Make Energy Efficiency Visible in the Energy Mix

Event summary

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Make Energy Efficiency Visible in the Energy Mix

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Roundtable 1- “Why making energy efficiency visible does matter”

Paula Pinho
European Commission

Dr. Brian Motherway
International Energy Agency

Petros Kokkalis
European Parliament (The Left – GUE/NGL, Greece)

Niels Fuglsang
European Parliament (S&D, Denmark)

Petr Holub
Ministry of Environment – Czech Republic

Moderated by

Jean-Sébastien Broc
IEECP

Arianna Vitali
Coalition for Energy Savings

Roundtable 2- “What possible steps to go forward”? 

Marek Sturc
EUROSTAT

Didier Bosseboeuf
ADEME / ODYSSEE-MURE

Bérengère Mesqui
Ministry of Ecological Transition, France
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Introduction

Figures showing the energy mix are major inputs to the debates on energy strategies. In the way these figures are currently built, the contribution of energy efficiency is missing: it remains the ‘hidden fuel’ as pointed by the IEA in 2013. A few examples about how energy efficiency could be visible in the energy mix exist, but mostly in publications dedicated to energy efficiency (see e.g. IEA, ACEEE, ODYSSEE-MURE).

This policy event aimed to discuss why making energy efficiency visible in energy statistics does matter, and what could be the next steps forward. The discussions built on the findings of a study done by IEECP and supported by the European Climate Foundation and Knauf Insulation.

Arianna Vitali, Secretary General of the Coalition for Energy Savings, opened the event and introduced the main author of the study, Jean-Sébastien Broc, who presented the methodology, key results and recommendations. Upon opening the event, Arianna reminded participants that energy efficiency is often considered “the hidden fuel of Europe”, neither recognised nor valued as a resource for the energy system. Why is that? Because energy efficiency data are often poorly visualized and not always correctly integrated in the official energy statistics.

“While this might seem a minor technical detail, it has huge impacts when it comes to planning, policies and investments, and is crucial to operationalize the energy efficiency first principle, which promotes a switch in the perspective on energy to consider supply side and demand side on the level playing field.”

Jean-Sébastien Broc shares some figures from various sources: Eurostat, the IEA, the EEA and national organizations in charge of energy statistics. Jean-Sébastien then introduces the new IEECP study, supported by Knauf Insulation and the European Climate Foundation, which addresses this issue and highlights how the contribution of energy efficiency is essential to the European Union’s energy system but is not visible in main energy mix figures. If energy efficiency is not visible in the energy mix, how can it be considered an energy resource? IEECP analysed possible ways to add energy savings to national and European Union energy mixes next to energy sources such as renewables, gas and coal in a structured way. The report provides explanations about what data and methodologies can be used. 7 actions that could make energy efficiency more visible are then presented.
Arianna then moderated the first panel, discussing why making energy efficiency visible does matter.

Niels Fuglsang, Member of the European Parliament (S&D, Denmark; member of the ITRE committee, rapporteur for the EED – Energy Efficiency Directive – recast) opened it and reminded that energy efficiency should be made more visible, and having today’s conversation is key.

How can it be prioritised and made more visible in the next 5 years in the next EU policy cycle? Mr Fuglsang mentions three points to answer.

“First, we need to state the challenge: we need to get rid of our energy dependency to Russian and LNG gas, and increase energy security. Energy efficiency should remain at the top of the agenda. Then, on how we illustrate energy efficiency and the energy system: it is about building the narrative and stories. Finally, with proper calculations on the economic consequences of increasing energy efficiency, we only look at the money to invest in insulating homes or rolling out district heating and increase energy efficiency. But obviously there is a value in doing this. We save a lot of money, maybe even more than we invest. We have to look at the bigger picture of the multiple benefits. We need to insist on having calculations that look both at the cost and benefits of these investments.”

Petros Kokkalis, Member of the European Parliament (The Left – GUE/NGL, Greece), worked in the ENVI Committee. He mentions the paradox that files and legislation such as Fit for 55 (actually 57%), exist, yet we actually ignore that 40% of this reduction is supposed to be coming from efficiency, not capturing headlines as other things are. There is the opportunity for a positive message of a Just Transition. To benefit from aggregated data becoming more and more available through the digitalisation of the energy system.

“Greece finally signed an agreement to introduce 7.5 million smart meters and that’s a good sign: the next political mandates should work on aggregating the data across Member States and making them much more visible, explaining that the cheaper kilowatt is the one you never used.”
As a rapporteur of the Energy Efficiency Directive, Mr Fuglsang adds that they had data, from the Commission, from PRIMES and calculations forecast. But work from research institutes then showed that we could go higher than just increasing energy efficiency by 9% in by 2030 compared to 2020 baseline scenario.

“"It is important to bring in calculations from other sources that can challenge or nuance the Commission's calculations so that we get a broader conversation. We all have an interest in making sure that these calculations consider all the benefits that energy efficiency will bring.""

Arianna Vitali insists that we see scenarios, such as PRIMES where energy efficiency and savings were not represented, neither was their potential. Yet modelling has improved, and we hope to see this better reflected in the future.

Mr Kokkalas then re-states the need for correct, comparable, efficient data monitoring of energy savings, and mentions the issue that there is not yet a streamlined (digitalised) way to collect data on energy efficiency across Member States (similar methodologies for data consistency) that would allow to measure progress and make it visual as well as be able to adjust policies if needed.

Paula Pinho, European Commission (Director for Just transition, Consumers, Energy security, Efficiency and Innovation at DG ENER), joins the panel and answers to how energy efficiency can be further put on a level playing field with supply side options and what other actions could be taken in the next Commission mandate. She reminds that anything we can do to promote energy efficiency is extremely important, as it should be a no regret policy.

