Table of Contents

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A. COMMENTS OF ORGANIZATIONS

a. Format

Please find below the comments of organizations (using the format) on the draft of the Task 4 report for the Ecodesign Preparatory Study on Smart Appliances:

- ANEC BEUC — ANEC/BEUC
- CECAPI — European Committee of Electrical Installation Equipment Manufacturers
- CECED — European Committee of Domestic Equipment Manufacturers
- ECODESIGN — ECODESIGN company GmbH
- eu.bac — European Building Automation and Controls Association
- FZI — Research Center for Information Technology, Germany
- JBCE — Japan Business Council in Europe
- UBA — Umweltbundesamt - Federal Environment Agency
- CLASP

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Ecodesign Preparatory study on Smart Appliances

Overview of comments of stakeholders

Date: 04/05/2016	Document: **Task 4 report overview of comments**

4	1	2	3	5	(6)	(7)
SH2	Section No./ Subsection No./ Annex (e.g. 3.1)	Page and Paragraph/ Figure/Table /Note (e.g. p 6 para 5)	Type of com-ment1	Comment (justification for change) by the Stakeholder	Proposed change by the Stakeholder	Consortium observations on each comment submitted
JBCE	general			Statements are made for example that no extra hardware is needed, due to thermostat that allows communication and external control: It seems that thermostats are perceived to be the way forward to address connectivity. For HVACR we do also need to consider that other means than smart thermostats should be used for DSF. Furthermore, to handle DSF, the manufacturer should be enabled to control the functionality even if 3rd party controls are used with the system.		Yes, indeed other means should be considered. The text has been revised.
UBA	General	General	ge	Critical overarching considerations seem to be necessary to give a picture about the framework conditions. We assume it is planned to investigate such issues in task 5: Is the grid in the EU already able to integrate DR-appliances and use their puffer function? Which number of DR-appliances need to be installed in order that their functionality will have an impact? Are there assessments about the time scale?		This will be taken care of in Task 5 (environment & economics) and Task 7 (scenarios). No action for task 4 report.
UBA	General	General	ge	Currently the study covers a broad range of appliances and use cases, often in an exemplary way. It seems to be difficult to assess all of them in the necessary depth. It might therefore be beneficial to focus on specific appliances and / or use cases. On the other hand the study focusses completely on the domestic sector, thereby excluding the issue of electromobility and non-domestic sector. While we understand, that the study needs to focus on some sectors in order to be able to deliver results within limited resources, it seems that the applications with the highest potential are not considered. Although means of transport are excluded from the ecodesign directive, it would be helpful to have at least an order of magnitude which potential this sector could provide in order to be able to rank the available potentials. Also, a more complete reasoning should be provided why specific appliances are considered to be in or out of scope and why some of them are discussed in		As part of the MEErP methodology base cases will be defined in task 5. Electromobility is not in scope of the study because transport is not in scope of the Ecodesign framework regulation. Non-domestic sector is included in a certain degree, also in Task 4. Specific areas have been selected for analyses in Task 2, which have been screened for higher potential.

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				more detail, possibly including a reference to the specific tender.		
UBA	General	General	ge	The dataset is to some extend incomplete (for some products, no quantitative projections are being made) and where they are present, the database is considered to be not very reliable. The Ecodesign Impact Accounting uses data from previous preparatory studies that can itself date back as long as 2004. We understand that it is difficult to get the data, however it should be made more transparent. There is no information about the underlying assumptions for the expert guesses, and no assessment of their quality. Current stock and / or sales data for ventilation, electric heating, battery operated rechargeable appliances and battery storage systems seem more reliable; in the first two cases the data has been cross-checked with various sources (or grid load, respectively), in the last case, the source seems reliable and the methodology, at first sight, well described.		The project team has invited many stakeholders including the industry to submit data for various areas of the study, however, the amount received was scarce. Where we have made assumptions, we have tried to explain the rationale behind. We have revised the text and provided more data input and references, where possible.

