FWC ESPR – SR4

Review study and support to evaluation and impact assessment for ecodesign and EU energy labelling for the product group "Household Dishwashers"

Stakeholder Interaction – 17 December 2025

Tim Hettesheimer & Robin Barkhausen - Fraunhofer ISI,

Ashleigh McLennan - Oeko-Institut,

Paul Waide - WSEE,

Nele Kelchtermans - VITO

Ecomatters, Fraunhofer IZM

Important remarks

- Please note that the meeting will be recorded
  ➔ your contributions during the meeting will be documented and used for the purpose of the study
- If you intend to speak:
  - “Raise” your virtual hand or indicate in the chat that you would like to speak.
  - You are called to speak by the moderator.
- When you intervene:
  - Please state your name and your affiliation.
  - Please try to be concise to allow everyone to share their thoughts.

Agenda

13:30 – 13:35	**Welcoming / Opening Remarks from DG ENV** *Pierre Henry - ENV B.4 Sustainable Products*
13:35 – 13:40	**Overview of the Preparatory Study** *Tim Hettesheimer – Fraunhofer ISI*
13:40 – 13:45	**Q&A**
13:45 – 14:00	**Update on Task 5-6** *Ashleigh McLennan – Oeko-Institut & Tim Hettesheimer – Fraunhofer ISI*
14:00 – 14:10	**Q&A - Task 5-6**
14:10 – 14:40	**Task 7 – Policies** *Paul Waide - WSEE & Tim Hettesheimer – Fraunhofer ISI*
14:40 – 15:10	**Q&A – Task 7 Policies**
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15:20 – 15:50	**Inputs from the manufacturers** *Giulia Zilla - APPLiA*
15:50 – 16:00	**Task 7 – Scenario** *Robin Barkhausen – Fraunhofer ISI*
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16:15 – 16:20	**Closing remarks – end of the meeting** *Pierre Henry - ENV B.4 Sustainable Products*

Overview of the Preparatory Study

Tim Hettesheimer– Fraunhofer ISI

Household dishwashers – the “history” of Ecodesign

- 2017: **Ecodedesign Preparatory Study** (JRC, Oeko Institut and Uni Bonn)
- 2017: **Follow-up of the preparatory study** for Ecodesign and Energy Label for household dishwashers (JRC)
- 2019 **regulations** with Ecodesign: Commission Regulations **2019/2022 (EC)** and (EU) 2021/341 and Energy Label: Commission Regulations **2019/2017 (EC)** and (EU) 2021/340.
- 2024: Ecodesign for Sustainable Products Regulation (EU) 2024/1781
- June 2024: Start of the Review Study
- January 2025: 1st Stakeholder Meeting
- July 2025: 2nd Stakeholder Meeting
- September 2025: Technical Analysis published
- December 2025: Stakeholder Interaction

Preparatory study: Methodology

MEErP: OVERVIEW

- Task 1
  - Scope
- Task 2
  - Markets
- Task 3
  - Users
- Task 4
  - Technologies
- Task 5
  - Environment
  - Economics
- Task 6
  - Design options
- Task 7
  - Scenarios

1. Stakeholder meeting

- Task 1 – Scope
- Task 2 – Markets
- Task 3 – User
- Task 4 – Technologies

2nd SHM

- Task 5 – Environment & Economics
- Task 6 – Design options

Today

- Task 7 – Scenarios

Study team involved today

Fraunhofer ISI | Öko-Institut | Waide Strategic Efficiency Europe | vito

Tim Hettesheimer
Senior expert

Technical lead

Robin Barkhausen
Expert

Task 7 Scenarios

Ashleigh McLennan
Project Manager, Expert

Update on Task 6

Paul Waide
Director, Senior expert,

Task 7 Policy

Nele Kelchtermans
Expert

Also involved in the project:

ecomatters
Task 5 – LCA/LCC

Fraunhofer IZM
DPP

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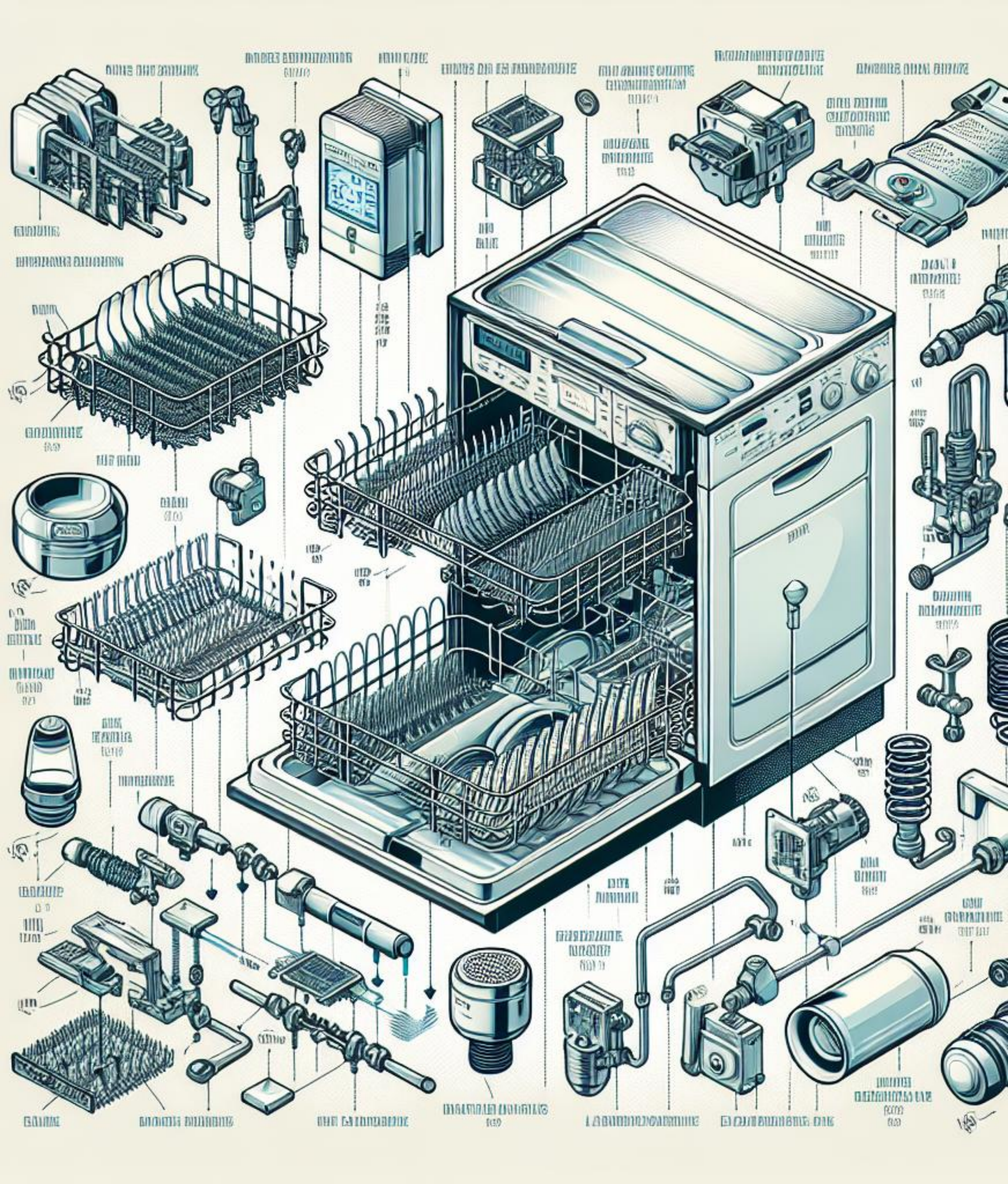
MEErP Task 5

Tim Hettesheimer (on behalf of Ecomatters)



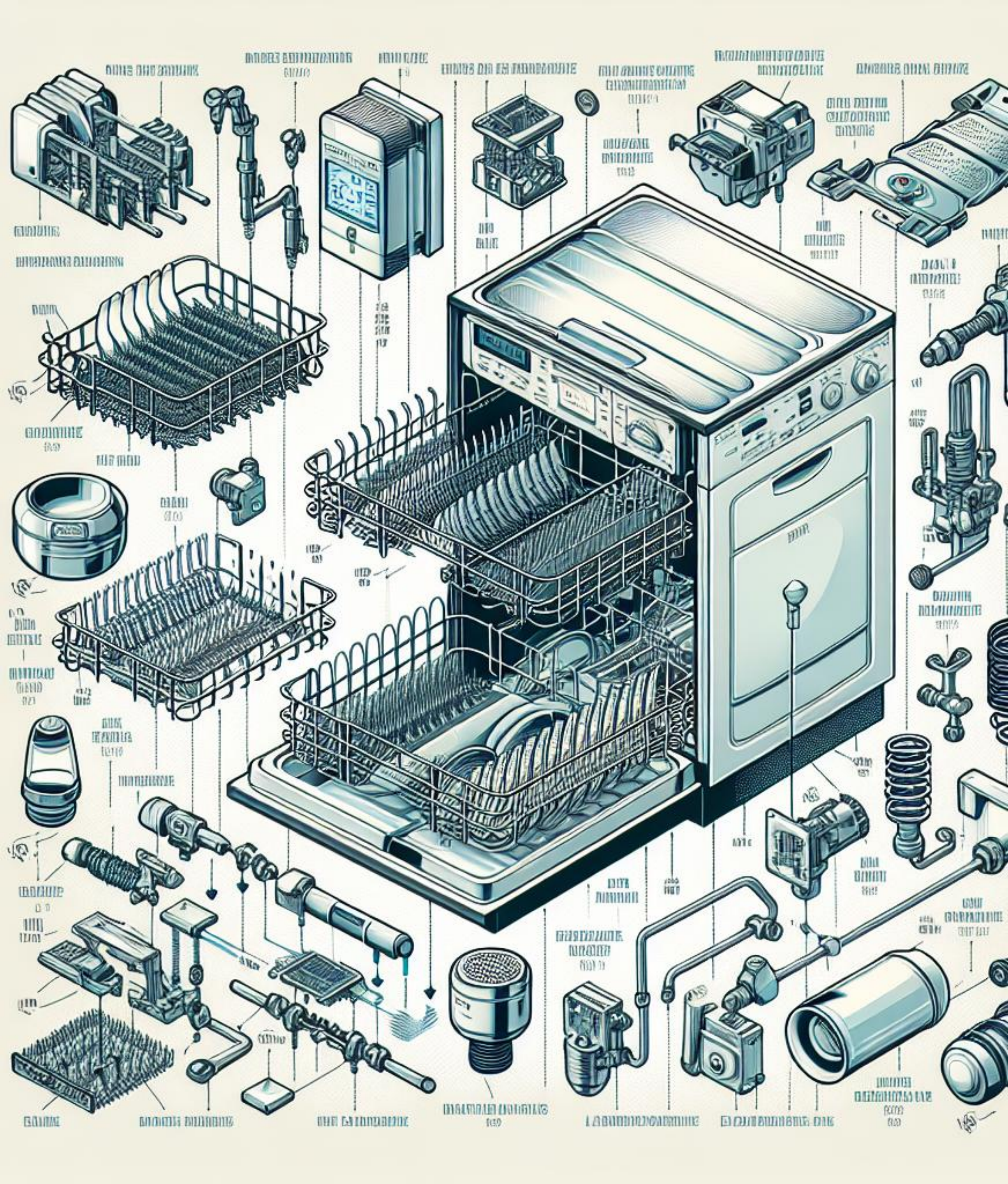
Task 5 LCA/LCC: Key adjustments based on stakeholder feedback

- Update of detergent use/cycle
  - Detergent usage per cycle for 10 and13 PS DW raised from 14.6 g/cycle → 17 g/cycle
  - Detergent consumption raised from 3.12 kg/year → 3.64 kg/year
  - Detergent price lowered from 7.52 €/kg → 6.46 €/kg
  - Total life cycle costs stayed more or less the same:
    - 20 €/year (BC1) → 20 €/year (BC1)
    - 20 €/year (BC2) → 19 €/year (BC2)

MEErP Task 6 Updates

Ashleigh McLennan - Oeko-Institut

Tim Hettesheimer – Fraunhofer ISI



Task 6: Design options – background

- Task 6 of the Methodology for Ecodesign of Energy-related Products (MEErP) focuses on **design options**. These options concern the **identification** of Ecodesign requirements to be laid down in the form of a delegated act and form the basis for **determining the level of stringency** of the potential delegated act.

