

**PROJECT DOCUMENT**

Status: PUBLIC

**Workshop CEN-CENSE-REHVA, March 22, 2010 in Brussels**

***How to improve use of the CEN standards in the  
implementation of EPBD***

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To: All Partners and Associated Partners

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**IEE-CENSE**

*Leading the CEN Standards on Energy performance of buildings to practice  
Towards effective support of the EPBD implementation and acceleration  
in the EU Member States*

Supported by

**Intelligent Energy**  **Europe**

Contract EIE/07/069/SI2.466698



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**NOTE: Annex B is provided as separate pdf files, available on the CENSE website (<http://www.iee-cense.eu/>)**

### Disclaimer:

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The content of this document reflects the authors view. The author(s) and the European Commission are not liable for any use that may be made of the information contained therein.

Moreover, since this is an interim report: the results are only preliminary and may change in the course of the project based on further feedback from the contributors, additional collected information and/or increased insight.

## **1 Executive summary**

### **1.1 The aim of the Workshop**

The CENSE project has just been completed and the present workshop was organised to present the main results of the project, in particular the packages with information on the set of CEN standards to support the EPBD and a series of recommendations regarding a second generation of these standards. This should also be seen in relation to the recently decided revision (recast) of the EPBD. The existing standards are being used very differently in the EU Member States. Some have implemented them fully, most have used some of the standards or excerpts of the standards and some others are not using the standards at all. On the other hand, there are many groups and organisations that would like to see more harmonized calculation procedures in Europe for evaluating the energy performance of buildings and HVAC systems. This is also the intention of the European Commission, as indicated by the recast of the EPBD. The workshop is organised in collaboration with CEN and REHVA and hosted by and held at the Office of CEN in Brussels.

Target groups of the workshop: Policy makers, consultants, building products and HVAC manufacturers, those responsible for writing building codes, educators.

### **1.2 The CENSE project**

The objective of the IEE CENSE project (2007-2010) is to accelerate the adoption and improved effectiveness of EPBD related building energy performance standards from CEN in the EU Member States.

The IEE CENSE project initiates a number of international/regional workshops:

- to present their work plan and the interim results on information on the CEN standards
- to get feedback from the Member States or other target groups on possible obstacles to use of the standards and on good practice examples
- to identify together the ways for an increased convergence

### **1.3 The main topics of the Workshop**

The main topics of the workshops were:

- Recast of the EPBD and its relevance for future standardization
- CEN Standardization and implementation at the national level of the CEN standards for the EPBD
- The contribution of the CENSE project to improve the use of CEN Standards and how the recast of the EPBD may affect this process
- Calculation of the energy performance of heating, ventilation and cooling systems
- How the recast EPBD and related CEN standards will affect the HVAC industry

## 1.4 Conclusions and recommendations

The workshop was well received by the participants. In total 45 persons attended the workshop, whereof 7 persons from the organisation team. The participants assessed the importance of the subject of the workshop with high priority, actual as well as in the future. The overall quality of the workshop was also assessed as good to very good.

The main final conclusions that could be derived from the workshop are:

- CEN-EPBD standards are used in many EU Member States, but often in a “practical way”: by copying and/or completing parts of CEN standards into national standards or building codes. A more direct implementation is strongly preferred, but requires adaptation of the CEN-EPBD standards following common rules and a common format.
- The Recast of the EPBD was highlighted against the existing situation of the Directive on the energy performance of buildings and it was concluded as very useful that within the EPBD Recast a mandate for a second generation of CEN standards is potentially foreseen.
- The Recast requires a wider application range of the methodology, more attention to (links with) inspection and to component requirements and closer links to related Directives.
- The methodology laid down in the CEN standards should also be used in the context of the calculation of the cost effectiveness of the minimum requirements.
- The design of the second generation of the CEN standards is urgently needed. It will give a more consistent, clear, unambiguous and a better structure to the new set of CEN standards. It will lead to easier international knowledge exchange and shared research, increased circulation of products, services and property data.  
Also it will give Europe more influence on the process to come to global standards on energy performance of buildings in cooperation with the ISO.

