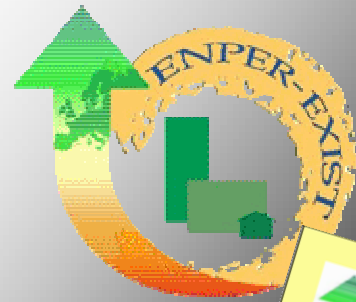


# ENPER EXIST

## WP 4 – Roadmap

### Suggestions for EPBD revision



## 6 Suggestions for EPBD revision

In this chapter, an overview of possible modifications in case of an EPBD revision is discussed. Given the fact that there are for all suggestions pro's and con's, it has been decided not to make any recommendations but to give pro's and con's for each suggestion so that it might be helpful for decision makers.

**Important:**

**This is an open list of suggestions (can/should be expanded)**

**List of pro's and con's can be further developed**

## 6.1 Technical specifications

In terms of technical specifications, the following possible modifications are discussed:

- ✚ To reduce the 1000 m<sup>2</sup> threshold
- ✚ To impose to MS minimum overall energy performance targets
- ✚ To impose to MS minimum requirements for building envelope
- ✚ To impose to MS minimum targets for individual components for new buildings
- ✚ To impose to MS minimum targets for individual components in case of renovation
- ✚ To impose to MS minimum targets also when no renovations are planned
- ✚ To impose to MS minimum requirements in terms of renewables
- ✚ To strive for an effective limitation of the available assessment procedures
- ✚ To impose MS to evaluate if urban regulations represent barriers/stimuli for energy efficiency
- ✚ To impose to MS energy metering of individual entities
- ✚ To stimulate MS to encourage reconstruction instead of heavy renovation works
- ✚ To stimulate MS to encourage energy certification of districts or areas
- ✚ To impose MS to evaluate if regulation regarding the owner / renter relationships can be adapted to facilitate energy savings investments

✚ ....

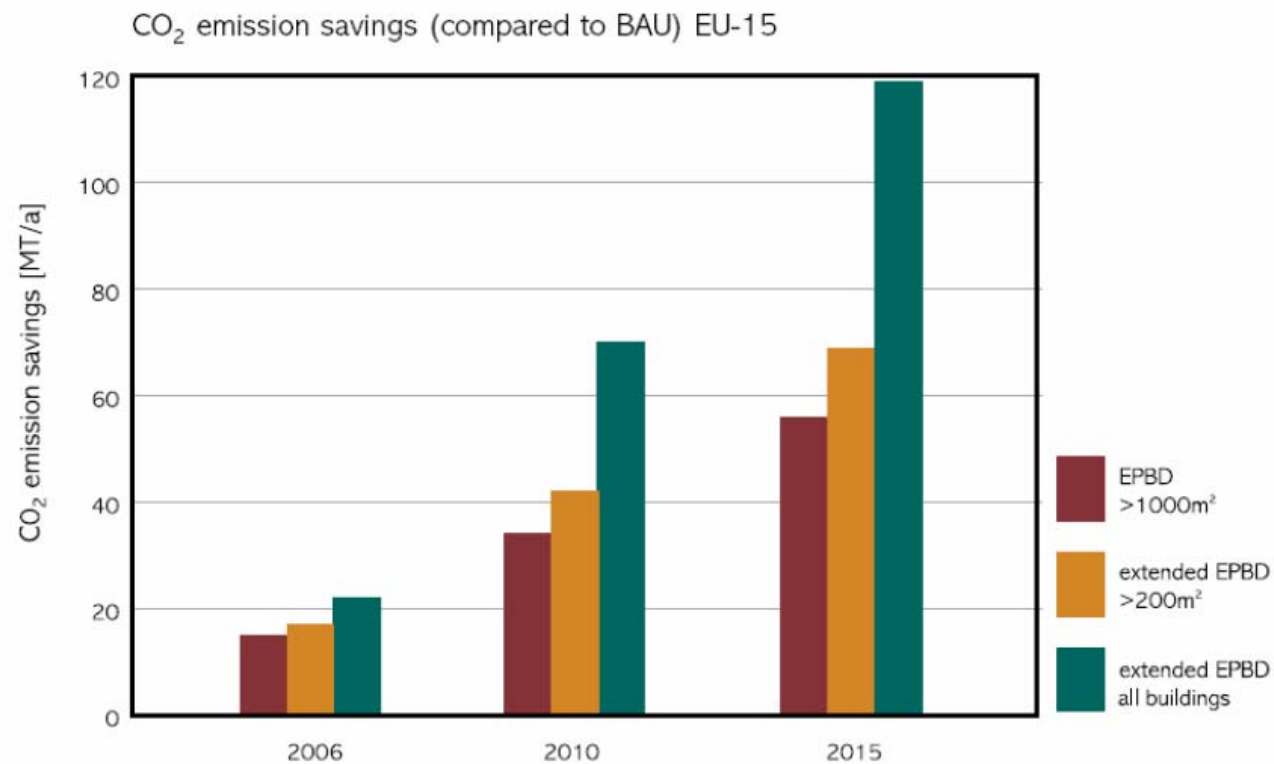
- **To reduce the threshold of 1000 m<sup>2</sup>, e.g. to 200 m<sup>2</sup> or even lower.**

