

# Wider use of EPBD databases

## Enabling monitoring and policy making

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### Introduction

The building sector is fragmented and disaggregated; hence, the availability of reliable data is challenging. EPBD repositories, used mainly for logging Energy Performance Certificates (EPC) and Inspection data, have been managed for several years and continue to grow. Thus, these databases are increasingly being used not only for control and compliance goals (EPBD art.18), but also to complement other sources with the aim of enabling evidence-based policies and monitoring the ever-increasing energy efficiency of buildings. The Evaluation of the EPBD<sup>1</sup> also concluded that EPC registers/databases can be a key instrument for reinforced compliance, improve the data and knowledge on the building stock, better inform policy makers and support the decisions of market players.

Since the first plenary meeting of the fourth EPBD Concerted Action (CA EPBD IV) in Copenhagen in November 2015, countries expressed their willingness to explore this subject and to make it a priority for collaboration with other European initiatives.

### Filling the information gap of Europe's buildings

#### Contribution to the EU Building Stock Observatory

The EU Building Stock Observatory (BSO), launched in November 2017 as part of the Clean Energy for All Europeans package to monitor the energy performance of buildings in the EU through a list of relevant indicators, developed a methodology for data collection and a website, which is integrated into DG Energy's website. The Observatory contains a database, a data mapper and factsheets<sup>2</sup>.

During the CA EPBD IV, countries agreed to improve indicators of Key Implementation Decisions (KIDs) and to integrate them into the BSO, using interactive, searchable databases and data mapping. This should allow for the EPBD KIDs to become more accessible and worthwhile in providing information regarding EU policy impact.

Collaboration will lead to the display of EPBD data such as: minimum requirements for existing building renovation and for new buildings, national NZEB requirements, the number of EPCs issued and of heating/air conditioning inspections carried out. During the process of collecting KIDs data, countries explored the need for routine assessment and recording of data quality and provenance, and for the use of consistent terminology and definitions (e.g., a definition of public buildings).

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<sup>1</sup> The Evaluation of the EPBD was a direct follow-up to the Communication on an Energy Union, which asked for a review and possible revision of the Directive by the end of 2016.

<sup>2</sup> <https://ec.europa.eu/energy/en/eubuildings>



## Experiences in EU member states

### Results of collaboration in EU funded IEE projects

The IEE EPISCOPE<sup>3</sup> project (involving 17 EU countries), which started with classifying building typologies according to energy-related properties (IEE TABULA project), developed a methodology to monitor the progress of energy performance and model the building stock from three main data sources: full inventories of buildings, surveys and the EPC database.

- In **Slovenia**, the building stock was modelled based on integration of the EPC database with other public databases to deliver the EED's National Energy Efficiency Action Plans and for the EED's Article 4 renovation strategies. This also led to the creation of an energy register of buildings (EnRen), a comprehensive database which integrates the national real-estate registry (REN) 2008<sup>4</sup>, with renovation data from Eco-fund subsidies, the EPC data from 2015 and the results of market surveys. In the EnRen, registry data is updated at each regulatory assessment or inspection. Multiple people can access and review the data, resulting in error reduction. Data is stored in an open XML format to enable commercial software tools to support the assessment process.
- In **Austria**, the EPC database holds an average of 400 data fields for each building in an open XML format that can be read by any calculation software. In order to monitor building retrofit, available information from different province sources (including regional EPC data) is combined to the klimaaktiv<sup>5</sup> national declaration scheme that combines energy performance certificates, good design, execution, material quality and comfort. Access to the system is given to market actors and different provincial governments to acquire holistic and tailor-made expert advice within the klimaaktiv scheme.

Within the IEE REQUEST2ACTION<sup>6</sup> project (involving 9 EU countries), new services have been developed that provide accurate, trustworthy, easy-to-use building performance data within retrofit "one-stop-shop" hubs.

- In **Scotland**, the EPC database (Figure 1) was combined with 10 other datasets, including RES and fuel poverty, to create a comprehensive, reliable, up-to-date energy performance profile for all the properties. The project found solutions to remove erroneous records, to establish EPC representativeness and to statistically predict performance when EPCs were not available. Through an arcGIS geographic information system, Scotland local authorities are able to see at an address, community or whole regional level the energy performance of their building stock. As part of the project, a new service, the "Local Homes Portal"<sup>7</sup>, which displays EPC and other data, has been put in place. Web maps allow Scottish owners to compare the energy efficiency rating, energy consumption and carbon footprint of their homes to the average home in the same area. Companies can identify which areas (clusters of 500-1000 buildings) might benefit from their energy service/products.