## 2 The CENSE project

The aim of the CENSE project (2007-2010) is to support the EU Member States (MS) and other target groups in achieving better awareness and more effective use of the European (CEN) standards that are related to the EPBD.

The main activities in the project are:

- 1) to communicate the role, status and content of these standards as widely as possible, and to provide guidance on their implementation;
- 2) to collect comments and examples of good practice from the MS, so as to remove obstacles to implementation, and to collect and secure results from relevant SAVE and FP6 projects;
- 3) to prepare recommendations to CEN.

As part of the second type of activities, the IEE CENSE project initiates a number of international/regional workshops.

More information on the project can be found in the Information Paper P86, *The CENSE project. Leading the CEN Standards on Energy performance of buildings to practice. A project (2007-2010) under the Intelligent Energy Europe programme*, one of a series of Information Papers that can be downloaded from the website ([www.iee-cense.eu](http://www.iee-cense.eu)).

## 3 Aim and programme of the workshop

### 3.1 Aim of the workshop

The aim of the workshop is to present the work that has been done in the CENSE project, to discuss the impact the recast of the EPBD will have on implementing harmonized methods in Europe, and to debate what effect the revision of the standards may have.

### 3.2 Programme of the workshop

The workshop is held at the office of CEN in Brussels.

Here the programme in detail:

14h00: Welcome and Introduction of the Workshop

14h10: Recast of the EPBD and its relevance for future standardization, by Martin Elsberger, DG ENER

14h30: CEN Standardization and implementation at the national level of the CEN standards for the EPBD, by Jaap Hogeling, ISSO (NL)

14h50: The contribution of the CENSE project to improve the use of CEN Standards and how the recast of the EPBD may affect this process, by Dick van Dijk, TNO (NL)

15h40: Calculation of the energy performance of heating, ventilation and cooling systems, by Johann Zirngibl, CSTB (Fr)

16h10: How the recast EPBD and related CEN standards will affect the HVAC industry, by Karel Kabele, REHVA

The full programme is given in **annex A**.

## 4 Content of the workshop

### 4.1 Presentations

Short summary of the presentations (See also **annex B**: copy of the presentations):

#### **Welcome and introduction (by Berrie van Kampen and Karel Kabele)**

The chairman and co-chair welcomed the 45 participants, persons from different sector groups like: industry, energy sector, universities and local authorities (see **annex C** for attendance list and **annex D for the results of the enquiry**). The PowerPoint presentations are separately available on the cense website ([www.iee-cense.eu](http://www.iee-cense.eu)) as mentioned in **annex B** to this report. A public version of this report will also be made publicly available on the CENSE website.

#### **Presentation 1:** Recast of the EPBD and its relevance for future standardization, *by Martin Elsberger, DG ENER*

Martin Elsberger gave an outline of the status of the Recast EPBD. The principles of the original EPBD requirements are kept but clarified and improved in their effectiveness. The possibility to adjust the implementation of the EPBD to the regional/local circumstances stays as it was but the use of European standards is being stimulated as much as possible. In several places in the Recast EPBD strong attention is given to the use of CEN-EPBD standards. Also in the application "Nearly-zero energy buildings" European Standards should be taken in account. Mr. Elsberger stated also that the CEN-EPBD standards should be made as attractive as possible: coherent, clear, unambiguous and with a common structure and a guaranteed consistence with INSPIRE and the EUROCODES. This all should potentially result in **a new mandate of the Commission to revise the set of CEN-EPBD Standards**. The implementation of the Recast EPBD is foreseen by end of 2012/mid 2013.

#### **Presentations 2:** CEN Standardization and implementation at the national level of the CEN standards for the EPBD, *by Jaap Hogeling, ISSO (NL)*

Jaap Hogeling gave a description of the current situation of the use of CEN EPBD standards in the Member States. The standards cover many fields like heating, cooling, ventilation, lighting, domestic water and related inspection standards and overall energy performance of the building. Most CEN standards are used in many Member States, but in a 'practical way', by copying and/or completing parts of the CEN standards into national standards or building codes. In the practice is noted that the consistency of the CEN standards are not ideal. Therefore he stipulated that the production of a 2<sup>nd</sup> generation of CEN EPBD standards is very urgently needed in order to make a clear separation between common procedures and national choices and input data and to introduce more consistency and transparency in the overall structure. He listed the advantages of the 2<sup>nd</sup> generation of CEN EPBD standards for Europe in general and the various types of stakeholders in particular.