In the EPBD, several requirements only apply for buildings above 1000 m<sup>2</sup>, i.e. :

- **Article 5** Member States are only obliged for buildings above 1000 m<sup>2</sup> to ensure that the technical, environmental and economic feasibility of alternative systems such as decentralised energy supply systems based on renewable energy, CHP, district or block heating or cooling, if available, heat pumps, under certain conditions, is considered and is taken into account before construction starts.
- **Article 6** Member States shall take the necessary measures to ensure that when buildings with a total useful floor area over 1 000 m<sup>2</sup> undergo major renovation, their energy performance is upgraded in order to meet minimum requirements in so far as this is technically, functionally and economically feasible.
- **Article 7** Member States shall take measures to ensure that for buildings with a total useful floor area over 1 000 m<sup>2</sup> occupied by public authorities and by institutions providing public services to a large number of persons and therefore frequently visited by these persons an energy certificate, not older than 10 years, is placed in a prominent place clearly visible to the public.



ECOFYS has made an interesting study [7] whereby the impact of a reduction of this threshold has been estimated. Results are presented in Figure 5.



Pro's and con's : To reduce the threshold of 1000 m <sup>2</sup>	





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- **To impose minimum overall energy performance targets to the MS**
  - At present, the EPBD only requires that MS impose minimum requirements for new buildings (article 5) and for major renovations of large buildings (article 6). There is no requirement in terms of a minimum performance level that MS must impose. One could imagine that in the framework of a revision such minimum requirement is included (for example: in the second round the energy performance could be tightened by e.g. 10% as compared to the initial requirement).



Pro's and con's :

### To impose minimum overall energy performance targets to the MS

- ✓ Such requirement will impose certain MS to make their national requirements more severe
- ✓ If well done, it will accelerate the implementation of more severe energy performance targets

✗ The development of a coherent approach for expressing such requirement in the EPBD text is not evident: it should take into account climate differences and differences in building styles.

✗ Such minimum requirement should take into account the market control is in place. At present, some countries have a strict control of the legislation and the requirements therefore are less problematic, whereas other countries have already a strict control scheme.

✗ A minimum requirement level in an EPBD context will be the outcome of compromises between MS. It probably will mean that the minimum requirement will be less severe than the requirement levels already applied in certain countries. For some of these governments, it may be quite difficult to justify requirements going beyond those specified in the EPBD.

**New SAVE project will work on inter-comparison of requirements :  
SAVE ASIEPI**

## Linked to average U-value

### Minimum requirements for building envelope

It is not evident to upgrade the thermal quality of the building shell once a building is constructed, whereas it is much easier to replace e.g. after 15.20 years a heating boiler. Therefore, one could imagine in addition to an overall energy performance requirement a specific requirement regarding the overall performance of the building shell (e.g. average U-value)

Pro's and con's :

#### Minimum requirements for building envelope

<p>✓ The building shell has a very long life-time and improvements after construction often not evident</p> <p>✓ Economic studies show that a very well insulated building shell is cost-effective in most cases</p> <p>✓ It avoids (or at least reduces the need) to carry out very expensive retrofitting works in case of more stringent energy performance targets (horizon 2020 – 2050)</p>	<p>✗ It limits the liberty of the builders to reach in the most cost effective way a given energy efficiency target</p> <p>✗ It may exclude certain systems and products from the market</p>
--	--

$$U_{\text{glazing}}, \eta_{\text{boiler}}, \dots$$

### - Minimum requirements for individual components in case of new buildings

In addition or in parallel with an overall requirement regarding the thermal performance of the building shell, one can impose minimum requirements on individual components, e.g. maximum U-values for glazing, windows, walls, roofs, floors, ...

One could also imagine additional requirements for other components, e.g. boilers, lighting,...