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UBA	General	General	ge	The sources and thus the validity of the data about additional costs cannot be assessed.	Please provide details on the data sources used in the study to estimate the costs.	We have revised the text and provided more data input and references, where possible. Unfortunately, we have not received much input on the cost data, even though we have requested this.
CLASP	Overall		ge	Our understanding is that the draft reports estimate the additional materials and network standby losses associated with DR enabled appliances and other types of smart appliances are considered the same. If that is true, then the real impact of DR enabled appliances will strongly depend on whether the functionality is added to an appliance that would have been smart anyway, or whether the new additional functionality will stimulate an increased demand for connected appliances, growing the market share of "smart" appliances overall. The service offered to consumers by DR enabled appliances is very specific and if the market share of this functionality increases, it will probably result in a larger share of smart appliances overall (as opposed to just adding a functionality to appliances that were going to be "smart" anyway). The draft report does not offer clear estimate(s) of the *additional* share of connected appliances. In order for policy makers to assess whether a broad deployment of DR enabled appliances should be facilitated as part of the action against climate change and for energy security, it is important to have a clear and robust estimate of the environmental impacts (energy, CO_2, additional materials, ...) of DR enabled appliances on the full life cycle.	Create scenarios that reflect different degrees of overlap between DR enabled appliances and other smart appliances, while also considering different increased levels of market penetration of smart appliances. At a minimum, if such scenarios are not created, the report must present the results and conclusions in a transparent way. It should be clarified that the conclusions of this study are only valid for the addition of a DR functionality to (a part of) the share of appliances that would have been "smart" anyway. As much as possible, present the data, scenarios, hypothesis and findings in a more structured and transparent way, and gather main numerical information in tables providing the underlying assumptions.	We agree in the understanding that not all connectivity and smartness is due to be able to be connected to a smart grid. We believe that many appliances will be network connected due to other reasons than the smart grid. There are however still changes in the appliances only related to the smart grid such as separating components that should be shut down by external signals and components which always should be on. The text has been revised.
CLASP	Overall		ge	The draft report makes no mention of the impacts of Smart Meters. If some Smart Meters are installed specifically to facilitate the use of Smart Appliances and remuneration mechanisms, the environmental impacts of these meters should be taken into account.	Take into account the environmental impacts of Smart Meters.	We have added a section on Smart Meters.
CLASP		p.9		For electric radiators, the "additional component" paragraph in the draft report reads: "No extra components needed for demand response enabling for electric radiators, if it already has an electronic thermostat that can switch off/on the appliance given	Add an estimate (stock, sales, projection) of the volume and percentage of electric radiators that are connected to an electronic thermostat triggered by an external signal and those that are not.	This has been included in task 2 report.

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				an external signal". For context, it would be good to add an estimate of the ratio of electric radiators (stock, sales and projections) that are connected to an electronic thermostat. We found on p.26 of the draft Task 2 report that "Regarding electrical radiators, boilers, circulator pumps the installed base of smart heating technology is negligible" (cf. also Table 16) but nothing is said specifically on thermostats for electric radiators. This same comment is valid for other product groups in this report where the same argument of no extra components are needed is used.		
CECED	1	p.1 4th para	Ge	It is important that the study takes into account the impact at system-level where all the Demand Response benefits lie in. Indeed, the energy consumption linked to the connectivity of appliances is insignificant in comparison with the energy savings brought at system-level, with avoided energy generation (during peak demand or imbalance events).		This is part of the study to do it but not part of task 4. This is part of the remaining tasks 5-7.
ANEC/BEUC	p. 1	1.1		The section explains that smart appliances are DR enabled devices, hence able to response to the grid situation. Task Report 2 however described as smart appliances also devices which are "communication/app-enabled", hence which can communicate (e.g. consumption information) to a connected device. We invite the study team to clarify throughout the report to which appliances it refers to as well as to provide a justification for this decision at the first tasks of the study.		Yes, the communication enabling is pre-condition for being DR enabled. The text has been revised, where necessary.
ECODESIGN	1.1	P1 para8	ed	There are <u>several changes</u> needed, which involves the functionalities of the appliance, because in most cases, it is not possible <u>just to cut the power connection to the appliance.</u> Instead, it is needed to do a more intelligent powering up and down the appliance, which involves the <u>full control system and the functionality of the product to maintain</u> quality, safety, user comforts, privacy, etc.	Consider writing this paragraph better, for less repetitions and more clarity.	The text has been revised.
ECODESIGN	1.1	P2, para 1, bullet points.	Ed,te	In some cases an additional power supply to handle the voltage requirements by the electronics and the low	Please clarify: Does this refer to existing EU regulatory requirements for network standby, or to	It refers to existing EU