- The overall objective of this part of the Preparatory Study is the techno-economic assessment to identify and evaluate different design alternatives that can improve the environmental performance of a product.

- Design options in this chapter are based on:
  - Improvement options discussed in Task 4
  - Insights from published literature and relevant reports
  - Discussions with the Commission and feedback from stakeholders.

Selected Design Options

Selected Design Option	Updates
DO1 - Improve energy efficiency of the drying cycle	Purchase cost increased
DO2 - Increase selection of eco programme through prompts	No change
DO3 -Minimum recycled plastic requirement	Life expectancy reduced
DO4 -Use of reused components	No change
DO5 - Design for repairability	Adjustment to methodology for calculating LCC
REMOVED - Reduced detergent use in smaller machines	Not applicable (water consumption not PS plus existing information requirements)
NOT INCLUDED - Duration of the ecoprogramme	New short eco-progamme – uncertainties Timecap on the ecoprogramme – no impact on the Base Case

Design options – LCA & LCC input parameters

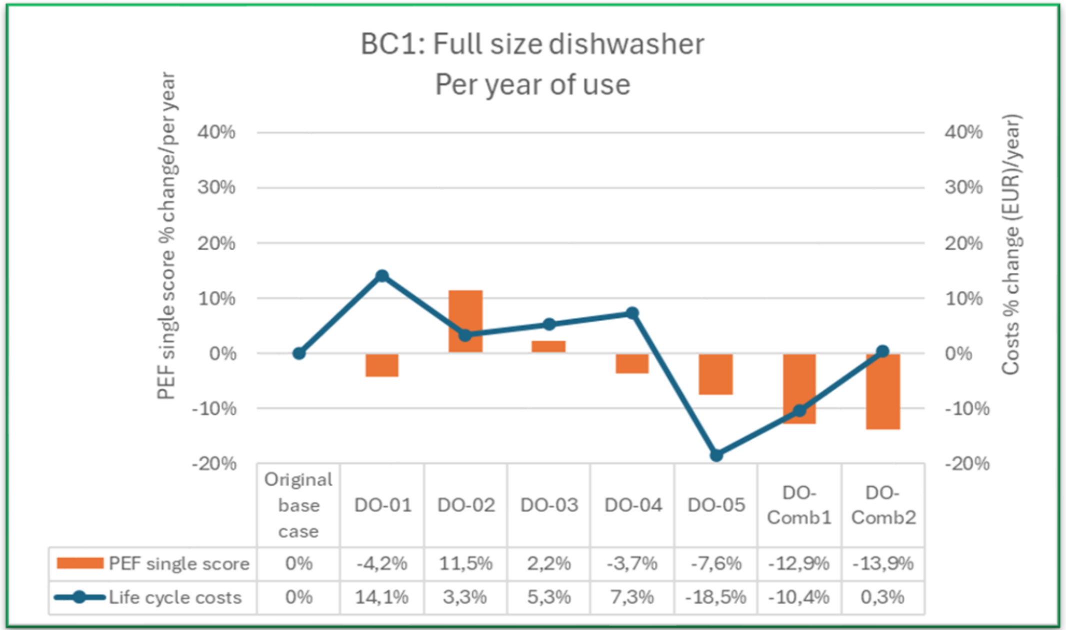
Design option	Bill of Materials	Consumption	Lifetime	Cost
DO-01 (improve energy efficiency of drying)	More steel and plastic, addition of zeolite*	0.12 kWh (full size) and 0.11 kWh (slimline) per cycle less electricity use (-11 % / -12 %)	No change	+ € 350 purchase
DO-02 (increase selection of eco program)	More electronics (+ 1 kg, printed wiring board)	Increase of 10 % of eco program leading to ~3 % less electricity use per cycle (weighted average of eco and non-eco programs)	No change	+ € 90 purchase
DO-03 (25 % recycled plastic use)	Polypropylene with 25 % recycled content	No change	-10%	No change
DO-04 (Reuse of components)	Less stainless steel (excluded from environmental impact, still present in machine)	No change	No change	+ € 137
DO-05 (improved repairability)**	No change	No changes	+ 40 %	Average cost of repair € 110, corresponding (60% labour, 40% spare parts). Reduced costs based on MEErP methodology indicating a 20% reduction of labour costs.

LCA Results – Methodology

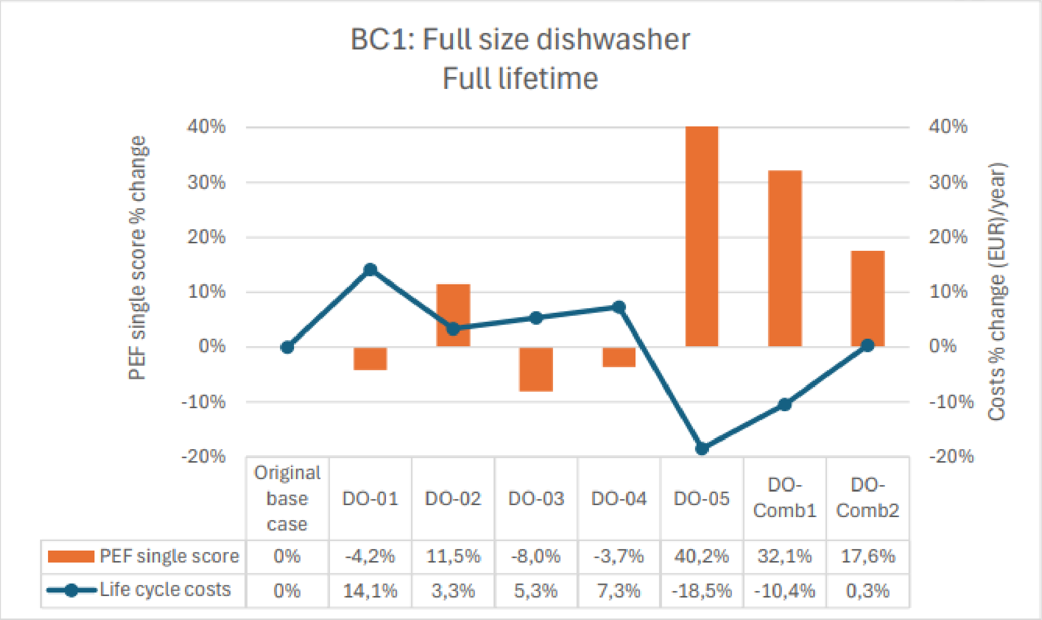
- LCA and LCC results were calculated per Base Case and per Design Option
- From the LCA results, the Product Environmental Footprint (PEF) single score was calculated
  - PEF single score developed by the JRC as part of its LCA methodology. Transforms the results of the 16 impact categories into a single, normalized and weighted factor
  - Design options with lower PEF single scores have more environmental benefits compared to the original Base Case
    - Note: PEF single score provides an indicative guidance, as not a full PEF-aligned LCA study was performed
    - PEF single scores in this study cannot be compared with products outside of this study
- PEF single scores are calculated per product lifetime (included lifetime extension for DO-06) and per year of use (year of use more relevant consideration in this study)
- Two Combined DO were selected:
  - Combination 1: comparison of BAT energy saving option (DO1) with BAT circularity option (DO5) in order to assess impact of longer lifetime on LCC;
  - Combination 2: all environmentally beneficial DOs (DO1, DO3, DO4, DO5) to assess overall LCA and LCC of identified options and compare additional cost/ benefit.

LCA Results – BC1

- **DO-01** (improved drying performance) results in the highest increase in LCC (can be compensated> **Combination 1**)
- **DO-05** has the highest environmental and cost saving potential
- **DO-03** PEF score depends on whether lifetime or per year of use considered (uncertainties emphasized) .
- **DO-04** Minimal PEF impact with second highest LCC impact.
- **Combination 2** only slightly improves PEF with comparatively high LCC impact**. DO-02** omitted.



	Original base case	DO-01	DO-02	DO-03	DO-04	DO-05	DO-Comb1	DO-Comb2
PEF single score	0%	-4,2%	11,5%	2,2%	-3,7%	-7,6%	-12,9%	-13,9%
Life cycle costs	0%	14,1%	3,3%	5,3%	7,3%	-18,5%	-10,4%	0,3%



	Original base case	DO-01	DO-02	DO-03	DO-04	DO-05	DO-Comb1	DO-Comb2
PEF single score	0%	-4,2%	11,5%	-8,0%	-3,7%	40,2%	32,1%	17,6%
Life cycle costs	0%	14,1%	3,3%	5,3%	7,3%	-18,5%	-10,4%	0,3%

Conclusions

- Improved repairability is the individual design option with the highest environmental and cost saving potential.
- Technological improvements leading to greater energy efficiency in the drying cycle are only acceptable from a cost perspective when combined with a longer lifetime.
- Improving user behaviour (i.e. selection of the eco programme) via technological solutions such as digital displays or connected devices is not environmentally beneficial from a product environmental footprint perspective (i*f/when it necessitates inclusion of electronics*). Alternatively, more prominent labelling explaining the benefits of the eco programme has been assessed as highly feasible through EPREL (section 8.6).
- Increased use of recycled content and reused components offer modest environmental improvements when combined with repairability and energy efficiency of the drying cycle, but without cost benefits. Uncertainties around the feasibility and cost of these design options also exist.