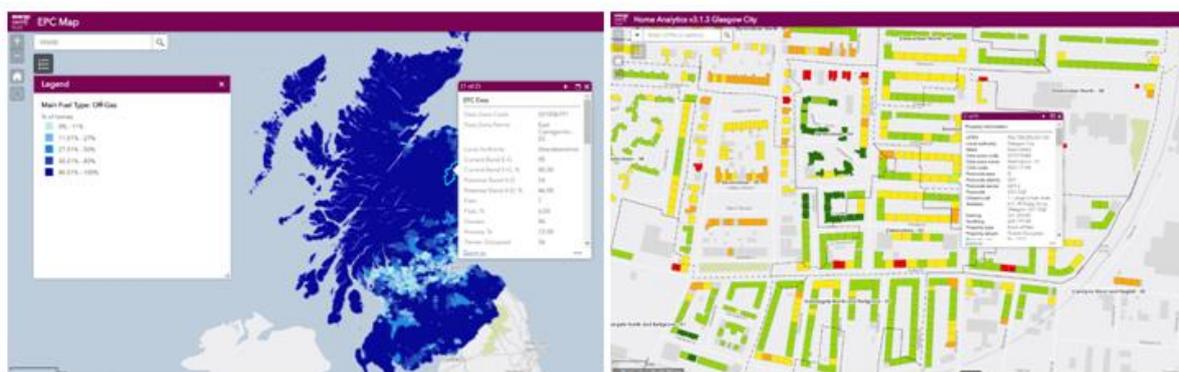


Figure 1: The EPC based data tool in Scotland.

- In **Italy**, ENEA developed a web-based support system (DIPENDE)<sup>8</sup> that integrates top-down and bottom-up territorial data from EPCs, from Census and from governmental incentives in the Lombardy region (2 million EPCs in 2015). The main outcomes of this pilot experience resides in allowing new analyses: consistency of buildings with an EPC, links between age-typology-retrofit-average building energy performance. The information is aggregated at municipal level and released in maps and in WebGIS format.

<sup>3</sup> Work developed within the EU-funded projects EPISCOPE (<http://episclope.eu> 2013-2016), TABULA (<http://episclope.eu/iee-project/tabula> 2009-2012) and REQUEST2ACTION (<http://building-request.eu>, 2014-2017).

<sup>4</sup> [REN] Slovenian Registry of buildings, <http://www.e-prostor.gov.si/?id=601>. For the integration of the TABULA typology approach in the REN see the Slovenian TABULA report: [http://episclope.eu/fileadmin/tabula/public/docs/scientific/SI\\_TABULA\\_ScientificReport\\_ZRMK.pdf](http://episclope.eu/fileadmin/tabula/public/docs/scientific/SI_TABULA_ScientificReport_ZRMK.pdf)

<sup>5</sup> <https://www.klimaaktiv.at/haushalte.html>

<sup>6</sup> <http://building-request.eu/> (2014-2017), 9 EU Countries represented, principally delivered by national energy agencies responsible for managing EPC databases. [www.building-request.eu](http://www.building-request.eu)

<sup>7</sup> <https://localhomesportal.est.org.uk/>

<sup>8</sup> [http://www.portale4e.it/centrale\\_dettaglio\\_pa.aspx?ID=1](http://www.portale4e.it/centrale_dettaglio_pa.aspx?ID=1)

Nevertheless, as proved by a Climate-Kic study in 2015<sup>9</sup>, access to relevant EPC data is still difficult and privacy issues still impede disclosing of data to the private sector (banks, property portfolio holders, etc.): that's why commercial services based on national/regional EPC data are in most cases only practicable for local administrations.

Moreover, as also discussed during the CA EPBD open stakeholder event on Renovation Strategies in Vilnius (May 2016), the combined use of data from the EPBD, governmental buildings and building stock data (EED art.5, 4) is not often practised.

## Monitoring retrofit and impact of governmental incentivising programmes

### Investigating implementation of EPBD proposal's art.10

The last session of CA EPBD IV in October 2017 in Bucharest found that more than half of countries use the EPC to assess energy savings of building renovations. The majority of these countries use EPCs produced both before and after the renovation work linking public incentive programmes with the improvement of the EPC.

Although there is more awareness of the energy performance of buildings among consumers thanks to EPCs, much improvement is still necessary in order to reap the full potential of the EPCs. EPC schemes should be the prerequisite for buildings policy and thus there is a need to strengthen the role of EPCs in the context of national legislation, especially for renovation policies and programmes as well as to further promote the EPC schemes as a tool for mapping and monitoring the national and European building stock.

EPCs can not only be a valuable source of information for the building owner regarding cost-effective measures, but they can also be an important tool to evaluate and monitor the renovation rate of the building stock. In fact, EPCs could become a requirement for more effective financing of renovations, especially through Cohesion Policy Funds (which was also a conclusion from the European Commission report on financing energy renovation [DG Energy 2014]), while the European Investment Bank (EIB) could play a unique role in strengthening the EPC by requiring EPCs as proof.