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				electricity consumption in a waiting for signal mode in order to comply with networked standby requirements.	some other requirements? In this bullet point list there is a mention to various "states", which perhaps need to be referred to with their correct technical names (e.g., off-state, re-start, DR mode, waiting for signal mode). What is a DR mode? Is there a definition? Is there only one DR mode?	regulation (amended 1275/2008). We have clarified the text accordingly.
ANEC/BEUC	p. 2	1.4		We feel that the section needs to be further developed to become more coherent. It would be important to provide a detailed and comparable description of • the actual DR mechanism; • its additional cost and energy consumption; • potential safety / functionality impact. It would also be useful to provide a balancing of the estimated load shifting potential against the additional energy consumption, and the cost / benefit balance for consumers. Currently, information about cost impact cannot be compared because very different cost values figure in different appliance categories. For example, while for periodical appliances there is a detailed appliance-specific estimate of the cost of various components, the cost chapter for radiators, built-in inertia radiators, boilers, heat pumps is identical and cites the "total cost of a DR mechanism per home i.e. including the central energy manager and the connection to the radiators".		The text has been revised. Load shifting impact will be in tasks 5-7.
JBCE	1.2	1st para	JBCE	"It seems that only very limited modifications will be needed to the product. Impact on resource is therefore limited." This statement in the report is not accurate, and it should be noted that other resources than materials have to be considered e.g. programming, certification, …		The text has been revised. The section is mainly on resource impact in production phase.
ECODESIGN	1.2	P2, para1	Ed, te	In the majority of the cases, the appliances will only need very limited additions of electronic circuitry and other components. This is partly because in many cases the	These are rather strong statements but there is no single reference provided for them. There might be selected Life Cycle Assessments of products	This is difficult because of lack of actual DR enabled products and lack of

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				DR enabled appliances will already be network connected for communication with a smart phone or other devices. Partly because major changes of the product and addition of hardware would be too expensive compared to the economic benefits of the DR enabling. Therefore, the impact on resources and energy used for the production phase is assumed to be marginal and not further assessed.	similar to "smart appliances" which could have been mentioned in this section to support such statements, especially the last one. In addition, although the additional circuitry might have a not so negligible contribution to the environmental impacts of the manufacturing stage of the product.	information from manufacturers. In any case, the text has been revised, where possible.
CLASP	1.2. Production Phase	p.2	te	The impact of DR enabled appliances in the production phase is disregarded, although the chapter does not justify the underlying assumption that all DR enabled appliances would have been smart/connected anyway: 1.2. PRODUCTION PHASE reads: "In the majority of the cases, the appliances will only need very limited additions of electronic circuitry and other components. This is partly because in many cases the DR enabled appliances will already be network connected for communication with a smart phone or other devices. Partly because major changes of the product and addition of hardware would be too expensive compared to the economic benefits of the DR enabling. Therefore, the impact on resources and energy used for the production phase is assumed to be marginal and not further assessed". We could not find the analysis or references in the study that would support the hypothesis that most of the "DR enabled appliances will already be network connected for communication with a smart phone or other devices".	Provide estimates of the impact of DR enabled appliances on the life-cycle assessment phases other than the use phase. Develop discussion, add supporting analysis and references to underpin the statement that "DR enabled appliances will already be network connected for communication with a smart phone or other devices" and that the addition of the DR feature will not increase the share of network connected appliances.	This is difficult because of lack of actual DR enabled products and lack of information from manufacturers.The text has been revised in some places to clarify the issue.
ECODESIGN	1.3	P2, para 1	Ed, te	The impact on the distribution phase is assumed to be marginal <u>of the same reasons described under the production phase</u> and the impact will not be further assessed.	Distribution environmental impacts are due to the distance (incl. weight of product and packaging) and the transport mode(s) associated to bringing the products to the locations where these are available to the end-consumers, and as such, the reasons for consider this impact as negligible are different than those considered in the production.	Agree, we have clarified the section.
BEAMA	Task 4	p. 9 para 9	ge	Clarifiaction on built-in inertia radiators The description provided does not differentiate clearly between electric radiators with built-in inertial and electric	It is proposed that thermal storage heaters are considered seperately from Built-in inertia heaters as they have different energy sotorage and heat	Yes. Indeed, built in inertia radiators in the report refer to thermal storage radiators.