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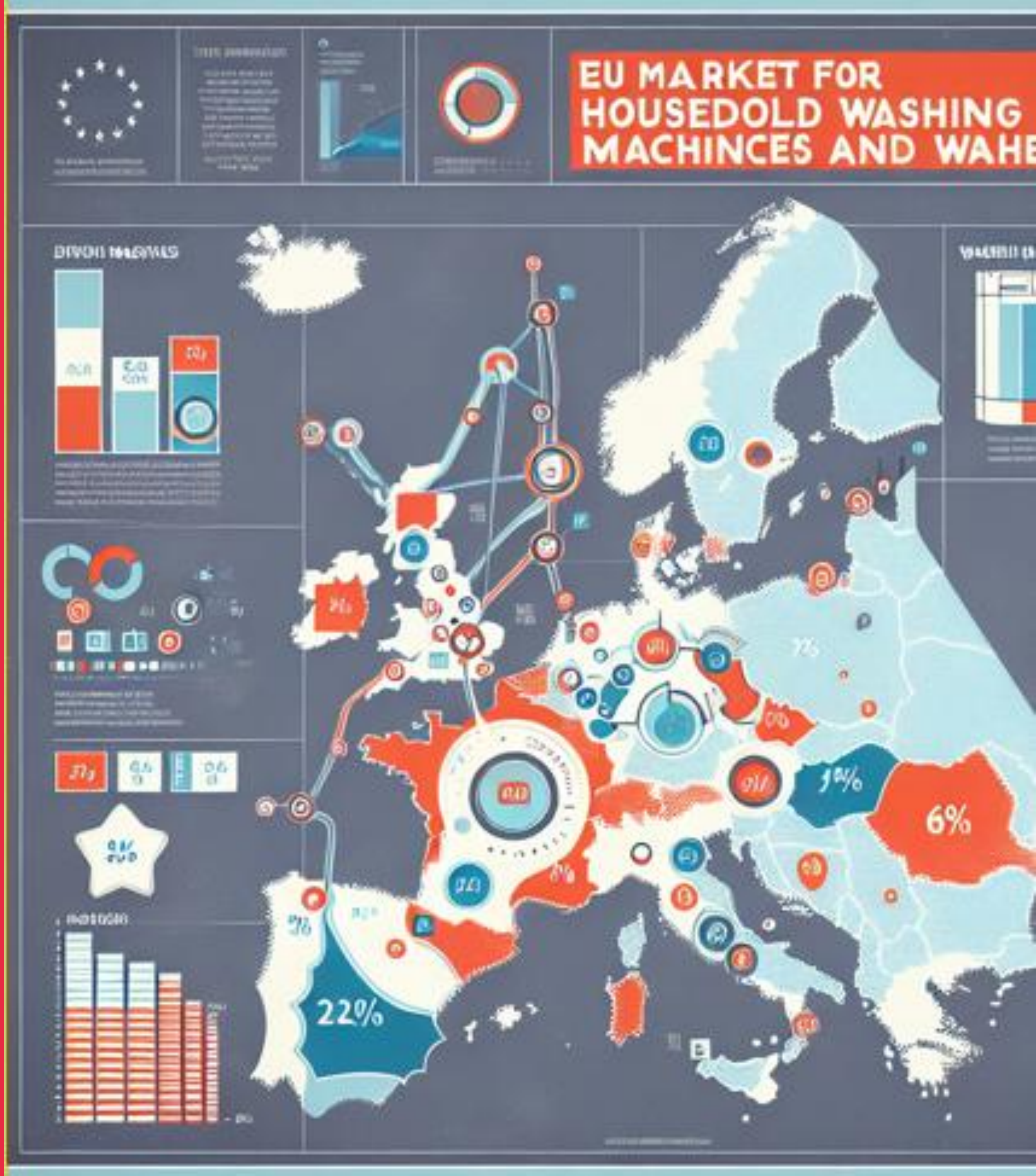
MEErP Task 7 Policies

Paul Waide - WSEE



MEErP Task 7

Task 7 covers:

- MEErP Task 7.1 Policy analysis;
- MEErP Task 7.2 Scenario analysis;
- MEErP Task 7.3 Socio-economic impact analysis industry, consumers and society;
- MEErP Task 7.4 Sensitivity analysis of the main parameters;
- MEErP Task 7.5 Summary of results and main policy recommendations per product

Today's presentation:

- Is to present further thinking on the policy options for Task 7.1 and to receive stakeholder's thoughts and suggestions prior to their finalisation

ESPR CONTEXT

RANGE OF REQUIREMENTS

Source: https://environment.ec.europa.eu/events/information-session-new-ecodesign-sustainable-products-regulation-espr-2024-05-22_en

Durability, repairability options – potential candidates

- Repairability index, to be included on the energy label as is the case for tumble dryers, (APPLiA is developing a proposal of which some parts have been shared and are in the report)
- Connected appliance functionality guarantee (avoidance of premature obsolescence by provisions to guarantee that connected service functionality (especially any functionality necessary for the appliance to continue to deliver its primary functions) are maintained over a minimum period commensurate with a reasonable (or higher) product lifetime
- Usage cycle counter (for connected appliances and possibly those with electronic displays) to count and report the number of wash/wash&dry cycles the appliance has made during its service life

Decision on each of the above – *pending stakeholder feedback*

Spare parts

- APPLiA have proposed maintaining the current Ecodesign spare part list
- The study team noted that the list of spare part for tumble dryers is longer than is currently the case for dishwashers and includes:
  - gaskets and seals;
  - switches and knobs;
  - cables and plugs;
  - electric fuses (separately or bundled together)
- Which raises the question of whether the list for dishwashers should be extended to include these too?

Decision on the above – *pending stakeholder feedback*

Maintenance and refurbishment

Both are challenging to extend beyond current measures; however,

- Maintenance is understood to be carried out less often than is optimal for product life and performance
- It seems possible/reasonable for maintenance prompts to be provided in the case of connected appliances (APPLiA have indicated they might support this)
- However, it's unclear if APPLiA's indication re connected appliances is simply the provision of the same maintenance information as is in the information manual, or if it corresponds to using sensors to monitor maintenance needs in critical machine functionality features and prompting consumers to conduct maintenance when necessary

Decision(s) on the above – *pending stakeholder feedback* and clarity on the APPLiA comment

Energy and resource efficiency

Revision of active mode efficiency metric

- It is presumed that there will be no substantive changes in the manner in which energy performance is determined in principle
- However, account needs to be taken of the need for cleaning performance alignment factors per the de facto revision of the reference system caused by the change in reference machine and reference detergent
- The fifth edition of IEC 60436 was published in September 2025, and cancels and replaces the fourth edition plus its amendment IEC 60436:2015+AMD1:2020
- The European Commission has previously stated that the revised standard EN 60436 (Edition 5), cannot be harmonised, as the calculations in the current regulation differ from those proposed in the updated standard

Decision on the above – *pending stakeholder feedback including on latest developments vis a vis alignment factors and the adoption of a Harmonised Standard*

Minimum energy performance standards

- Improving energy efficiency in actual use is an important opportunity identified within the preparatory study; however, the opportunity is mostly to be realised through measures addressed by energy labelling rather than by specifying more stringent minimum energy performance requirements than those in the existing Ecodesign regulation

- This is because the only design option measure identified that could improve minimum energy performance levels was DO1: *Improve energy efficiency of the drying cycle*, however, while this was projected to save 0.12kWh/cycle it is estimated to cost a prohibitive €350 to implement

- This is not cost effective from a life cycle perspective for average users and would have an unacceptable impact on affordability

Decision on the above - *a priori* **no change in the current requirements** (following alignment factors being applied to account for the changes in testing) – *pending stakeholder feedback*

Revision of the energy label

- Per the provisions of paragraph 6 in the ELR revision of the label is required when either 30% of products are in the top A class criterion or 50% in the A+B classes
- However, neither have yet been met according to the data in EPREL (accessed on 9/12/25
- Thus, there is no need to amend the label classes on this basis
- However, some *recalibration* may possibly be needed to account for the enforced changes in the test reference machine and detergent and its impact on cleaning performance per whatever HS is eventually adopted
- And further, to *include a repairability index*

ON (EU) 2019/2017 with regard to energy labelling of dishwashers

Distribution of the selected 12 987 models out of a total of 12 987 models

Class	Entries	%
A	1 293	10,0
B	1 345	10,4
C	2 249	17,3
D	3 061	23,6
E	4 359	33,6
F	553	4,3
G	127	1,0

Revision of the energy label – additional related options

- There are two other potential amendments that could affect the label; the notions of:
  - shortening the maximum Eco programme duration to increase user acceptability
  - creating a new (additional) Eco short (or Eco Fresh) programme (raised at the last SHM)
- The premise for shortening the Eco cycle duration is that the typical length of the Eco cycle may deter some users from selecting it *(but see later discussion)*
- For the Eco short/Fresh concept the premise is that some users *are selecting short cycles for lightly soiled dishes* and hence there is a need for an Eco option for that service which would allow suppliers to compete on a short cycle as well as the current longer one

Revision of the energy label – Eco Short/Fresh?

Pros:

- Users would have the *option to select a short cleaning cycle* for which there would be *supplier competition on its energy performance* and verifiable performance levels
- About <u>12% of cycles selected are short for lightly soiled dishes</u> and promote energy performance competition for these cycles rather than just the longer, but better cleaning/drying, Eco cycle
- It could help promote some performance optimisation across *both long and short cycles* and hence might give a better indication of overall dishwasher energy performance compared to reliance on a single longer cycle

Cons:

- Adding a second cycle with Eco in the name <u>may confuse users</u> as to which is the more energy efficient

Revision of the energy label – Eco Short/Fresh?

Cons continued:

- The performance, (especially the drying performance, but also the cleaning performance), under the Eco Fresh cycle is likely to be poorer than under the Eco cycle and this may lead to negative perceptions of Eco cycles in general
- The remedy to ensure an acceptable cleaning performance is to use a high-performance detergent, however, there is currently only one such detergent on the market and this is proprietary technology
- Adding an additional reference cycle will *increase testing costs* for performance declarations, hence increase the purchase price of appliances and this (in turn) may lower demand for dishwashers and increase hand washing
- An additional reference cycle will add testing costs to performance verification tests and hence make market surveillance more costly – this could lead to less market surveillance with negative consequences for the degree of compliance

Revision of the energy label – Eco Short/Fresh?

Cons continued:

- The higher performance detergent *costs more than standard detergents* and this will increase the operating costs to the user
- To achieve acceptable cleaning performance users would need to be educated to use a different detergent for the Eco Fresh cycle than for the Eco cycle and should stock both; however, there may be users that would only stock the higher performance detergent (to avoid needing space for two types) and use this for all dishwashing cycles
- It would require new performance test information to be factored into a label *implying a corresponding amendment to test standards* and the subsequent need to gather test data to allow performance classes to be determined – both could take considerable time and *delay the adoption of a new regulation*

Revision of the energy label – Eco Short/Fresh?