Pro's and con's :

#### Minimum requirements for individual components in case of new buildings

<p>✓ This will avoid the application of very poor products and systems</p> <p>✓ It will be a strong driver for industry</p> <p>✓ Through the increased sales, one can expect a quicker drop in price</p> <p>✓ There are a whole range of products for which it is clear that they should not be longer used</p>	<p>✗ It is not evident to have an equal treatment of all "bad" products</p> <p>✗ How to set objective criteria?</p> <p>✗ There will be a lot of lobbying</p> <p>✗ There is a danger that the simple component approach reduces the opportunity and success of energy efficient whole building concepts</p>
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## - Minimum requirements for individual components in case of renovation I

In case of building renovation, whereby only parts of the building and its installations are renewed, it is not evident to impose an overall energy performance target. However, one could consider to impose minimum performance requirements for individual components.

Pro's and con's :

### Minimum requirements for individual components in case of renovation

<ul style="list-style-type: none"> <li>✓ Can be very appropriate for the renovation market</li> <li>✓ Can be proposed as an alternative way for an overall performance target</li> <li>✓ Guarantees a better energy efficiency also in minor renovations</li> </ul>	<ul style="list-style-type: none"> <li>✗ Same considerations as for new buildings</li> <li>✗ Important to avoid market barriers</li> <li>✗ Imposing minimum performance requirements at a European level may be sometimes more appropriate than national level (e.g. 1 minimum requirement of only a choice between 3 possible values so that industry active in several countries can in a cost-effective way develop solutions). The possibility for member states to go beyond the minimal performance requirement set at the European level should be allowed.</li> </ul>
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### - Minimum targets also when no renovations are planned

For a substantial part of the market, there probably is without specific incentives and/or requirements during the next 10...30 years no upgrade of the energy performance level. One could impose minimum performance targets.

Pro's and con's :

#### Minimum targets also when no renovations are planned

<ul style="list-style-type: none"> <li>✓ This seems very well justified in an overall long term energy policy</li> <li>✓ It often will improve the living conditions of inhabitants</li> <li>✓ If well accompanied, it could be economically acceptable</li> <li>✓ For public buildings, the example of Denmark can be followed (all measures identified by the energy performance certificate on display, having pay-back time of less than 5 years, must be implemented within 5 years)</li> </ul>	<ul style="list-style-type: none"> <li>✗ How to express minimum requirements?</li> <li>✗ It probably will not find the required societal acceptance if not well implemented. Specific care is needed for the more difficult target groups, e.g. owners with low income, elderly people, ...</li> <li>✗ Probably only possible in a medium to long term action plan (horizon 2020)</li> <li>✗ It could be much more easy to apply the measure at the time of sales where money is available</li> <li>✗ Minor impact as this can be only legally required for cost-efficient measures (not possible for exterior walls and windows)</li> </ul>
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### - Minimum requirements in terms of renewables

A wide scale market uptake of renewables seems a crucial element in an overall strategy for reducing the CO<sub>2</sub> emissions of the building sector. In the framework of a revision of the EPBD, more actions by MS regarding the market uptake of renewables can be imposed.

#### Pro's and con's :

##### Minimum requirements in terms of renewables

<ul style="list-style-type: none"> <li>✓ Will accelerate market uptake of renewables</li> <li>✓ In case the requirements are gradually implemented, this can be a cost effective approach as part of a long term strategy</li> <li>✓ A possible promotion of daylighting and passive solar can additionally lead to better windows and shading systems</li> </ul>	<ul style="list-style-type: none"> <li>✗ Renewables are at present not necessarily the most cost-effective strategy.</li> <li>✗ Renewables not evident in all projects. How to make the specifications sufficiently intelligent</li> <li>✗ A short term general requirement may have adverse effects in terms of a too small supply and high prices, lack of experience by building practice, ...</li> <li>✗ Renewables are usually only understood as being connected to building service systems, but passive solar and daylighting has a much higher potential</li> </ul>
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## - To strive for an effective limitation of the number of national assessment procedures

One observes in practice a very high number of national approaches. To a large extent, these differences are due to the fact of lacking European procedures at the time of implementation of the national procedures. In the meanwhile, CEN standards become available for most technical issues and support activities as the EPBD Concerted Action, the EPBD Buildings Platform and a wide range of SAVE projects have resulted in more knowledge by MS and the major stakeholders. As such, the conditions for a substantial convergence in procedures are become in place.