#### **Presentation 3:** The contribution of the CENSE project to improve the use of CEN Standards and how the recast of the EPBD may affect this process, *by Dick van Dijk, TNO (NL)*

Dick van Dijk focused on the recommendations to the CEN EPBD standards as result of the feedback from the experts and specialists how are using the standards already. He presented a consistent set of recommendations aiming to make the CEN EPBD standards more consistent, more transparent and unambiguous and at the same time enabling the Member States to make national / regional choices and use national / regional input data and boundary conditions. Also he showed the advantages for Europe to work together with ISO to one set of global EN-ISO standards in the field of energy building performance. His conclusion was that now is the momentum to revise the CEN EPBD standards in order to retain the lead in the global EPBD arena.

#### **Presentation 4:** Calculation of the energy performance of heating, ventilation and cooling systems, *by Johann Zirngibl, CSTB (Fr)*

Johann Zirngibl brought the importance of the overall performance of buildings and how to perform the calculations. He showed the energy flow through a building and energy needs of the various installations in

a building like heating, cooling and hot water appliances. Within the EPBD there is chosen for a holistic approach with indicators for the technical building system performance. Especially the inspection of the systems gets more attention in the Recast of the EPBD. Also renewables and energy producing buildings are being favored in the Recast of the EPBD. He emphasizes that reliable calculation methods are needed and gave some recommendations to the 2<sup>nd</sup> generation of standards like removing overlaps and inconsistencies, improving the structure of the CEN standards and to take into account the dynamic calculations based upon hourly steps.

**Presentation 5:** How the recast EPBD and related CEN standards will affect the HVAC industry, *by Karel Kabele, REHVA.*

Karel Kabele presented the REHVA organization as the European platform for the HVAC industry (Heating, Cooling and Air Conditioning) and the affect of the Recast of the EPBD hereupon. He stated that for instance that the U value has been dramatically decreased in the previous years and will decrease further in the future. Also it have his positive influence on window glazing, thermal bridges of the frames and innovative techniques like active glazing (electrochromic) and integrated ventilation systems. Also the heating and cooling systems have become more efficient itself but also in combination with smart control and strategy systems. He concluded that the EPBD has had a very positive influence on energy saving in the HVAC industry and the Recast of the EPBD will have even more.

## 4.2 Profile of participants

The workshop was well received by the participants. In totally 45 persons attended the workshop, whereof 7 persons from the organisation team. The attendees were mostly from the industry (7). The other represented sectors were energy companies (4), universities (3), local authorities (3). In the rest group were persons from software companies, communication and marketing, bank sector and federation represented.

See also **Annex C:** List of participants and **Annex D:** Summary of the evaluation by the participants.

## 5 Main discussion and results

After each presentation a opportunity was given to raise questions or initiate discussions. Here a summary of main questions and answers:

- **Question:** The recast of the EPBD provides only a framework for the definition of a nearly zero energy building. Does this not lead to a risk that Member States interpret this concept as they wish? Could European standardization facilitate some kind of harmonization of this concept?  
*Answer by Martin Elsberger:* The framework definition already indicates quite clearly what can be understood as a nearly zero energy building. It is very clear what is to be covered: not only heating, but also cooling, ventilation, domestic hot water and lighting, expressed in kWh primary energy, per m<sup>2</sup> per year. In the original EPBD this was not clear. A very important incentive for the Member States to take this issue seriously is the following (from recast art.9): *The national plans shall include inter alia the Member State's detailed application in practice of the definition of nearly zero-energy buildings, reflecting their national, regional or local conditions, and including a numerical indicator of primary energy use expressed in kWh/m<sup>2</sup> per year. Primary energy factors used for the determination of the primary energy use may be based on national or regional yearly average values and may take into account relevant European standards.*  
The Commission will publish a report based on these national reports, so any attempt to sell a non-energy efficient building as a nearly zero energy building will be detected and published, which will create sufficient pressure.  
The CEN standards provide already a good basis for this, but some additional work at CEN level might certainly help the Member States for this task, as the current standards are not covering all aspects yet.
- **Question:** The plan is to develop the next generation of CEN standards within ISO. Is this not a (legal) problem for the mandate to CEN?  
*Answer by Martin Elsberger:* Note that already many of the CEN-EPBD standards under the first mandate to CEN are EN ISO standards, for instance EN ISO 13790, which did not have a legal impact.