Uncertainty

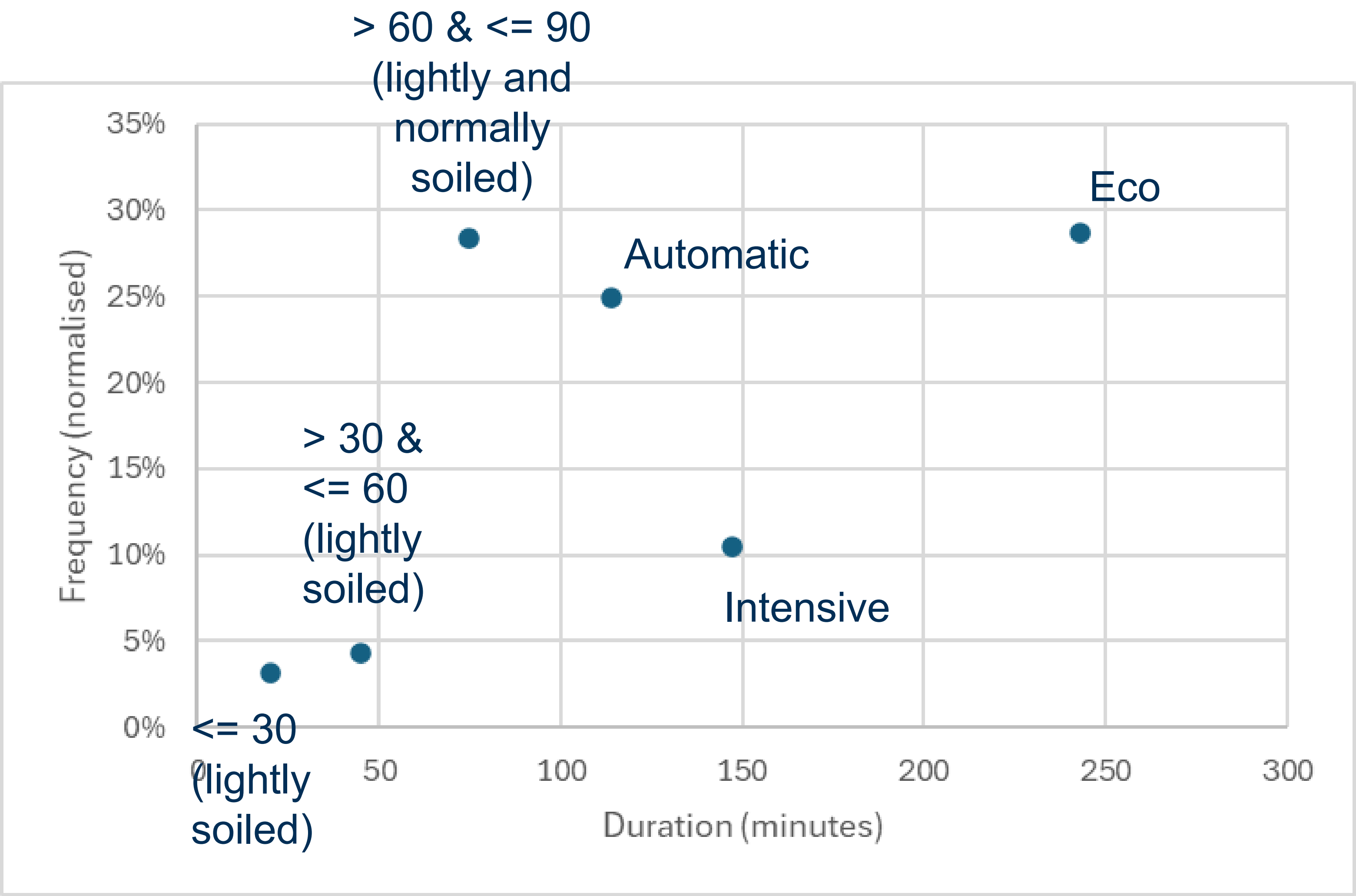
- The PEF of the higher performance detergent is unknown (by the study team) and hence how that compares to normal detergents

Questions for Member States:

- Is the proposal a valid value proposition in principle?
- Is the potential benefit worth the additional burdens/hinderances it would create?
- Might this better belong as a topic for the next review?

Revision of the energy label – related issues

- What cycle lengths are users currently opting for?
- There is only partial data but a rough indication from matching APPLiA programme usage data to typical programme length data is shown in the figure



Revision of the energy label – related issues

- Many are happy to use a long cycle (27.1%)
- Normally soiled dishes cycles account for 72.4% of all cycles – with 27.1% around 240mins, 23.6% around 114 mins and 21.7% <90 minutes
- Intensive (9.9%) is not substitutable with Eco
- Lightly soiled cycles account for 12.3% of all cycles with an average length of about 65 minutes
- Thus, there is a big gap between the Eco duration and those of other normally soiled programmes, *so shortening the Eco cycle would be unlikely to increase its usage* unless it were *dramatically shorter* (and this would likely raise energy use more)

Decisions on all the labelling points raised to be made – *pending stakeholder feedback*

Energy and resource efficiency:
Minimum functionality requirements that assist energy performance

Indicate relative full capacity energy consumption of the selected programme cycle compared to the reference eco programme at full load

- Users often ***don't know how much energy the programme they select is likely to use and which is the most efficient***
- DO-02 *Increase selection of eco programme through prompts* examined the effects of indicating the relative (full capacity) energy consumption of the selected cycle compared to the reference programme when the programme is selected for any cycle that can have a full load
- The incremental costs (€95) were high because it was assumed that the base case machine had no electronics; however, they would be a fraction of this if the machine already had an electronic display (perhaps €5 based on DO-18 from the WM/WD SR3 study) so the requirement could be made *conditional on display/connectivity functionality*
- It could be done instantaneously when a user moves a selection to a programme (and pre-activation of that programme) providing indicative energy consumed at full load is known
- It only makes sense to compare values for broadly interchangeable programmes

Indicate relative full capacity energy consumption of the selected programme cycle compared to the reference eco programme at full load

- Potentially a simple LED traffic light system could be used (but also % values or absolute values) beneath, say, a lightning symbol as on the current energy label
- As energy performance of "indicative" non-reference programmes are not measured (or determined) to the same calibre as those for reference programmes there would be a degree of inaccuracy behind such comparisons
- Although values are *indicative* there is little evident advantage to be gained by suppliers "gaming" such information as it would not appear on an energy label or anything a consumer is likely to view prior to purchase

Decision on each of the above – *pending stakeholder feedback*

Energy management (demand side flexibility):

- Important for optimising electricity networks, thereby lowering costs, and decarbonisation of the grid
- Potentially important to individual users if they are able to benefit from time dependent or dynamic tariffs or have their own generation and storage (but currently many-are not/do not)
- The JRCs voluntary code of conduct for smart appliances was adopted in 2024 and is the only system yet approved at the product level

Decision on the above – *no new measures (beyond potential information requirements) and review in the next regulatory cycle*

Low power mode and networked standby requirements:

- The low power mode requirements in the current Ecodesign regulation for household dishwashers (EU) 2019/2023 are slightly less stringent (0.5W in off- or standby mode, 1W standby mode if information is supplied, 2W for network standby) compared to those applied for the more recent tumble dryer regulation (0.3W, 0.8W for the first two modes respectively) which is aligned with the requirements in regulation (EU) 2023/826 that sets ecodesign requirements for off mode, standby mode, and networked standby energy consumption

- Importantly, (EU) 2023/826 includes requirements such that equipment has to be switched into a network standby mode if it has not been activated after 20 minutes

- WMs/WDs and DWs are excluded from (EU) 2023/826 but TDs are not

- The question is, ***is this exclusion appropriate?*** And if so, ***in its entirety, or partially?***

Decision on the above – *pending stakeholder feedback*

Energy and resource efficiency:
Other minimum (functionality) requirements

Cleaning and drying performance:

- The current Ecodesign requirements are:

- the cleaning performance index (IC) shall be greater than 1,12;
- the drying performance index (ID) shall be greater than 1,06 for household dishwashers with a rated capacity of more than 7 place settings;
- the drying performance index (ID) shall be greater than 0,86 for household dishwashers with a rated capacity equal to or less than 7 place settings

- The study team are ***unaware of any evidence that the stringency of such requirements should be changed***
- A technical reason why nominal changes may be merited is simply to account for the enforced change in the reference detergent and reference machine which is expected to necessitate application of alignment factors to compensate for the nominal effect of the test changes

Decision on the above –*pending stakeholder feedback*

Water consumption:

- The current Ecodesign regulation ***does not specify any water consumption limits***
- While a distribution of water consumption can be seen in the data recorded in EPREL and the APPLiA database, it is unclear if there is a case to impose minimum levels
- The water consumption that is currently reported is under the Eco programme
- A priori, reporting water consumption would be **included in information requirements** but the values required could depend on decisions made regarding the reference programme(s)

Decision on the above –*pending stakeholder feedback*

Circular Economy

Increasing recycled content

- The Task 5/6 DO-3: *"Virgin plastic use is decreased 25 % and is replaced by recycled plastics"* considered the impact of such a DO
- While in principle increasing the use of recycled materials is desirable it depends on the quality of the recycled material (plastic above) being adequate and available in sufficient quantities
- Use of recycled metals is already high, but the *supply of sufficiently high-quality plastic seems constrained* and without this likely to <u>reduce the product lifetime</u>

Decision on the above – *pending stakeholder feedback* but, a priori, no new measures (beyond information requirements) and review in the next regulatory cycle

Simplifying remanufacturing and recycling

- In principle, modular design could support remanufacturing and recycling; however, the study team is currently unaware of any evidence upon which minimum or informative remanufacturing and recycling provisions could be set at the product specific level *(beyond those discussed for repairability)*
- Accordingly, it is (tentatively) recommended that the potential to specify such requirements be monitored and the topic included in the review of any subsequently adopted ESPR regulation for household dishwashers

Decision on the above – *as above but pending stakeholder feedback*

Critical Raw Materials

Design for recycling / Critical Raw Materials (CRM) ➔ Permanent magnets

- Dishwashers are already explicitly mentioned in the scope of Article 28 of the CRM Act Regulation (EU) 2024/1252:
  - Art. 28 (Recyclability of permanent magnets)
  - Art. 29 (Recycled content of permanent magnets)

- No need to regulate under ESPR → information from this ESPR preparatory study might provide useful information for the elaboration of the forthcoming Delegated Act in accordance with the CRM Act:

  *Article 29, Point 3. "After the entry into force of the delegated act adopted pursuant to paragraph 2, and in any event by 31 December 2031, the Commission shall adopt **delegated acts supplementing this Regulation by laying down minimum shares** for neodymium, dysprosium, praseodymium, terbium, boron, samarium, nickel and cobalt recovered from post-consumer waste that must be present in the permanent magnet incorporated in the products referred to in paragraph 1."*

SoCs (already presented at SHM2)

- The ESPR requires manufacturers of household dishwashers to adhere to information requirements for all SoCs present in their products, resulting in tracking obligations concerning their identity, location, concentration, safe-use instructions, and end-of-life treatment
- To meet these obligations with minimal duplication and maximum alignment, **the following thresholds (based on draft JRC guidance) are recommended**:
  - ✓ A 0.1 % w/w threshold for SVHCs (Art. 2(27)(a)) and POPs (Art. 2(27)(c)) in line with REACH Art. 33(1)
  - ✓ UN Globally Harmonized System (GHS) generic concentration limits (or, where absent, the lowest CLP GCLs) for hazard-classed substances under Art. 2(27)(b), supplemented by the latest endocrine-disruptor and PMT/PBT criteria; and
  - ✓ A uniform 0.1 % w/w cutoff for SoCs affecting circularity (Art. 2(27)(d)), pending more granular data.

SoCs (already presented at SHM2)

- Three implementation scenarios are proposed:
  - ✓ **Ambitious**: covering **all SoCs** without exemptions;
  - ✓ **Intermediate**: **case-by-case exemptions** for substances based on solid justification; and
  - ✓ **Limited**: **tracking only**
- A **five-year roll-out** is recommended across all scenarios to allow for supplier engagement and data gathering. An assessment of feasibility and administrative burden should be undertaken as part of the impact assessment.
- **No performance requirements** under Art. 6 of the ESPR at this stage: current WEEE/RoHS recycling frameworks are working satisfactorily, and stakeholder feedback has not identified any specific performance gaps.