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				thermal storage heaters which have insulated, iron ore storage cores. These two product types are completely different in terms of their connected load and their abiltiy to store and release energy. It is important to understand the different product types when considering the level of flexability they can offer as DR tools. Inertia electric radiators are essentially driect electric room heaters which are highly responsive to thermostatic control or on/off signals. They include a small amount of thermal storage, typically in the region of 1 to 2 kWh which attepts to smooth out the on/off nature of the heat output. This thermal storage is not insulated as it contributes directly to the heat output. The addition of the thermal inertial does not significantly increase the flexibility of this type of heater as a DR tool. Electric thermal storage heaters have an insulated core with a typical storage capcity of around 18 kWh. They use either static heat discharge or dynamic, fan assisted, heat discharge. For DR the dynamic discharge verison is best suited. The latest dynamic storage heaters are very well insulated offfering high levels of heat retention. This has in effect de-coupled the energy input from the energy output allowing the heater to be charged in a totally flexible manner without impacting on user comfort. In total there are 13.8M storage heaters instlalled in Europe with a connected load of 36.9 GW.	output characteristics.	Inertia electric radiators were not separated from normal electric radiators in the stock / energy consumption figures in task 1. The name Built in inertia radiators will be replaced by electric thermal storage heaters.
eu.bac	Task 4	Overall	ge	For an energy calculation it is not enough to show only the energy consumption of a node. The network architecture must be taken also into account e.g. Ethernet needs Hub´s or Switches which need additional energy.		The impact is marginal, because the messages to and from the appliances will imply very little additional traffic.
eu.bac	Task 4	Overall	ge	If a „smart device“ is connected to a Building Automation system an interface is expected that allows the automation to control the appliance so that the intelligence of the flexibility can be accessed by the	In a building with an automation it is expected that the smart devices will get connencted through a automation logic to the grid	The text has been revised, where necessary.

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				automation		
CECAPI	task 4 report	1.4.2	ge	CECAPI recommend taking also low data rate networks (KNX, LON,) into account. The data rate should be high enough for most of the appliances, but with a lower energy consumption		The text has been revised, where necessary.
CECAPI	task 4 report		ge	For an energy calculation it is not enough to show only the energy consumption of a node. The network architecture must be taken also into account e.g. Ethernet needs Hub´s or Switches which needs additional energy.		The impact is marginal, because the messages to and from the appliances will imply very little additional traffic.
ECODESIGN	1.4		ed		No introductory text between 1.4 and 1.4.1?	No
ECODESIGN	1.4.1	P3, para 2	Ed, te	the limits in network standby are: These EU network standby limits are set accor From 1 January 2015: 6.00 W From 1 January 2017: 3.00 W From 1 January 2019: 2.00 W (subject to review)…	This text and list could be slightly more precise These EU network standby limits are set according to the network availability (e.g., High Network availability - HiNA equipment or equipment with HiNA functionality).	Yes, but the products we are looking at are assumed not to be HiNA. The text has been revised to be more clear.
eu.bac	1.4.1	Overall	ge	Add text to explain that other parameters might change as well	or other input parameters like climate conditions	The text has been clarified.
JBCE	1.4.1.	Page 2 last para	JBCE	It is unclear when the DR will be enabled. For pre-heating and pre-cooling, DR should be sent out at least 24 hours beforehand. If the above forecasting was not successful and the grid is in emergency, in such case, a separate DR should be sent out.	It needs to define 2 different types of DR, one for forecast, and one for emergency cases.	Agree, but this should falls outside the scope of task 4.
FZI	1.4.2	p 3	te	Table 1 mentions only Bluetooth Classic and Bluetooth 4. Bluetooth Smart / Low Energy devices are becoming very popular. Bluetooth 4 is similar but not equal to Bluetooth Smart / Low Energy. ZigBee may also be separated into ZigBee PRO, Green Power, and RF4CE.	Please add a separate line about Bluetooth Smart / Low Energy. Probably separate ZigBee into three different specifications.	The text has been revised, where necessary.
FZI	1.4.2	p 7	ge/te	The usage of a “predefined deadline” is mentioned. Nevertheless, it remains unclear how this deadline is	Please add a bullet point or paragraph about the different possibilities of interaction to obtain the	The text has been revised, where necessary.