But if for the second mandate the tasks are carried out under ISO from the start, indeed, from a legal point of view the responsibilities have to be checked.

- *Question:* according to article 4 of the recast Member States a *Member State shall not be required to set minimum energy performance requirements which are not cost-effective over the estimated economic life-cycle*. How should this be interpreted and does this not lead to a potential conflict with the requirements to increase the number of nearly zero energy buildings. For instance a cost-optimum level could be at 60 kWh/m<sup>2</sup> and the nearly zero energy building would e.g. be below 30 kWh/m<sup>2</sup>.  
*Answer by Martin Elsberger:* This is a challenge for the Member States. It depends very much on three issues:

- 1) The extent to which the extra costs for nearly zero energy buildings can be reduced to the costs for standard buildings.
- 2) Although we don't know, it is quite likely that we will be faced to much higher energy prices in the near future than the energy prices that we are faced today.
- 3) In the recast we now mention explicitly as calculation basis the economic life-cycle time. The recast does not prescribe how to define the life-cycle with more detail. Is it the life-cycle of the building or of the particular measure or investment? This is something that we will have to follow closely once the Member States will come up with their national legislation on this. But in principle it is really new compared to the former approaches that we now do not only look at payback periods of 3 to 5 years, but to the whole life-cycle, which will as a rule lead to much higher level of ambition.

To summarize: you are right, there are some leeways, but the three issues I mentioned will help to reduce the gap between the cost-effective level and the level of nearly zero energy buildings.

- *Question:* Have you in CENSE considered to address in the standardization work the issue of economics to estimate the cost-effective minimum energy performance requirements?

*Answer by Jaap Hogeling:* I am sure that this topic will be addressed in the proposal. Under the first mandate already a standard was developed by the CEN Technical Committee on heating systems on economic evaluation procedures related to energy systems in buildings. But indeed, there is a need for a standard covering the whole building including all the technical building systems.

- *Question:* Why does CENSE recommend to CEN to list national choices and input data in National Annexes of the CEN standards? Why not list these choices at a central website, which is more flexible and accessible? And why is it recommended to publish the informative parts in a CEN Technical Report instead of –again- publishing it at a central website?

*Answer by Dick van Dijk:* The reason is that these choices and input data must be normative and therefore part of a standard. And to make it possible to compare the national choices and input data, this should be part of the EN standard. By publishing the National Annexes of a certain CEN standard as a separate part of that standard there is more flexibility in publishing updates. CENSE recommends to publish the informative parts in a CEN Technical Report because in this way we are sure that the quality and approval procedures are consistent with the procedures for the CEN standard itself. Otherwise, due to lack of time and due to other priorities, the required quality and agreement will not be achieved.

- *Question:* Is the common structure proposed by CENSE for each standard in the second generation of CEN-EPBD standards also useful for other CEN standards, outside the scope of the EPBD?

*Answer by Dick van Dijk:* Once we have shown that this works, we could serve as an example for other areas. But it depends on the subject. The package of EPBD related standards is very complex (see the pyramid illustration), from various types of components to energy needs and energy use of systems and overall energy rating, including a variety of types of energy use, types of buildings, building traditions and climates. For less complex subjects such a structure may not be needed. On the other hand, it might well be that in other areas a similar structure is already common practice.