Decision on the above – *pending stakeholder feedback*

DPP and GPP

- The exemption clause in ESPR Article 9(4)(b), which grants DPP exemptions for products already covered by EPREL, applies to household dishwashers
- Accordingly, it is not currently thought to be appropriate to implement a DPP for these products if the energy label is revised
- Re Green Public Procurement specifications, Article 65 of the ESPR states that "*the minimum requirements shall be based on the two highest performance classes, the highest scores, or, when not available, on the best possible performance levels as set out in the delegated act adopted pursuant to Article 4 applicable to the product groups in question*."
- Therefore, a priori, GPP thresholds will be linked to the A & B classes under a new energy label

Decision on the above – as above *pending stakeholder feedback*

Next steps

- Receive and process stakeholder feedback
- Finalise 2nd version of Task 7 report

Coffee break

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APPLiA views on Dishwashers

Giulia Zilla
Policy Director

17th of December 2025
3rd stk meeting on ED&EL
Online

Home Appliance Europe

Table of contents

Introduction

Recap of key messages from APPLiA

Key messages

Dishwashers

Important to understand how the Commission intends to move forward on these points!

Dishwasher4ALL: Life Cycle Cost must reflect a real market perspective.

Eco programme is a success and it must be preserved:
Keep only one reference programme.

Align to the state-of-the-art standard:
Revise the verification tolerances, cleaning requirements and fixed load.

No need for a rescale of the energy label & **Introduce the digital label.**

Set ONLY information requirements on recycled content and recyclability.

Promote use of prompt in connected appliance for the uptake of the eco programme.

1. No competition to the Eco programme and no additional testing

A clear ‘no’ to additional reference programmes

No competition to the Eco programme

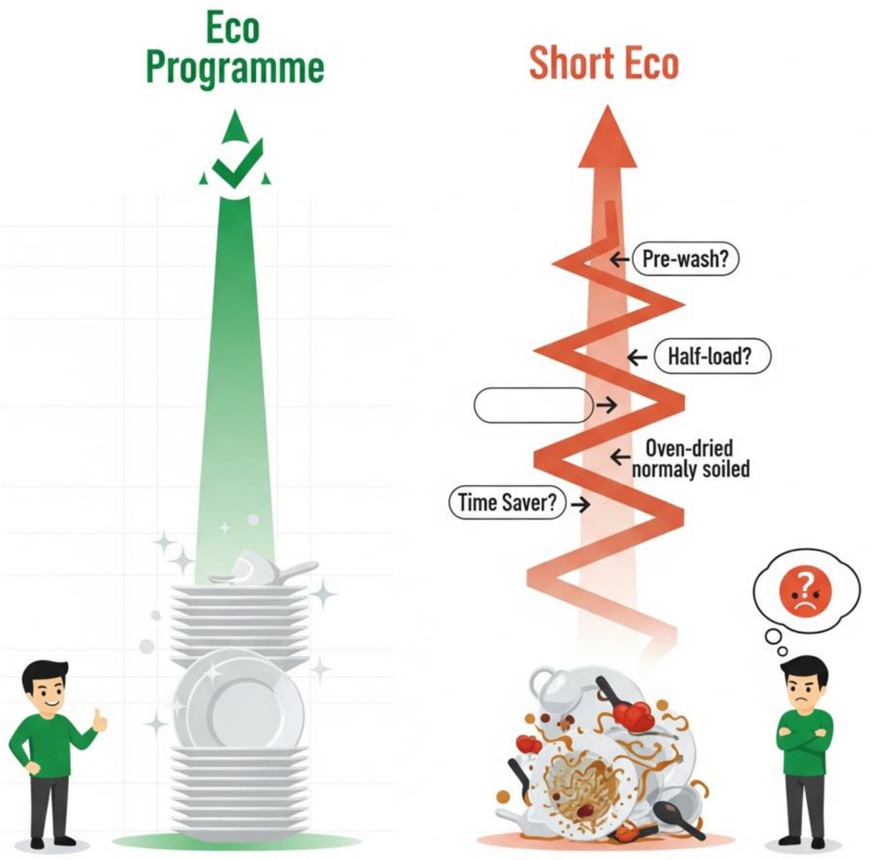
Regulation must preserve consumers trust

- **Consumer Trust:** A second "Eco" programme will confuse consumers who rely on the single, clear existing "Eco" programme.
  - Dissatisfaction with a shorter "Eco" programme could undermine trust in the "Eco" name and expected cleaning/drying performance.
- **Additional cost on testing:** APPLiA opposes the additional testing and costs associated with a second reference programme, which contradicts the EU Commission's simplification approach.
- **No Sector Representative:** APPLiA will only engage on the sector representative position, not on individual company technology.

Critical Flaws of the “Short Eco” Concept

Executive Summary on technical proposal

- **Not Comparable Cleaning:** The "Short Eco" concept fails to meet the required cleanliness standards when tested against the mandated, oven-dried (normally soiled) load defined by EU Ecodesign.
- **Not Comparable Drying:** Short cycles inherently deliver substantially inferior drying performance due to a lack of extended thermal phases.
- **Legal Constraint:** The term “Eco” is strictly and exclusively reserved for the regulated Eco programme (Regulation (EU) 2019/2022). Using "Short Eco" is legally prohibited.



Testing and new programmes

An eye to the cost for industry…

Evaluation assumptions

- **1** test series cost DW
- Tested machine + reference machine

- Considered:
  - Performance
  - Noise
- Not considered:
  - Statistical repetitions (production variability)
  - Development runs
  - Electricity / water lab mgmt. other than test bench
  - Equipment costs & mgmt. cost
  - Standard water preparation cost
  - Low power modes testing

- **To have the impact → Master Models declared/year!!! → ~40 Models/year**

Testing and new programmes for one model

DW 14PS

1 test series

Internal lab

Test + Reference machine
DW ~4000 €

Not considered:
- electricity / water lab mgmt. other than test bench
- Equipment costs & mgmt.
- Standard water preparation

External lab

DW: 10000-11500 **min-max€**

Soiling
~18 kg

Detergent
~0,5 kg

Load (proportionately)
~60 €

Working Days
~10

Operators*
~42 h

Technicians*
~12 h

Consumptions*
~20 kWh
~262 liter

Test runs
26

Legal background: ESPR Art 5 11. (c) - (e)

11. Ecodesign requirements shall meet the following criteria:

(a) there shall be no significant negative impact on the functionality of the product, from the perspective of the user;

(b) there shall be no adverse effect on the health and safety of persons;

(c) there shall be no significant negative impact on consumers in terms of the affordability of relevant products, also taking into account access to second-hand products, durability and the life cycle cost of products;

(d) there shall be no disproportionate negative impact on the competitiveness of economic operators and other actors in the value chain, including SMEs, in particular microenterprises;

(e) there shall be no proprietary technology imposed on manufacturers or other actors in the value chain;

Impact assessment on possible cost for consumers should be assessed.

proprietary patents:
EP 4 108 150 B1
EP 4 388 967 A1

2. Product Environmental Assessment

2.1. New data collection on the Repairability index

2.2. Proposal on the assessment of Recyclability

2.3. Proposal on the declaration of information requirements on Recycled Content

2.4. Demand Side Response: the Code of Conduct

2.5. Other functionalities

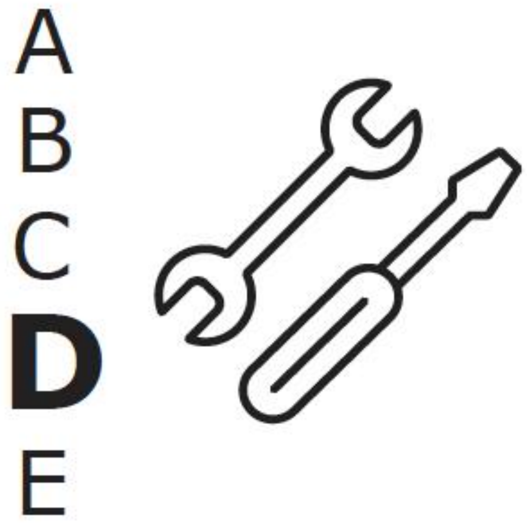
A holistic approach

addressing trade-offs through product-specific analysis

2.1. Repairability Index

Key messages

- **Preserve the internal market** - one European index to harmonise the market.
- **Horizontal Methodology implemented Product by Product**.
- **Safety must always prevail, and considerations need to be made about different trade-offs** - efficiency, performance, reliability, etc.
- **All aspects of reparability must be verifiable and enforceable on the market.**
- **Standardisation request** - issue a standardisation request to the CENELEC TC59X WG23 on the repairability index (i.e. also IEC level).



2.1. Repairability Index

Data collection on priority parts and steps

- The **initial list of priority parts** was developed based on the ED, on French Index, JRC Report and input from Retailers.
- The data collection identified these as the **most important parts (in this order)***.
- For the calculation of the number of **steps**, this was based on the APPLiA guidance on Tumble dryers, nevertheless, still **uncertainty** in the counting remains VERY high.

	Name of Part	Description	Lowest number of steps	Highest number of steps
1	Motor for circulation pump	Based on declaration of manufacturers what the core component is (e.g. like in TD). CLC: circulates the water in the main hydraulic circuit.	2	21
2	Main printed circuit board	For sake of clarity we should add a note that other PCB (e.g. user interface, motor driver, wifi..) are not included / based on declaration of manufacturers what the core component is (e.g. like in TD).	3	9
3	Aquastop/water inlet valve	Based on declaration of manufacturers what the core component is (e.g. like in TD).	2	9
4	Detergent dispenser unit	Based on declaration of manufacturers what the core component is (e.g. like in TD). CLC: dispenses detergent and/or rinse aid.	2	13
5	Drain pump	Based on declaration of manufacturers what the core component is (e.g. like in TD). CLC: removes water from the dishwasher	2	9
6	Main heating element / Electric water heating	Clear it is related to washing. CLC: heats the water to the required temperature	2	21

**The data collection was based on the spare parts considered most relevant for the repairability and number of spare parts sold between 2014 and 2024*

3. Common issues: washing machines and dishwashers

3.1. Eco Modifiers
3.2. Substances of Concern
3.3. Standardisation
3.4. Timeline

3.1 Eco Modifiers

Complexity of the situation

Technical complexity: Defining categories and measurable thresholds for modifiers is technically complex due to the risk of increased testing burden and ensuring the Eco programme remains the most efficient option despite user changes.

Regulatory complexity: it involves revising ecodesign regulation, establishing new definitions, and enforcing new information requirements in manuals and on appliance interfaces/apps.

Behavioural complexity stems from the counterintuitive concept that "longer programmes often use less energy." While customisation is highly desired, restricting modifiers might lower Eco programme acceptance. However, consumers selecting the eco cycle must be confident in the appliance's performance as indicated on the energy label or understand the impact of any modifications.

3.1 Eco Modifiers

APPLiA recommendations

Only a starting point: *APPLiA considerations are merely a starting point to acknowledge the practices on the market and to work closely with the EU Commission on this issue.*

Transparency to consumers is paramount.

