Acoustics
 - **EN ISO 4871, EN ISO 11203, EN ISO 3744,** *called up by EN 60335-2-79:2012*

Annex III of Outdoor Noise Directive

Test standards on performance/efficiency

IEC 62885-5 Ed. 1 Surface cleaning appliances - Part 5: High pressure cleaners and steam cleaners - Methods of measuring the performance

- IEC Technical Committee TC59 Performance of household and similar electrical appliances
- Committee Draft Vote stage (59F/340/CDV) up for vote in May 2018.
- Expected to be finalised in 18 months to 2 years from voting
- Contents (so far):
 - **Efficiency tests of oil-heated high pressure cleaners → based on the EU nited Voluntary burner efficiency label**
 - **Cleaning efficiency → *under consideration* (?)**

Test standards on performance

Cleaning efficiency or cleaning performance

- There are no current EN/IEC performance testing standards for high pressure cleaners → no harmonisation
- Manufacturers → in-house test protocols
- Test laboratories → tests on behalf of consumer organisations

- Two approaches:
 - **Pre-soiled and aged surfaces**
 - heterogeneous substrate
 - large number of test samples and time and labour-intensive test work
 - **Artificial test surfaces**
 - controlled substrate

Questions and discussion

- Is there any relevant standard/legislation not identified?
- Are you aware of any standard under development or expected in the future that may be relevant for the study?
- Which are the prospects of the further development of IEC 62885-5, particularly on cleaning efficiency?
- Any other comments are very welcome!

Conclusions, next steps and outlook

Conclusions

Scope proposal

- **Limits for low/medium/high performance HPC**
- **Stationary**

Questionnaire and information needs → is it possible to get data on:

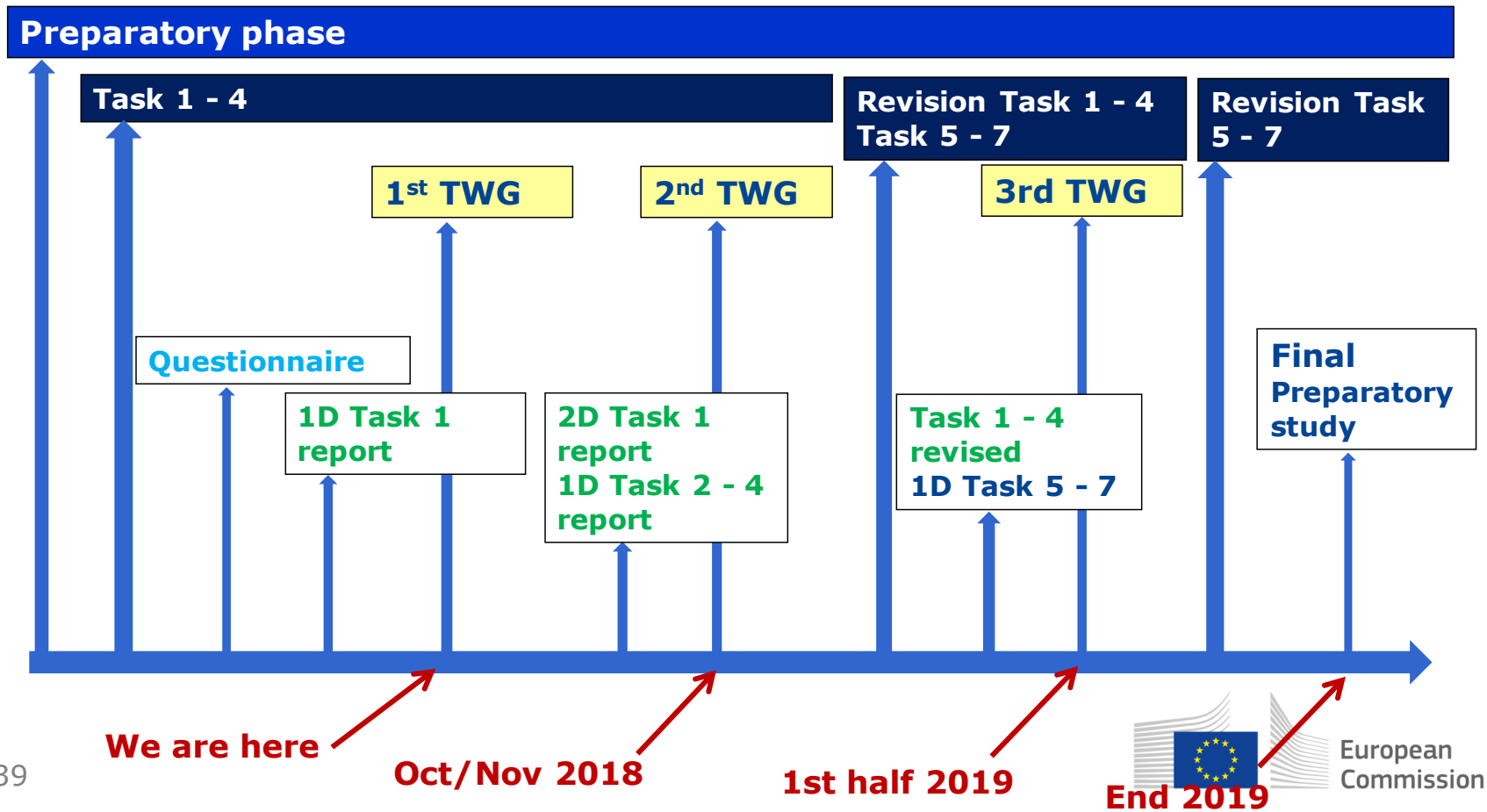
- **Information needed on Task 2-4**
- **Ecodesign innovations and own measurements**

Test standards and legislation

- **Future test standards on cleaning efficiency (?)**
- **Need for a standardisation request (?)**

Questionnaire will be redistributed to all registered stakeholders with a new deadline to **23rd of May 2018**

Next steps



Thank you!