- *Question:* The CEN experts cover a wide range of different expertises and backgrounds, leading to different perspectives and approaches. Are there thoughts about how to optimize the process to prepare the second generation of standards in the most effective way?

*Answer by Dick van Dijk and Johann Zirngibl:* The most important issue is that we start with the drafting of a set of basic principles. The ISO Joint Working Group (TC 163/WG 4) mentioned in the presentations exists already as a forum for this kind of central coordination. And at CEN level we have the coordinating committee TC 371 led by Jaap Hogeling. Also during the first mandate to CEN some of the key

standards and the common definitions and symbols were already developed under the responsibility of this coordinating committee, in good collaboration between persons from the different CEN Technical Committees, albeit that this (due to the high time pressure) came late in the programme.

So the organisational structure already exists, and indeed it is important to see how we can make the best use of it.

## 6 Conclusions and recommendations

The workshop was well received by the participants. The workshop was well received by the participants. In totally 45 persons attended the workshop, whereof 7 persons from the organisation team. They assessed the importance of the subject of the workshop with high priority, actual as well as in the future. The overall quality of the workshop was assessed as good to very good.

The main final conclusions that could be derived from the workshop are:

- CEN-EPBD standards are used in many EU Member States, but often in a “practical way”: by copying and/or completing parts of CEN standards into national standards or building codes. A more direct implementation is strongly preferred, but requires adaptation of the CEN-EPBD standards following common rules and a common format.
- The Recast of the EPBD was highlighted against the existing situation of the Directive on the energy performance of buildings and it was concluded as very useful that within the EPBD Recast a mandate for a second generation of CEN standards is potentially foreseen.
- The Recast requires a wider application range of the methodology, more attention to (links with) inspection and to component requirements and closer links to related Directives.
- The methodology laid down in the CEN standards should also be used in the context of the calculation of the cost effectiveness of the minimum requirements.
- The design of the second generation of the CEN standards is urgently needed. It will give a more consistent, clear, unambiguous and a better structure to the new set of CEN standards. It will lead to easier international knowledge exchange and shared research, increased circulation of products, services and property data.  
Also it will give Europe more influence on the process to come to global standards on energy performance of buildings in cooperation with the ISO.

## Annex A- Workshop Programme

### How to improve use of CEN standards in the implementation of EPBD

*Organiser:* CEN, CENSE, REHVA

*Date:* Monday 22/03, 14:00 PM to 17:00

*Address:* 17 Avenue Marnix, 1000 Brussels Belgium

*Event Type:* Other

*Location:* CEN offices, Brussels ; Room: Newton A & B

*Registration type:* Eusew registration

*Registration url:*

*Area:* Buildings

*Organiser:* Bjarne W. Olesen, Jaap Hogeling

*Topic:* The CENSE project has just been completed and the present workshop will present the main results, in particular the packages with information on the set of CEN standards to support the EPBD and a series of recommendations regarding a second generation of these standards. This should also be seen in relation to the recently decided revision (recast) of the EPBD. The existing standards are being used very differently in the EU member states. Some have implemented them fully, most have used some of the standards or excerpts of the standards and some others are not using the standards at all. On the other hand, there are many groups or organisations that would like to see more harmonized calculation procedures in Europe for evaluating the energy performance of buildings and HVAC systems. This is also the intention of the Commission, as indicated by the revision of the EPBD.

*Who should attend?* Policy makers, consultants, building products and HVAC manufacturers, those responsible for writing building codes, educators

*What are the expected results?* The aim of the workshop is to present the work that has been done in the CENSE project, to discuss the impact the revised EPBD will have on implementing harmonized methods in Europe, and to debate what effect the revision of the standards may have.

#### *Programme*

Chair: Berrie Van Kampen, TNO, Netherlands

Co-chair: Karel Kabele, REHVA

1. Recast of the Energy Performance of Buildings Directive (EPBD) and its relevance for future standardization (Mr. Marin Elsberger, DG Ener)
2. CEN standardisation and implementation at the national level of the CEN standards related to the EPBD (Jaap Hogeling, ISSO).