- **General requirements:**

  1/ Acknowledge each product has specific usage;

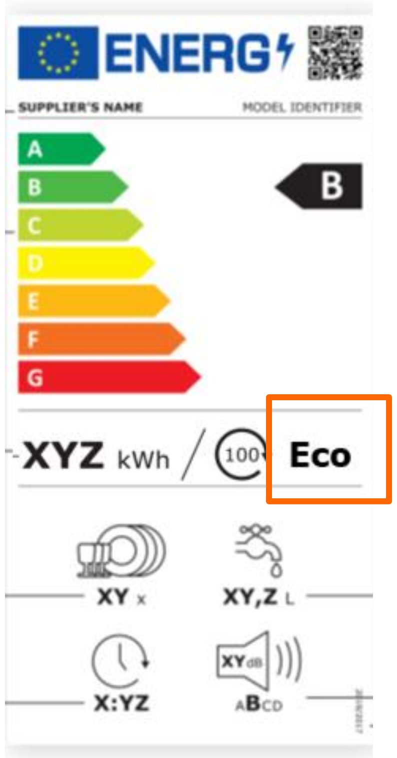
  2/ Communicate that longer programmes often use less energy (a counter-intuitive concept), as is the case for the ecodesign regulation WM-WD;

  3/ Energy Label: introduce the name of the reference programme ('eco') on the label.

- **Functional requirement:** Whenever a modifier to the eco programme increases energy and/or water consumption compared to the declaration on the energy label, an indication should be given on the product user interface.

- **Information requirement:** User manuals shall include general information stating the effect that any selectable programme modifier, when applicable, has on the energy and/or water consumption of the selected programme.

- **Modern systems (connected appliances):** [...] If a modifier is offered within the eco programme, the impact of these changes shall be displayed in the app.

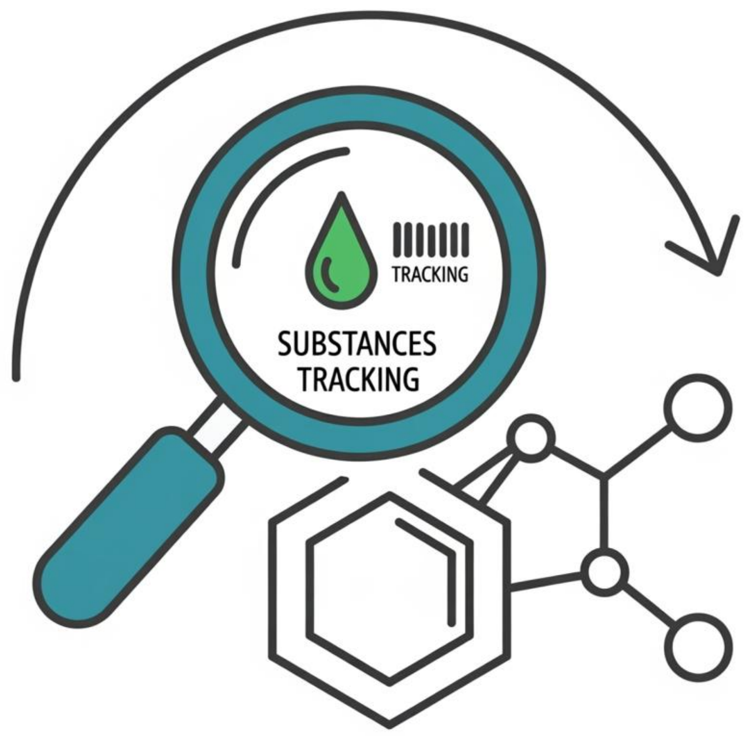


3.2. Substances of Concern

Tracking: Key Points

Tracking of substances under definition 28(a)(b)(c) of the ESPR is a huge administrative burden based on NO risk assessment.

- Commission political goal is simplifying reporting schemes, why is the Commission requesting additional not risk based reporting?
- APPLiA requests the deletion of the substances of concern requirements from the ESPR through the Environment Omnibus.



3.2. Substances of Concern

Restriction: Key Points

- All substance restrictions should be **scientifically justified**.
- The methodology should align with the established REACH regulation.
- New restrictions must consider health, environment, and commercial impacts.
- Global harmonisation of standards and requirements is necessary.
- Sufficient transition periods are required for industry compliance.

Low Power mode horizontal vs. vertical

draft

Horizontal standby regulation 2023/826 Art. 2 (3):

(3) 'standby mode' means a condition where the equipment is connected to the mains power source, depends on energy input from the mains power source to work as intended and provides only one or more of the following functions, which may persist for an indefinite time:

(a) reactivation function;

(b) reactivation function and only an indication of enabled reactivation function;

(c) information or status display;

general wording

(12) 'standby mode' means a condition where the household dishwasher is connected to the mains, and provides only the following functions, which may persist for an indefinite time:

(a) reactivation function, or reactivation function and a mere indication of enabled reactivation function; and/or

(b) reactivation function through a connection to a network; and/or

(c) information or status display; and/or

(d) detection function for emergency measures;

adjusted to wet products

3.3. Standardisation

TC59X WG 23 and WG 1 / WG 2

APPLiA invites the EU Commission to engage actively in the standardisation groups & prepare appropriate standardisation requests.

- WG 23 is working on a general common procedure to help the application of repairability indexes.
- WG 2(and 2.2.) is working on the assessment of possible upcoming changes for DW (e.g. the fixed load, repair index).
- WG 1-06 and WG 01-11 are evaluating potential updates for WM and WD based on the new edition of the IEC standard.

Important to understand how the Commission intends to move forward on these points!

3.4. Timeline

The fundamental point for a competitive industry

Proper transition time from the EIF and application

REALISTIC TIMELINE

at least 4 weeks excluding the Christmas holidays!

APPROPRIATE FEEDBACK PERIOD

COMPLEX METHODOLOGY REQUIRES BUDGET

APPLiA is requesting to stick to realistic timeline and not be over positive in the timelines communication

Unrealistic timelines at the expenses of stakeholder consultation does not result in good regulation (e.g. high risk of amendments)

Consultant should be having the resources to conduct the study based on the updated methodology and deliver correct and reliable studies

Thank you!

Giulia Zilla, Policy Director
giulia.zilla@applia-europe.eu

APPLiA
Home Appliance Europe

www.applia-europe.eu

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MEErP Task 7
Scenarios

Robin Barkhausen – Fraunhofer ISI

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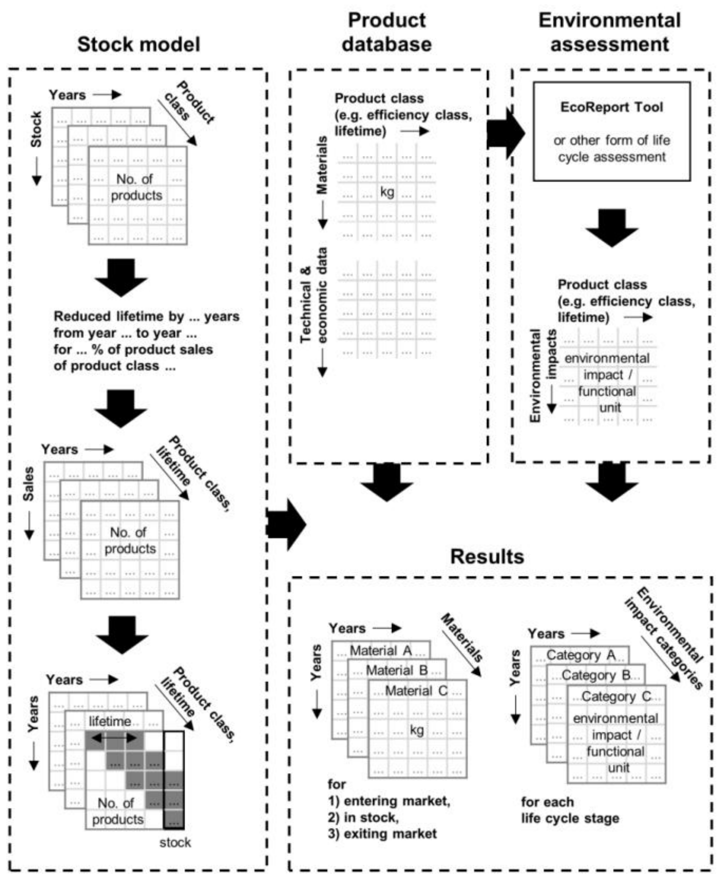
Scenario analysis

Modelling logic, inputs and key assumptions

- BAT compared to BAU → **Combination 1** from Task 6
  - DO-01 (Improved drying performance) +
  - DO-05 (Improved repairability)

  for both BC1 and BC2

  -> technical potential
- Roll-out in 2030
- Market growth assumptions (based on Task 2):
  - Coupled to growth of number of households
  - < 2025 → growing
  - > 2025 → stable
- Scenarios for prices development and greenhouse gas intensity of electricity mix based on EU reference & policy scenario
- Escalation rates: costs of water (0.16%), electricity (0.88%), and detergent (-2.30%). Investment costs for new products and repair costs are considered with an inflation rate of 2%.



scenario logic (Fraunhofer ISI)

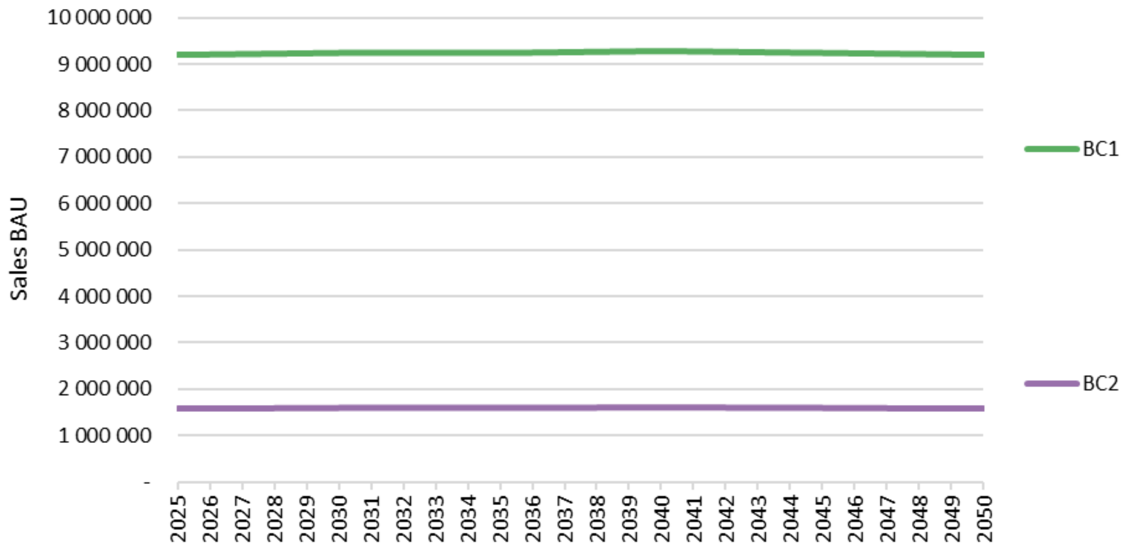
Scenario analysis
Sales and stock

- Sales:
  - 2025: total of **10.8M**

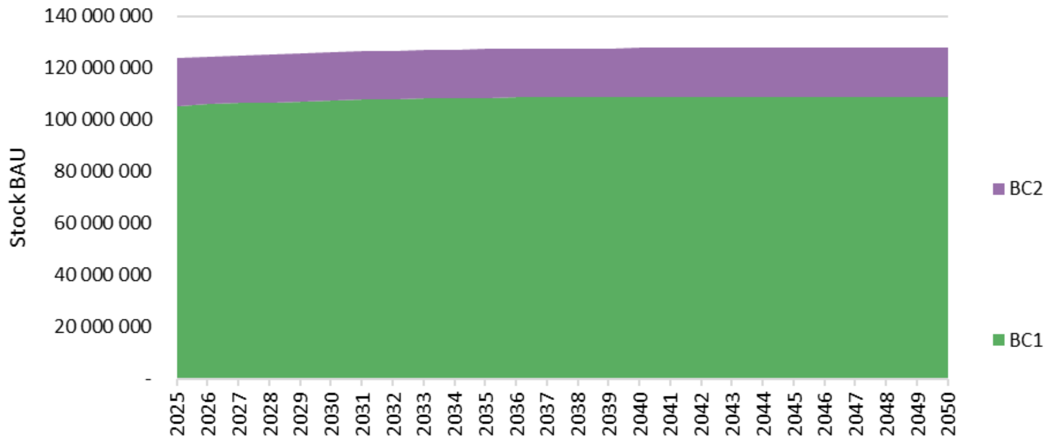
    BC1 = standard, 13 place settings

    BC3 = slim-line, 10 place settings

- Stock
  - raises from **123.6M** in **2025** to **127.6M** in **2050**
  - total stock in 2050 is made up to **85%** from **BC1** (108.7M).