Pro's and con's :

### To strive for an effective limitation of the number of national assessment procedures

✓	Would make approaches more European	✗	It clearly is not possible to strive for a single European method, but a strong limitation in the number of alternative approaches is realistic
✓	Would facilitate development of European software tools	✗	In many countries a politically sensitive issue
✓	Would facilitate benchmarking of requirements	✗	A large scale convergence is probably not possible unless long term target date (e.g. 2015)
		✗	One has to take national cultures into account

**Each country its own sets of procedures.....**



### **Germany**

- Dwellings :
- Office buildings :
- ...



### **Austria**

- Dwellings :
- Office buildings :
- ...



### **Switzerland**

- Dwellings :
- Office buildings :
- ...



- **To impose MS to evaluate if urban regulations represent barriers/stimuli for energy efficiency**

Urban regulations often represent a major barrier for certain renovation works or investments in energy efficiency, e.g. requirements which don't allow to apply external insulation on the front façade of row houses, installation of solar collectors ... See also the evaluation made for the 7 countries about existing energy friendly regulation on page 35

Pro's and con's :

**To impose MS to evaluate if urban regulations represent barriers/stimuli for energy efficiency**

<input checked="" type="checkbox"/> Would allow to remove barriers and create extra opportunities	<input type="checkbox"/> Consider that the urban regulations have other roles which shall be considered <input type="checkbox"/> The national (original) building culture has to be taken into account
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- **To impose MS to evaluate if regulation regarding the owner / renter relationships can be adapted to facilitate Energy savings investments**

The regulations regarding owner/renter relationships often prevent owner to beneficiate of the investments made in energy savings.

Pro's and con's :

- **To impose MS to evaluate if regulation regarding the owner / renter relationships can be adapted to facilitate Energy savings investments**

✓ Would allow to make energy efficiency investment attractive for owners

✗ Need negotiations between owners and renters association to find fair agreements where both parties will have a benefit

- **To impose to MS energy metering of individual entities**

In many older apartment and office buildings, there is no individual metering of the energy consumption. See also the evaluation made for the 7 countries about this topic on page 31.

Pro's and con's :

**To impose to MS energy metering of individual entities**

✓ Would strongly raise awareness	✗ Might be in some cases relatively expensive
✓ Would more easily allow benchmarking	



### - **To stimulate MS to encourage reconstruction instead of heavy renovation works**

In many MS, the overall and energetic quality of part of the building stock is such that it might be better to consider reconstruction instead of renovation. This is even more the case if one considers the long term targets in terms of energy efficiency (e.g. in France a reduction of the energy use of existing buildings by a factor 3...4 in 2050). See the evaluation made for 7 countries for this possibility on page 34.

#### Pro's and con's :

#### **To stimulate MS to encourage reconstruction instead of heavy renovation works**

<input checked="" type="checkbox"/> Would avoid non-optimal renovation works	<input checked="" type="checkbox"/> Important to avoid misuse of such measures
<input checked="" type="checkbox"/> As part of a long term strategy (2050), demolition of poor performing buildings might be the most cost effective approach	<input checked="" type="checkbox"/> Embodied energy implications <input checked="" type="checkbox"/> Building culture mainly in old city centres does not allow to demolish existing buildings (e.g. listed buildings, historical facades, etc).



## - **To stimulate MS to encourage energy certification of districts or areas**

Including energy supply systems in energy efficiency plans for new or existing building locations can put the energy efficiency of the entire district to a higher level. Often energy saving measures and renewable energy sources are regarded in relation to individual buildings. However, energy efficiency can be further boosted by putting it in relation to other buildings in the district and to the energy supply systems. This can be made visible through energy certification of a district. Local authorities may set a requirement to the energy performance of a district (accounting for specific conditions in the district).

### Pro's and con's :

#### **To stimulate MS to encourage energy certification of districts or areas**

<ul style="list-style-type: none"> <li>✓ Interactive approach stimulating communication and cooperation between local parties.</li> <li>✓ Bringing energy efficiency to a higher level (not only the individual building but also including the energy supply systems and the relation between buildings).</li> <li>✓ At new-building construction sites one can start from scratch and make a well-considered overall plan.</li> <li>✓ Stimulates the application of district heating and renewable energy sources.</li> </ul>	<ul style="list-style-type: none"> <li>✗ May be complex to get all stakeholders involved: a local network of communication needs to be set up.</li> <li>✗ Needs to be coordinated (extra costs)</li> <li>✗ Energy certification of districts is probably one or two steps too far for MS that have only recently started working on energy certification of buildings.</li> </ul>
---	---

## 6 Suggestions for EPBD revision

### 6.2 Impact assessment of EPBD

In order to improve the impact of the EPBD on the building performances, the following measures could be envisaged:

- ✚ To impose to MS requirements in terms of market impact assessment
- ✚ To impose to MS requirements in terms of control of legislation
- ✚ To impose EP based monitoring to increase knowledge on (existing) building stock

### - Requirements in terms of market impact assessment

At present, most MS have no precise idea about the way the EPBD requirements are implemented, e.g. which percentage meets the requirements, what is the average energy performance level, how many building perform better than the minimum requirements.