Moreover, this link is used within new web services that were presented at the same session:

- In **Portugal**, a new portal (CASA+)<sup>10</sup> is being developed (to be released in October 2018) to provide additional information to home owners who already have an EPC (the portal also provides some functionalities for home owners who do not have an EPC, namely the possibility to contact qualified energy experts to develop the EPC) (Figure 2). The portal will promote the implementation of the energy-efficient measures, bridging the gap between demand and supply through an effective and easy way to contact energy efficiency measures suppliers. This initiative is expected to raise home owners' confidence to make the changes in practice and report achieved renovations and impacts (savings, quality, comfort) on the portal. This should help track the renovation status across the building stock and monitor policy measures.



Figure 2: Portuguese CASA+ portal private area – energy efficiency measures available.

<sup>9</sup> EEPPA, the Climate KIC study on the commercial and technical potential for an EU-wide EPC services company, 2015

<sup>10</sup> <https://www.adene.pt/edificios/>  
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- In **Greece**, the portal “EnergyHUBforALL”<sup>11</sup> also allows for better monitoring of the renovation uptake. Many sources of information are brought together, ranging from EPC statistics to funding mechanisms requiring before- and after-renovation EPCs. The Hub provides resources on energy performance of buildings, NZEB, funding mechanisms, and related projects. It also embeds updated statistical data from national EPCs, a search tool for qualified tradespeople for energy retrofit actions and an interactive tool (home energy check) for consumers to get accustomed with possible energy renovation activities.

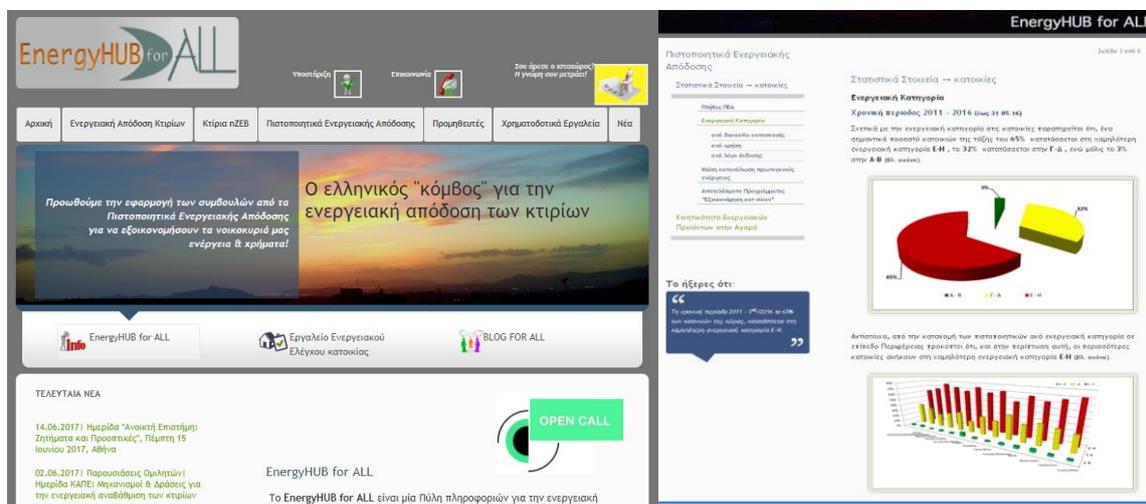


Figure 3: The REQUEST2ACTION “EnergyHUB for all” in Greece.

## Conclusions

In several countries, EPC data in its raw format is insufficiently accurate, but its usefulness can be reinforced by refining and combining EPC information with other data before use in a wider context.

Integration of different existing data sets (census, inspections, cadastre, incentives, gas registers, energy networks, bills, revenue agencies, etc.) may be complex and efforts remain rather uncoordinated in most countries. The main limitations are due to regulatory and juridical framework constraints. However, examples shown above prove that these limitations can be successfully overcome.

EPBD data can help policy monitoring and decision making, but searchable databases and data mapping need to be more accessible.

A few countries have developed new harmonised databases or integrated existing databases. This has provided new services for accessing EPC data in a more user-friendly way, with different access rights and formats for users that include the use of Geographic Information System (GIS) and web tools.

Moreover, approximately half of the countries in the Concerted Action support the idea of linking public incentives with improvements in EPC ratings as envisaged by the amended EPBD, thereby confirming the usefulness of EPCs to track savings.

CA EPBD IV is continuing its work to make implementation decisions and indicators (KIDs) more visible within the EU Building Stock Observatory.

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<sup>11</sup> <http://www.energyhubforall.eu/>