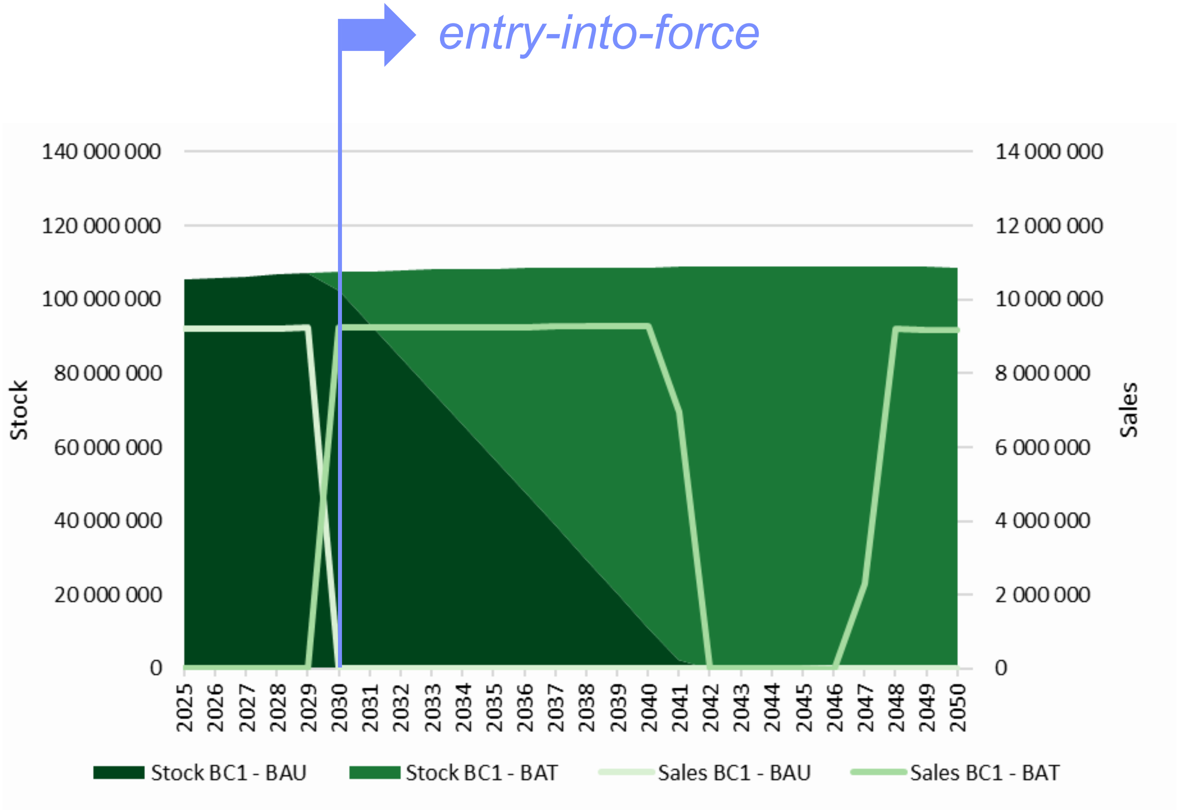
Sales in the BAU scenario



Calculated stock in the BAU scenario

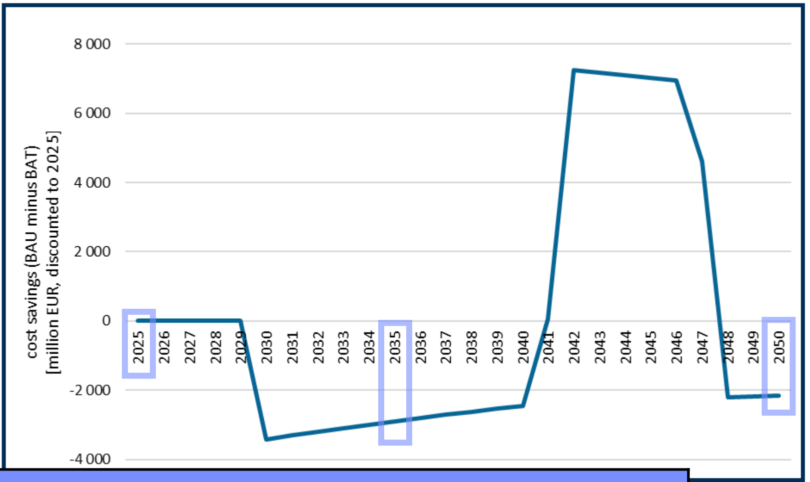
Scenario analysis
Stock transformation

- Change in stock:
  - As BAT products are introduced to the market, they **replace BAU sales from 2030 onwards** and induce a **transformation** in the stock that is **completed** in year **2042**, when 100% of the BC1 market is made up of the BAT.
  - drop in sales (2041 to 2047) induced by **six-year lifetime extension** of the BAT compared to the BAU (11.75 to 17.75 years) → **no replacement sales needed**.



Changes in the stock of the BAT scenario for BC1 due to BAU and BAT product sales

Scenario analysis
Summary of results (stock level)



		energy consumption (TWh)	emissions (Mt CO2)	auxiliary materials			costs (million Euro)						
		electricity	electricity	water (million m³)	detergent (kt)	rinsing agent (kt)	product price	repair	electricity	water	detergent	Rinsing agent	Total costs
Total 2025	BAU	28,721	23,428	301	449	48	6,274	1,350	9,277	1,551	2,903	647	74,949
	BAT	28,721 (-0%)	23,428 (+0%)	301 (+0%)	449 (-0%)	48 (+0%)	6,274 (+0%)	1,350 (+0%)	9,277 (+0%)	1,551 (+0%)	2,903 (+0%)	647 (+0%)	74,949 (+0%)
Total 2035	BAU	29,560	12,382	309	463	49	7,686	1,654	10,894	1,622	2,368	528	67,515
	BAT	28,034 (-5%)	11,743 (-5%)	310 (+0%)	463 (+0%)	49 (+0%)	12,317 (+60%)	1,455 (-12%)	10,332 (-5%)	1,626 (+0%)	2,372 (+0%)	529 (+0%)	69,230 (+2%)
Total 2050	BAU	29,644	3,921	310	464	49	10,293	2,215	12,776	1,666	1,675	373	63,386
	BAT	26,408 (-11%)	3,493 (-11%)	312 (+0%)	466 (+0%)	49 (+0%)	16,441 (+60%)	1,943 (-12%)	11,381 (-11%)	1,674 (+0%)	1,682 (+0%)	375 (+0%)	64,224 (+1%)

Overall: transitioning to BAT products supports both **environmental sustainability and economic benefits**.

Energy savings
- introduction of BAT products starts in 2030,
- **2025 to 2050: energy savings of 6.41% in electricity** from 2025 to 2050, equating **to 49.12 TWh**.
- **2050:** savings are **3.24 TWh for electricity** (11% reduction).

Greenhouse gas
- **2025 to 2050:** emissions are reduced by **4.85 Mt CO2eq.**, **a 3.63% decrease** compared to the BAU scenario.

Resource consumption
- **Limited impact on auxiliary materials**, in **2050 additional consumption** of
  - 1.47 million m³ water
  - 1.82 kt detergent
  - 0.19 kt rinsing agent.

Costs
- **2025 to 2050:** BAT scenario leads to total savings of **11.71 billion Euro (6.17%) in electricity costs** (discounted to 2025),
- While **discrete comparison** for **2035** and **2050** shows **cost increase** (see table), **overall savings 2025-2025** are **1.69 billion Euro (0.37%)** (particularly due to longer lifetimes which require fewer sales).

Sensitivity analysis:
- electricity price fluctuations significantly impact total costs,
- 2050: expenses for total accumulated electricity costs ranging from **9.10 billion Euro** in a **low-price scenario** to **13.66 billion Euro** in a **high-price scenario**.

Outlook on standardisation activities for dishwashers

Anna Wendker - CENELEC TC59X / WG2

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Standard-isation Scenario	1 IEC EN 60436:2025 without changes	2 IEC EN 60436:2025 with minimal changes	3 IEC EN 60436:2025 with moderate changes	4 Fixed load	5 Fixed load ‚light‘

Contents	- New reference machine & ref. detergent
	- Alignment factors AF1 (old RM+detE) & AF2 (newRM)
		- Eliminate AF1 → only describe new RM
		- Eliminate AF2*
		- Replacement of discontinued test materials
			- All changes of SS2
			- Replacement of test load items with higher consumer representativeness
				- All changes of SS3
				- DW volume dependent test load:
				  - Full size: 12PS
				  - Slim size: 8PS
				  - Compact: 5PS
				  - Mini: 1PS
					- All changes of SS2
					- DW volume dependent test load:
					  - Full size: 12PS
					  - Slim size: 8PS
					  - Compact: 5PS
					  - Mini: 1PS

Pros	- Published state-of-the-art standard - No additional work to be done	- More future proof - Eliminating old RM increases reproducibility	- Increased consumer representativeness of test load	- Increased consumer representativeness in rack designs - Better EL comparability - Lower test burden for MSA	- Better EL comparability - Lower test burden for MSA - Decreased energy consumption due to smaller load
Cons	- Not future-proof (test materials already discontinued) - Alignm. Factors retained - No increased consumer representativeness	- No increased consumer representativeness - Current solution increased thermal mass (+1.2kg) with impact on measured energy ↑ (potenital energy class downgrade)	- increased thermal mass (+3.5kg) with impact on measured energy ↑↑ (energy class downgrade) - Change to basket designs	- Biggest change to current test and declaration system with longer development time (manageable by time of EL ED application)	- Big change to current test and declaration system with reduced longer development time
Recommend-ation from TC59X WG2	Not recommended	Fall back solution	No sufficient support/ no consensus	Preferred scenario	Simplified approach (still to be assessed)
EL/ED regulation needs to consider	Alignment factors to be taken over into regulations	*Elimination of AF2 requires change of minimum requirement cleaning performance	See SS2	See SS2 Removal of PS on EL Volume based categorisation	See SS2 Removal of PS on EL Volume based categorisation