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				obtained from the user. In addition, a user-defined minimum delay may also be applicable.	user's preferences regarding minimum and maximum delay, e.g., directly using the appliance, on a separate in-home display, or using some app on a smartphone/tablet.	
FZI	1.4.2	p 7	ed	The term "signal recognition software" may be misunderstood. The energy management system is now called software.	Please clarify both terms. Probably add reference to section about smart metering and smart meter gateway in Task 2 and Task 3.	The text has been revised, where necessary.
FZI	1.4.2	p 17	ed/ge	Figure 2 does not include example with separate inverter for battery storage. Figure 2 a) and b) are quite redundant. It shows only AC domestic grids.	Probably combine Figure 2 a) and b) into one example and add another sub-figure depicting the situation with a separate inverter. Probably add new figure showing the situation when having a domestic DC grid with multiple voltage levels.	This is correct. An example of a battery with separate inverter may be more pertinent. This change has been made. Concerning the DC grid no commercialized solutions seem to be on the market.For one voltage output it is conceptually identical to the AC grid output.
FZI	1.4.2	p 21 para 4	ge	In addition to the specifications, protocols, and data models, energy management systems may actually facilitate and enable demand side management. Demand response and optimization of self-consumption are different use cases. EEBus and OpenHAB aim at completely different use cases.	Please add energy management systems to the paragraph and separate use cases of demand response and optimization of self-consumption. Probably better abstract from explicit technologies and replace them with, e.g., communication technologies and protocols, as well as conversion of protocols and mappings into neutral data models.	This remark has been implemented. Energy management is introduced, demand response is taken out and the suggested textual replacement is done. Under 'smart control' we originally explained the difference in these two use cases.
JBCE	1.4.2	Table 1	JBCE	The power consumptions presented in this table seem low? It is not clear for which part of the communication the referred consumptions account for (only PHY or MAC/PHY or complete stack?). Please clarify that Wi-Fi is trademark of the Wi-Fi alliance. In this case, the protocol name should indicate with		The text has been clarified. Wi-Fi is a commonly word used for the international standard IEEE 802.11.

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				international standard number like as IEEE 802.11.b/g/n, IEEE 802.15.1 etc.		
ECODESIGN	1.4.2	P3, title	ed	NETWORK CONNECTIONS APPLICABLE TO ALL SMART APPLIANCES	Please consider changing the title of this section.	The text has been revised.
ECODESIGN	1.4.2	P3,para1	ed	There are many kind of network technologies, both wired and wireless, which can be used for the smart appliances and more are coming to the market and the existing technologies are further developed to typcically higher speed and less power consumption. The trend is towards wireless technologies.	Please consider better formulation and punctuation, and possibly include some references (or refer to the report on Task 2 if applicable, when speaking about trends).	The text has been revised.
ECODESIGN	1.4.2	P3, Table 1	ed	No reference for the values presented.	Is there a reference for the values in Table 1?	The text has been revised.
CECED	1.4.2	p.3 Table 1	Ge	No source mentioned		The text has been revised.
JBCE	1.4.3	Heat pumps/description		No extra hardware needed, due to thermostat that allows communication and external control. This is not correct, other means can be applied. How to handle a building with multiple thermostats for each room? In this case the central management point will have to perform demand side flexibility.		Smart thermostats is one way of doing it. But it is true that it is not the only way. CEM can be as well the connection between the demand side and the aggregator. The text has been revised.
JBCE	1.4.3	Heat pumps/cost impact		Cost and price are different things. Hidden costs like saver fees, certification fees should be considered and highly depends on how the business model is set up. In the report the following is reported: Cost = 35-85 according to RTE/ according to 1 manufacturer: 100-200€. If there is a difference, than this should be clearly indicated.		The prices are rough estimates from RTE and one manufacturer. For the moment we need more input (mainly from the stakeholder side) regarding this matter. The text has been revised.
JBCE	1.4.3	Residential air conditioners/ Appliance modifications		Australian standard is not normative for the moment for air conditioners. Furthermore, the modification is more complex than explained here. the existing smart thermostat is customized for US market. It does not consider frequency control and needs		Agreed. Text revised.