3. The contribution of the CENSE project to improving the use of the CEN-standards and how the recast of the EPBD may affect this process (Dick van Dijk, TNO)
4. Calculation of the energy performance of heating, ventilation and cooling systems (Johan Zirngibl, CSTB)
5. How the recast EPBD and related CEN standards will affect the HVAC industry (Karel Kabele, CTU)

## Annex B– Presentations

**NOTE: The presentations are provided as separate PDF files and available on the CENSE website (<http://www.iee-cense.eu/>)**

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## Annex C – List of participants

Title	Lastname	Firstname	Organisation	Position	City	Country	Signed in
Mr	Ab Iago	Dafydd	Europolitics	Journalist	Brussels	Belgium	
Mr	Adil	Mudassar	Environmental Protection Society (EPS)	General secretary	Faisalabad	Pakistan	
Mr	Al-Smairan	Mohammad	Energy Research Centre/ Al al-Bayt University	Head	Mafraq	Jordan	YES
Mr	Ascensão	Gonçalo	EWP	Project Officer	Brussels	Portugal	
Mr	Azaïs	Nelly	COWI	Consultant Energy & Climate Change	Brussels	Belgium	
Mr	Weilhuys	Dirk	Vaillant GmbH	Head of Associations	Remscheid	Germany	YES
Mr	Banat	Fawzi	German-Jordanian University	Dean of Graduate Studies	Amman	Jordan	YES
Mr	Bara	Gyula	European Commission				YES
Mrs	Bendžalová	Jana	TSUS				YES
Mr	Biernat	Krzysztof	Polish Technollogy Platform for Biofuels	Coordinator	Warsaw	Poland	
Mr	Blaich	Lutz	Hottgenroth Software	product development manager	Köln	Germany	YES
Mrs	Boenisch	Beatrix	Informationsbüro Mecklenburg-Vorpommern	advisor	Brussels	Germany	
Ms	Boric	Melita	City of Zagreb, Office of energy, environment, and sustainable development	advisor of Head of office	Zagreb	Croatia	YES
Mrs	Burhenne	Nina	shecco	Marketing Manager	Brussels	Belgium	
Mr	clapiz	clement	Mostra	webmanager	bruxelles	Belgium	
Mr	Schreuder		AGC Glass Europe	Public Affairs Manager	Brussels	Belgium	YES
Mr	Creiser	Charlotte	Euralia	Consultant	Brussels	Belgium	
Mr	Cumps	Marc	Agoria	Advisor	Brussel	Belgium	
Mrs	de Pret	Elinor	Lysios	Consultant	Brussels	Belgium	

Title	Lastname	Firstname	Organisation	Position	City	Country	Signed in
Mr	Decraecke	Dirk	VOKA	Energy Consultant	Antwerpen	Belgium	
Mr	Denis	Mathieu	CCMC				YES
Mr	Doerdelmann	Andreas	Investitionsbank SH	Project Manager	Kiel	Germany	YES
Mrs	Douka	Vassiliki	ENERGO GROUP SA	President & Managing Director	Athens	Greece	
Ms	Echchihab	Nadia	NORMAPME	stagiaire	Brussels	France	YES
Mr	Elsberger	Martin	European Commission				YES
Mr	Engh Brekke	Erlend	The Brusses Office s.a.	Deputy Managing Director	Brussels	Belgium	
Mr	Erhorn	Hans	Fraunhofer				
Mr	Eriksen	Kurt Emil	VKR Holding A/S	Manager	Hørsholm	Denmark	
Mr	Fontán	José María	Ecointegral Ingeniería	Saving and Energy efficiency Division	Córdoba	Spain	
Mrs	Friteau	Marie	LogiRep	Chargée de mission	Suresnes	France	
Mr	Galda	Zdenek	VSB - Tchnical University of Ostrava	University lecturer	Ostrava	Czech republic	
Mr	Gibson	Trevor	Environmenatl Advantage Ltd	Director	Peterborough	United kingdom	
Mr	Gloria	Alcino	MatosinhosHabit-MH,EEM	Director	Matosinhos	Portugal	
Mr	Goeders	Guillaume	REHVA	Assistant Project Engineer	Brussels	Belgium	
Ms	Hamon	Ophélie	TÜV NORD AG	Assistant of the European Department	Brussels	Belgium	YES
Ms	Herbus	Bozena	City Hall of Czestochowa	City Engineer	Czestochowa	Poland	
Mr	Hogeling	Jaap	ISSO	international	Rotterdam	Netherlands	YES
Mr	Huston	Val	U.S. Mission to the European Union, Foreign Commercial Service	Deputy Senior Commercial Officer	Brussels	Belgium	
Mr	Kabele	Karel	CTU				YES
Mr	Kiwan	Suhil	Jordan University of Science and Technology	Director of Energy Center	Irbid	Jordan	YES
Mr	Kraus	Yves	Legrand				YES
Ms	Krawietz	Silke	EURAC-Institute for Renewable	Prof. Architect	Rome	Italy	