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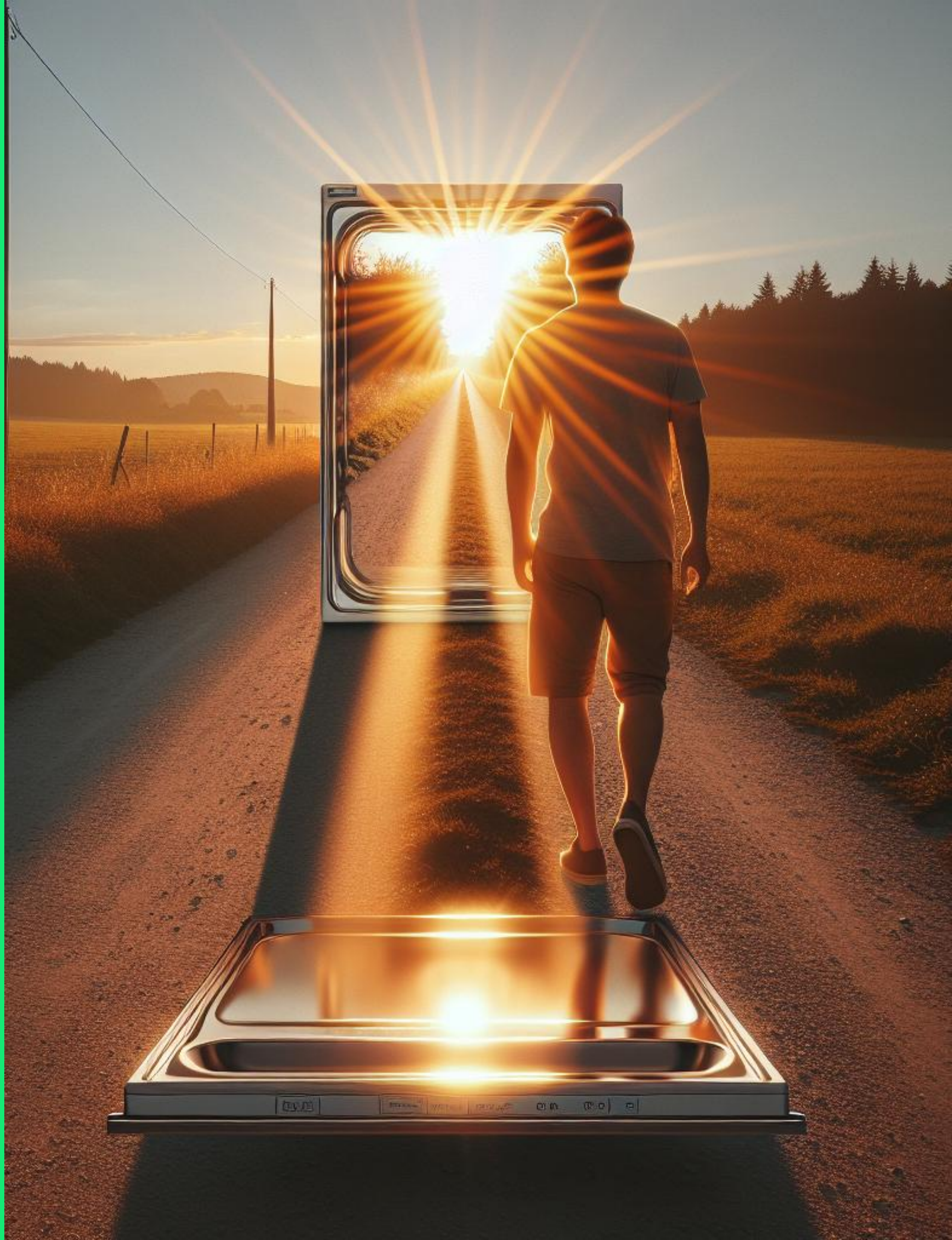
Outlook: Next steps

Tim Hettesheimer – Fraunhofer ISI



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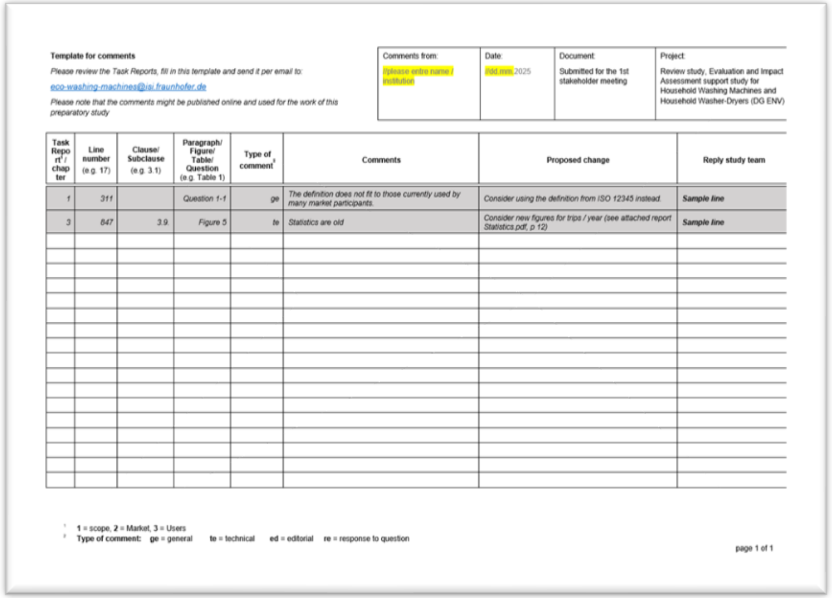
Next steps

- **Draft MEErP Task 1-7 report** available for download under [Documents | Study for household dishwashers]
- **Stakeholder feedback to MEErP Task 1-7 draft report**
  - Deadline: **21 January 2026**
  - Please send the [feedback template] back to [eco-dishwashers@isi.fraunhofer.de]
- **FINAL MEErP Tasks 1-7 report** by beginning of February 2026
- **Stakeholder registration** still possible, please inform your network:
  [Register | Study for household dishwashers]



Template for comments

Please review the Task Reports, fill in this template and send it per email to:

eco-washing-machines@isi.fraunhofer.de

Please note that the comments might be published online and used for the work of this preparatory study

Comments from:	Date:	Document:	Project:
//please entre name / institution	//dd.mm.2025	Submitted for the 1st stakeholder meeting	Review study, Evaluation and Impact Assessment support study for Household Washing Machines and Household Washer-Dryers (DG ENV)

Task Report[1] / chapter	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ Question (e.g. Table 1)	Type of comment[2]	Comments	Proposed change	Reply study team
1	311		Question 1-1	ge	The definition does not fit to those currently used by many market participants.	Consider using the definition from ISO 12345 instead.	**Sample line**
3	847	3.9.	Figure 5	te	Statistics are old	Consider new figures for trips / year (see attached report Statistics.pdf, p 12)	**Sample line**

[1] **1** = scope, **2** = Market, **3** = Users
[2] **Type of comment:** **ge** = general **te** = technical **ed** = editorial **re** = response to question

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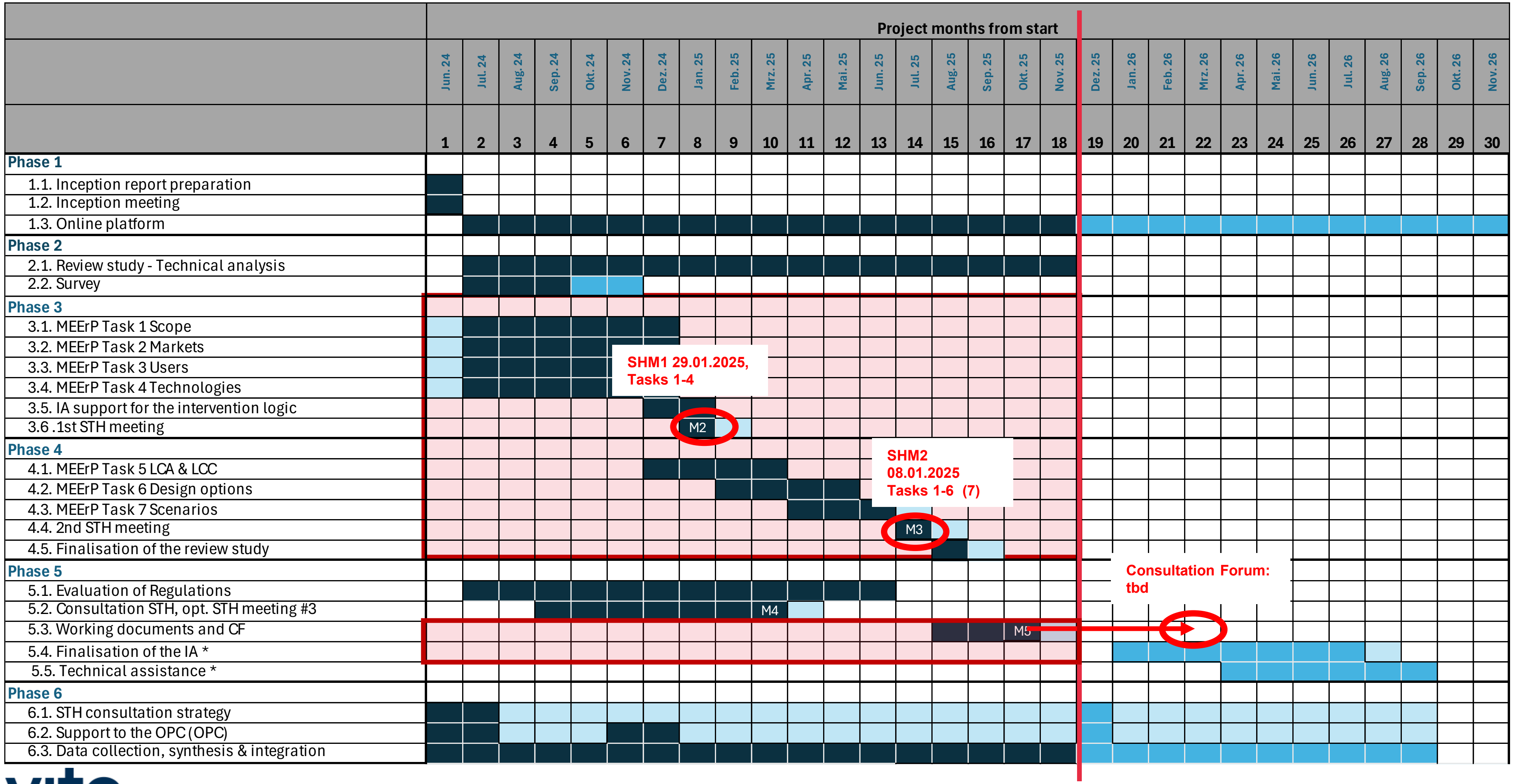
Study schedule

Overall project duration: 06.2024 – 11.2026



Thank you very much for your contribution!

Have a nice Christmas time!

vito