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				further improvements to do so.		
ECODESIGN	1.4.3	P6, para1	Ed, te	The power input needed is covered by the amended **standby regulation (COMMISSION REGULATION (EU) No 1275/2008) or the networked standby regulation, respectively.**	The standby limits are different in the Ecodesign measures concerning standby and network standby, and also address different cases or functions of the products. Possibly revise this paragraph.	The limits are the ones from the regulation regarding other networked equipment
ECODESIGN	1.4.3	P9, para4, again on other pages: 10,12.	Ed	According to **(RTE, 2015) the total installation…**	This reference is missing in the report.	Agree, included.
ECODESIGN	1.4.3	P12, para 6	ed	However, the combination of high temperature and pressure results in conditions that require special sealing	Reference is missing.	Agree, included.
ECODESIGN	1.4.3	1.4.3 p14, -> ventilation	ed	Network connection Given that most of the mechanical ventilation units do only have an on/off switch, the connectivity to the network must be done via a hardware installation. New circuits that can receive signal from the aggregator/utility and can turn on/off the ventilation, must be installed. Additional components No additional components are needed to enable demand response to ventilation.	These two sections seem contradictory. Please consider a review.	Agree, text revised.
ECODESIGN	1.4.3	P15 and onwards -> residential energy storage systems	ed	This sub-section does not have a good structure for the reading, e.g. starts with constrains and then characteristics follow that theme.	Please consider revising the structure and sections in this topic.	The text has been revised, where necessary.
ECODESIGN	1.4.3	P19, text under Table 2.	ed	(footnote Error! Bookmark not defined.). Since the majority of the residential solar storage systems are placed with help of this subsidy programme, the devices have this restriction in-built.	Error in footnote.	Corrected
ECODESIGN	1.4.3	P20, para3	ed	Very long paragraph with efficiency calculations in the	Please consider revising this paragraph.	We consider these

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				text. It is cumbersome to read and not clear.		calculations as essential in understanding the efficiency topic. Since often a partial efficiency is given (like the inverter ine in one way), the reader must be explained how to derive to a chain efficiency. The text has been revised.
ECODESIGN	1.4.3	P24	ed	Cost impact There is a substantial cost impact on remote managed systems and especially in the home lighting area because the systems are quite new on the market.	No indication is available on possible costs, despite of having mentioned before that there are various systems in the market already. Possibly consider revising this assessment.	The text has been revised.
CECED	1.4.3	p.7 Last paragraph: Cost impact	Ge	The study should not focus only on cost impact of connectivity and more generally on the purchasing cost of smart appliances. This focus should be counterbalanced by focus on the cost of ownership of the appliance, which is crucial in the business case of smart appliances.		This will be part of task 5-7. We will clarify if it needs explanation here.
CECED	1.4.3	p.7 Last paragraph: Cost impact	Ge	A number of estimated cost impact figures used in the report don't mention the source. CECED will provide more input on that issue.		Source has been mentioned. Other input is welcome and will be included.
CECED	1.4.3	p.7-8 Energy impact paragraph	Ge	Regulation on the electricity consumption of smart appliances while they are on remote/signal activation functionning mode should not hamper the development of innovation in the field of smart appliances and services these products can enable to customers and the grid. It should be taken into account that added energy consumption related to connectivity is minor in comparison with the benefits that smart appliances bring		Has been considered.
JBCE	1.4.3.	Page 4	JBCE	Too much going into the detail of each product function. The product will be improved and the function may change every year, so it would be better not to define how to be done product by product.	The simple and smart way to do it is to send a DR signal to the product using 5 differentiated alert levels. E.g. Level 5: Stop (no power consumption) Level 4: power consumption to be limited to 20%	Description of product functions has been made more general.

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4	1	2	3	5	(6)	(7)
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					or stop (80% reduction of energy use) Level 3: power consumption to be limited to 40% or stop (60% reduction of energy use) Level 2: power consumption to be limited to 60% or stop (40% reduction of energy use) Level 1: power consumption to be limited to 80% or stop (20% reduction of energy use) It should be noted that demand response is not only about reduction in consumption, any mechanism applied should also support requests to increase consumption.	
JBCE	1.4.3.	Page 4	ge	The scope is not clear. Are there only the newly placed on the marker products in the scope? Are the products on the market in the scope too?		The text has been revised.
JBCE	1.4.3.	Page 11 para 6 “Description”	te	We do not believe that the following description is correct. “where outside temperature falls below 0°C air-air heat pumps’ efficiency drops drastically, making them in many cases unsuitable for really cold climates”	It should read “where outside temperature falls below 0°C air-air heat pumps’ efficiency may drop gradually, but still you can reduce the amount of electricity used by as much as 30% to 40% compared with radiators and electric boilers.	Sentence has been modified. The statement “unsuitable” referred to an only-heat pump technology, without an extra energy input.
JBCE	1.4.3.	Page 11 para 6 “Appliance modifications	te	The “intelligent thermostat” only sends on/off signals to the heat pumps. But just sending on/off singals is not “intelligent” or “smart” from the viewpoint of reducing the power consumption but also if we consider user comfort.	The intelligent thermostat still needs the impovement to send the signal to the heat pumps not just as an on/off signal but send the percentage of the power consumption reduction needed. Alternatively, heat pumps could be designed to have a function to receive such DR directly (without the need for thermostat)	Agreed, improvements on the thermostats should be stated in the report. Part load functionalities should be studied as well. The thermostat was considered as a possible entry due to the fact that already had the possibility to turn on/off or to modulate the load of a HP, hence the changes would be cheaper. The text has been revised.
JBCE	1.4.3.	Page 12	te	More detailed explanation is needed for the ideal demand response mechanism.	It needs to defined 2 different DR, one for forecast, and one for emergency.	Agreed, included in the