Title	Lastname	Firstname	Organisation	Position	City	Country	Signed in
			Energies				
Mr	La cal	Jose	AGENER (Energy Management Agency of the Province of JAÉN)	Manager director	JAEN	Spain	
Ms	Lacroix	Daphné	Interel Cabinet Stewart	Consultant	Brussels	Belgium	
Ms	Lanspa	Michelle	TAMPEP	International Project Management Assistant	Torino	Italy	
Mrs	Lobnig	Sabine	Shecco	Communications Officer	Brussels	Belgium	YES
Mr	MAGALHAES	LUIS	MATOSINHOSHABIT-MH, EEM	ENGINEER	MATOSINHOS	Portugal	
Mr	Maras	Marijan	City of Zagreb - Office for energy, environment and sustainable development	Head of Office	Zagreb	Croatia	YES
Ms	Maratou	Alexandra	shecco	Policy Analyst	Brussels	Belgium	
Ms	Margagliano	Chiara	European Consulting Brussels	Consultant	Brussels	Belgium	YES
Mr	Martinez	Javier	Marwen Ingenieria	General Director	Jaen	Spain	
Mr	Masuhara	Naoki	Association for Community Energy, Japan	Secretary General	Chiyoda-ku Tokyo	Japan	
Mr	Mateos	Juan Ramón	Ecointegral Ingeniería	President	Córdoba	Spain	
Ms	Mauri	Valentina	normapme	Projct manager	Bruxelles	Belgium	YES
Ms	Mazet	Anne-Charlotte	DEKRA e.V.	Policy Officer	Brüssel	Belgium	
Mr	Mescall	Conor	LOGOS Public Affairs	Consultant	Brussels	Belgium	
Mr	milardi	martino	University	Researcher	Reggio Calabria	Italy	
Mr	Monteiro	Manuel	EUROPEAN COMMISSION	Deputy Head of Unit	Brussels	Belgium	
Ms	Niemelä	Heli	The Finnish Association of Local and Regional Authorities	Assistant, Brussels office	Brussels	Belgium	YES
Mr	Nieto Silleras	Sandro	European Commission	Trainee	Brussels	Belgium	
Mr	Olesen	Bjarne					
Mr	Olibé	Etienne-L.	Hyphen	Director	Paris	France	