Pro's and con's :

#### Requirements in terms of market impact assessment

✓ Will raise awareness	✗ Not evident to make coherent specifications
✓ Will probably give a better understanding of bottlenecks and reasons for success stories	✗ May be politically sensitive for certain MS
✓ Will motivate MS to have effective requirements	
✓ Will facilitate to meet targets of energy services directive	

### - Requirements in terms of control of legislation

The EPBD in its present version does not impose to the MS that a control scheme for verifying the market implementation is set up. It probably means that in a number of countries the real performances are substantially above the imposed requirements.

Pro's and con's :

#### Requirements in terms of control of legislation

<p>✓ In terms of EPBD impact, it would be very useful for several MS</p> <p>✓ If well done, stakeholders may support a strict control scheme</p>	<p>✗ There might be strong opposition from several MS</p> <p>✗ A fine system not evident to have accepted by stakeholders, unless very careful preparation and consultation</p>
--	---

## - **To impose EP based monitoring to increase knowledge on building stock**

From the results of the ENPER-EXIST project it is concluded that there are large gaps in the knowledge about the existing building stock (including the energy performance of the building stock), particularly with respect to non-residential buildings. To develop effective energy efficiency policies with respect to existing buildings it is necessary to have a reliable overview of the energy performance at a certain starting point. Energy performance based monitoring using energy certificates might serve this goal. The IEE-project DATAMINE (2006-2008) is taking the first steps in this approach.

### Pro's and con's :

#### **EP based monitoring to increase knowledge on building stock**

<p>✓ An enormous amount of energy certificates becomes available in the next years providing detailed information on existing (and new) buildings.</p>	<p>✗ The costs of the setting-up and management of a database.</p>
<p>✓ The database might serve multiple purposes (e.g. building stock management by housing corporations).</p>	<p>✗ It will take several years to get energy certificates for the building stock and some buildings will never get a certificate as they will not be sold or rented out. So, insight in the energy performance of the building stock will become more complete with time (it will always be a random indication, but it is by far better than having nothing at all).</p>

## 6 Suggestions for EPBD revision

### 6.3 Market uptake of EPBD

In order to improve the market uptake of the EPBD, the following measures could be envisaged:

- ✚ To motivate and/or to impose MS to set up actions which increase in a positive way the visibility of the EPBD requirements
- ✚ To motivate and/or to impose to MS to collect practical use of EPBD in activities beyond legal requirements
- ✚ To give MS more freedom in areas of financial stimuli (VAT, ...)



- **To motivate and/or to impose MS to set up actions which increase in a positive way the visibility of the EPBD requirements**

The EPBD requirements might be considered by many stakeholders as an additional burden for the building sector. There is a wide range of possibilities for MS to give a positive image to the EPBD implementation.

Therefore, in addition to legal requirements, the instruments developed in the framework of the EPBD may also be used for other purposes, e.g. requirements by major building investors, criteria for incentives ...

Pro's and con's :

**To motivate and/or to impose MS to set up actions which increase in a positive way the visibility of the EPBD requirements**

<input checked="" type="checkbox"/> The various stakeholders will become more positive towards the EPBD requirements	<input type="checkbox"/> MS may see it as an additional workload
--	--

- **To motivate and/or to impose MS to communicate practical use of EPBD in activities beyond legal requirements**

As part of the reporting of EPBD implementation, MS could be asked to provide information on actions going beyond the legal requirements.

Pro's and con's :

**To impose to MS to collect practical use of EPBD in activities beyond legal requirements**

- |  |                              |
|--|------------------------------|
| <input checked="" type="checkbox"/> Would give good ideas to other countries<br><input checked="" type="checkbox"/> Would motivate countries to stimulate actions going beyond regulations | <input type="checkbox"/> ... |
|--|------------------------------|

- **To give MS more freedom in areas of financial stimuli (VAT, ...)**

Pro's and con's :

...