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		para1 "Demand responce mechanism"			The signal should not be just an on/off signal, it should be sending the amount of reduction required. It should be noted that the effectiveness of demand response mechanism highly depends on the tariff system that is applied, therefore we recommend tho consider these aspects together. .	report.
JBCE	1.4.3.	Boilers/additional components	te	seems that they find storage also a solution for space heating. In this case the tank should be very big.		All electric boilers in this study include thermal storage, so that there are heat losses to be taken into account, as well as all the preheating strategies.
CLASP	1.4.3	All section	ge	Considering the impact on the use phase, although the discussion for each group of appliances or equipment seems valid, the draft report lacks a quantification of additional energy consumption and its associated impact. It is quite difficult with only the diagram presented during the first stakeholder meeting (copied below this table) to know exactly what to expect from Tasks 4, 5 and 7 as they are all lumped together. The information presented in Task 4 does not seem detailed and structured enough to allow a good understanding and analysis of the scenarios and results expected in the next tasks.	Provide estimates of additional energy consumption and impacts (through additional network standby, additional displays, etc.) by unit and by product group.	We have looked into this. The text has been revised.
CLASP	1.4.3.	All section	ed	The information and products presented in this section would be easier to follow and navigate if they were divided into smaller sub-sections (*N.B.* this sub-section is currently 20 pages long).	Make at least each category of products (*i.e.* periodical appliances, radiators, built-in inertia radiators, etc.) one sub-section and ensure that these sub-sections appear in the TOC.	We have looked into this. The text has been revised.
CLASP	1.4.3. - Residential energy storage system	p.23	ge	For Residential Energy Storage Systems, 5 kWh is used as the base-case/average capacity, however no explanation or reference is given for this assumption, and the draft Task 3 report uses an average of 4 kWh.	Harmonise the analysis between draft Tasks 3 and 4, or provide text and references justify the difference.	Agree. The text has been revised. This was an input from one manufacturer.
FZI	1.1 and 1.4.3	p 1 f. and p 4 ff.	ge/te	Some appliances (dishwashers, dryers, washing machines) already offer the possibility of using different energy carriers/commodities (electricity, hot water, gas) in	Please add a paragraph about such hybrid appliances that use multiple energy carriers and the chances and possibilities for energy	Hybrid appliances are a further possibility but out of

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				parallel or alternatively. These “hybrid appliances” may offer additional chances for energy management and reductions of electricity consumption.	management they offer.	scope for this study.
eu.bac	Task 4: 1.4.2	Overall	ge	Take into account also low data rate networks into account. Tha data rate should be high enough for most of the appliances, but with a lower energy consumption		The text has been revised.

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b. Papers

The following organizations commented by means of a paper on the draft of the Task 4 report.

-	BEAMA	BEAMA Ltd	'Eco Design preparatory study for smart appliances – task 2, 3 and 4 reports – BEAMA response'
-	DECC	Department of Energy & Climate Change, UK	'Ecodesign preparatory study – UK Comments on Task 2, 3 and 4 reports'
-	EPEE	European Partnership for Energy and the Environment	'Ecodesign preparatory study ENER Lot 33 (smart appliances)
-	eu.bac	European Building Automation and Controls Association	'Position paper on the scope of Ecodesign Lot 33 DG ENER'
-	NVE	Norwegian Water Resources and Energy Directorate	'Input to the Preparatory study on Smart Appliances , Task 1-4'

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