Title	Lastname	Firstname	Organisation	Position	City	Country	Signed in
Mr	Oravec	Pavel	VSB-Technical University of Ostrava	university lecturer	Ostrava	Czech republic	
Mr	Peeters	Guido	RES Project Management	owner	DIEGEM	Belgium	YES
Mrs	Philipova	Iliana	Chamber of Commerce and Industry Vratsa	Executive Director	Vratsa	Bulgaria	
Mr	Piel	eloi	euroheat & power	European Affairs Officer	Bruxelles	Belgium	YES
Mr	Prin	Jonathan	Bureau Veritas				
Ms	Puyal	Nathalie	EDF - European Affairs	Environment Advisor	Bruxelles	Belgium	
Mrs	Rasselet	Anne Claire	ORGALIME	Junior adviser	Brussels	Belgium	YES
Mrs	Rateau	Fanny	Free-lance	Policy Advisor	Brussels	Belgium	YES
Mr	Richert	Frank	Hottgenroth Software	sales manager	Köln	Germany	YES
Ms	Rodriguez	Elena	European Commission Joint Research Centre (IPTS)	Scientific Project Officer	Seville	Spain	
Mr	Samarescu	Dr.Eng.Dan Florian	T.T.	Scientist	Maintal	Germany	
Mrs	Sanchez	Elena	Marwen Ingenieria	Technical Directress	Jaen	Spain	
Mr	Schornick	Dieter	ZVEI	European Affairs Manager	Frankfurt	Germany	YES
Mr	Seppanen	Olli	REHVA				
Mr	Shariah	Adnan	Jadara for Renewable Energy	Manager	Irbid	Jordan	YES
Mr	Simon	Cliff	Energy Experts Intl	Director, Europe Office	Brussels	Belgium	YES
Ms	Spiliotopoulou	CRISTINA-NIKOLETTA	NOSIS	QUALITY & ENVIRONMENTAL DEP. MANAGER	ATHENS	Greece	
Mr	Sykes	Christophe	Tiles & Bricks Europe	Secretary general	Bruxelles	Belgium	YES
Ms	Szanto	Szilvia	freelance	expert	Paris	France	
Mr	Tanaka	Yoshinori	Mission of Japan to the EU	First Secretary(Environment)	Bruxelles	Belgium	YES
Mrs	Tournaki	Stavroula	TUC	TECHNICAL ADVISOR	RETHYMN O	Greece	
Ms	Toussaint	Mascia	OCCMC	Director	Brussels	Belgium	
Mr	Tsoutsos	Theocharis	Technical Uni of Crete	PROFESSOR	CHANIA	Greece	
Mr	Tucci	Nicola	University of Pisa	Consultant	Pisa	Italy	

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Mr	Vaille	Gilles	BUILD UP	Public Relations Desk	BRUSSELS	Belgium	
Mr	van Dijk	Dick	TNO	senior scientist	Delft	Netherlands	YES
Mr	van Kampen	Berrie	TNO	Project Manager	Delft	Netherlands	YES
Mr	Van Marcke de Lummen	Guy	AGC Glass Europe	Environment, Standardisation & Safety Manager	Bruxelles	Belgium	
Mr	Van Orshoven	Dirk	BBRI	assistant head of division	Limelette	Belgium	YES
Mr	Van Reeth	Bart	Daikin Europe NV	Research Engineer	Anderlecht	Belgium	YES
Mr	Vandaele	Freddy	Agoria	Manager Electrical Engineering	Brussels	Belgium	YES
Mrs	Vassallo	Josianne	Services Division	A&CE	Floriana	Malta	
Mr	Vidrih	Simon	Hottgenroth Software GmbH & Co. KG		Köln	Germany	YES
Ms	Vitali Roscini	Arianna	WWF European Policy Office	Policy Officer	Brussels	Belgium	YES
Mr	Vlcek	Pavel	VSB - Technical University of Ostrava	university lecturer	Ostrava	Czech republic	
Mr	Wasser	Udo	EHI	Secretary General	Brussels	Belgium	
Ms	Wilhelm	Diana	Vaillant GmbH	Association Manager	Reimscheid	Germany	YES
Mrs	Zinetti	Silvia	Kronos Services Srl	Consultant	San Paolo d'Argon	Italy	YES
Mr	Zirngibl	Johann	CSTB	Head of Division	Marne la Vallée	France	YES
Mr	Zlatareva	Galina	Thorvik International Consulting	Adviser	Brussels	Belgium	
Mr	Bowie	Randall	Rockwool IW	Consultant		Denmark	YES
Mr	Festy	Remy	STIB		Brussels	Belgium	YES
Mr	Depaez	Bertrand	IHE Centre		Brussels	Belgium	YES
Mr	Bloem	Hans	EC Joint Research Centre		Ispra	Italy	YES
Mr	Ahmad	Abuhusseini		Academic	Amman	Jordan	YES