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> At present, liberty of MS is quite limited | <input type="checkbox"/> May be in conflict with other principles of European Union |
|--|---|

## 6 Suggestions for EPBD revision

### 6.4 Support measures to individual decision makers

In order to give individual decision makers in the MS more support, the following measures could be envisaged:

- ✚ To impose to MS requirements in terms of incentive schemes to owners and renters
- ✚ To impose to MS measures for higher implementation rate of recommended improvements

#### - To impose to MS requirements in terms of incentive schemes to owners and renters

In particular for the existing building stock, the action level will probably be very low if there are no efficient incentive schemes (subsidies, fiscal reduction, loans, ...)

Pro's and con's :

#### To impose to MS requirements in terms of incentive schemes to owners and renters

<ul style="list-style-type: none"> <li>✓ Will in most cases strongly increase investments in energy efficiency</li> <li>✓ There is growing interest from various stakeholders (banks, social housing sector, ...)</li> </ul>	<ul style="list-style-type: none"> <li>✗ It might be costly</li> <li>✗ Probably not evident to have politically acceptable requirements in EPBD (unless very general and not binding)</li> <li>✗ Not evident to find a formulation which takes into account big differences in culture and policy in MS</li> </ul>
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- **To impose to MS measures for higher implementation rate of recommended improvements**

At present, the requirements given in an energy performance certificate are not binding

Pro's and con's :

**To impose to MS measures for higher implementation rate of recommended improvements**

✓ It would substantially increase EPBD impact

✗ It might be a politically very sensitive

✗ One should find appropriate solutions for dealing with liability issues regarding the given recommendations

## 6 Suggestions for EPBD revision

### 6.5 Actions at EU level - International collaboration

The following possible actions have no direct link to an update of the EPBD but may be very relevant in the overall implementation of energy efficiency targets for the building sector :

- ✚ To actively strive for more intense international collaboration in order to make better use of European experiences and of experiences of other countries
- ✚ To set up international benchmarking of requirements and of implementation on the field
- ✚ To set up some kind of European Centre for Energy Efficiency of buildings

- **To actively strive for more intense international collaboration in order to make better use of European experiences and of experiences of other countries**

The challenges of CO2 reduction are on a world scale. As such, it is not sufficient that the EU MS have a good implementation of energy efficiency plans. It is clear that the EU is leading the move for increased energy efficiency and that a wealth of knowledge has been built up. Therefore, it might be appropriate to have an active strategy for international collaboration in order to facilitate other countries an accelerated and successful implementation of energy efficiency action plans. This is the case for all OECD countries but even more for countries as China and India where very substantial building activities take place.

Pro's and con's :

**To actively strive for more intense international collaboration in order to make better use of European experiences and of experiences of other countries**

- ✓ It can substantially contribute to an accelerated implementation of effective energy efficiency plans
- ✓ It might give benefits to the European export of energy efficient products





- **To set up international benchmarking of requirements and of implementation on the field**

A better understanding of the relative severity of national requirements may in an international context help to push the less performing countries to better energy efficiency standards

Pro's and con's :

**To set up international benchmarking of requirements and of implementation on the field**

✓ It can substantially contribute to more advanced national energy efficiency plans	✗ Requirements often depend strongly on national boundary conditions such as energy carrier availability
---	--

- **To set up some kind of European Centre for Energy Efficiency of buildings**

Energy efficiency of buildings will probably be a major topic for the next 2 decades. A permanent support structure could be very useful whereby the emphasis is on data collection, support to MS, interface with non-European organisations. It should not be in competition with IEEA

Pro's and con's :

**To set up some kind of European Centre for Energy Efficiency of buildings**

<p>✓ Such centre would allow a long term planning</p> <p>✓ Such centre could strongly reduce redundancy in national activities</p> <p>✓ If well interacting with other organisations (IEEA, Eurostat, IEA, ...), it could be beneficial for many organisations and countries</p>	<p>✗ It is important to avoid unnecessary overlap with other organisations</p> <p>✗ The implementation is dependent on the national policy. Experience shows that European centres like the European Research Centre in Ispra have no influence on national strategies or national decision makers.</p> <p>✗ Existing networks of national key actors like in the Concerted Action project are much more effective in the transfer of information to national and international experts and users.</p>
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# ENPER EXIST

## WP 4 – Roadmap

### Suggestions for EPBD revision

The main objective is to obtain a good overview of possibilities with pro's and con's

The implemented approach is a dynamic one :

- The list of possibilities might/will change
- The list of pro's and con's might/will change

## Conclusions