“"Energy efficiency should be the first fuel: it is the most cost effective and environmental-friendly way to meet our energy demand and reduce consumption. We understand its importance, and everybody agrees about it. Yet when it comes to the details and implementation, it becomes complicated and we face difficulties.""

There is a combination of instruments, including the EED and EPBD (Energy Performance of Buildings Directive). Now we need Member States and actors across the economy to take energy efficiency measures and match them with financing and technical assistance.

“"With the energy crisis, people across the value chains discovered the potential of energy efficiency. We need to ensure that this change is structural, and we won't go back.""

We often associate energy efficiency with demand reduction, as undermining comfort and growth. Are we destroying demand or are we making real efficiency gains?

“"We need a good narrative, to communicate a positive story and make energy efficiency more tangible and visible. The IEA’s Annual Ministerial Conference on Energy Efficiency is extremely important to get the discussion going at the international level. Following this, we’ll support a global pledge on energy efficiency announced at COP28, with the idea to double our efficiency gains in the next decade, with global contributions.""
Dr. Brian Motherway, International Energy Agency (Head of the Office of Energy Efficiency and Inclusive Transitions), is thankful to see how the focus (and teams working) on energy efficiency has increased these past years, especially 10 years after the IEA started putting attention on the “hidden fuel”.

“There is a trend towards more focus on energy efficiency in policymaking, driven by better data, more profiling and experience.”

Two reasons explain this acceleration. First one is decarbonisation. The IEA released the net zero report in 2021, and it got confirmed in the past 4-5 years, that in a context of heading towards decarbonisation, it is impossible to envisage a pathway to net zero without energy efficiency. An affordable and achievable net zero will only come by putting energy efficiency first, especially between 2020 and 2030.

“Energy efficiency makes the wider emissions abatement project cheaper, more affordable and more achievable – and so more socially achievable – because by reducing demand compared to what it would be, we need to invest less in wires, in solar panels, in infrastructure. It puts us on a pathway to lower bills, have more comfortable homes, more resilient and secure energy assistance. It helps putting people first by emphasizing the consumer and the consumer's experience as well.”

And then, as emphasized by Paula, there’s a real sense of the value of energy efficiency and a real push in the last two years, particularly in Europe: since the start of the crisis in February last year, countries representing 3/4 of the global economy have either introduced or strengthened existing energy efficiency policies.

“There has been a huge push on energy efficiency policy making in the last 18 months or so around the world. Now, we need to see what will follow up in terms of implementation.”

“Having a pledge to double energy efficiency progress is one of the major political moments that could happen in COP and is an exciting opportunity and I hope anybody joining the call today and having any influence over their government will remind them about this.”

Most countries have shown that they can hit those levels of efficiency progress in recent times if they put effort on policies and technologies that we know exist already. 8 years ago, the IEA started an annual global conference on energy efficiency despite the low interest on the topic. Now in 2023, we managed to bring together 30 ministers from around the world (90 countries), and 45 governments signed the Versailles statement which committed them to focus on doubling the target by 2030.
We've really seen a political step up on the focus on energy efficiency in the last year. Having said that, I think it is worth reflecting on the other side, as energy efficiency will never be as tangible as a barrel of oil or a cubic meter of gas or a kWh of electricity. It is a more abstract concept with different ways of measuring it. Hence the importance of the data and visualisation: collection and analysis of good quality data should be stepped up, to make energy efficiency visible as well as the existing solutions, especially on the demand side. How do Governments overcome market barriers?

“*They are aware and/or interested in the opportunity of energy efficiency but find difficult to act from a policy and governance point of view. Especially compared to some supply side actions relatively easy to take.*”

**Petr Holub**, Ministry of Environment – Czech Republic (Director General for Climate Protection Section), is asked about the practical solutions. In the Governance regulation, there is a requirement to streamline energy efficiency across all the five dimensions of the National Energy and Climate Plan (NECP) and to take into account energy efficiency first in the planning. Czech Republic just published its draft NECP update last month, taking energy efficiency first in the planning and focusing on building renovation scenarios with concrete measures. This would support achieving the overall energy efficiency target that the country supports yet might struggle to achieve.

“*Energy policies must start with the demand side, and then look at the supply side. Having homes with the right temperature to feel comfortable inside is key. 2050 is not so far away, and we need to do the right thing now: a building undergoing a renovation today may not see major investment again until then. Our country is small, but we are still talking about 60 to 80,000 investment decisions a year.*”

Prioritising renovations means further prioritising and motivating investors to really push for net zero emission standards. Grants include the no preferential randomization loan principle to cover the upfront needs of the investment, using the ETS revenue to co-finance the grants. Czech Republic will improve the project development assistance and advisory to offer everybody advice in the renovation process at the right moment.

On top of energy efficiency in the building sector, they are also looking at district heating, with the potential to be an effective way to supply energy to the building stock with an efficient and decarbonised heat. The transition is not easy, as per the country structure and legacy system often based on fossil fuels.

“*To get the local heating planning really right and not only for cities of 45,000 and more, we need to save energy first, then look for renewable heat boosted by industrial-scale heat pumps, offering grants to operators from the Modernization Fund.*”

In 10-12 EU countries, there is only one Ministry responsible for energy and climate issues, in Czechia, they are two, yet cooperating well, for instance on the NECP.
A last round of questions allows each speaker to confirm whether they have all the data needed to discuss energy efficiency policies, or if not, what else they would need. **Paula Pinho** adds that robust data is fundamental for policy making, and the EU Commission, as gatekeeper of the data with Eurostat, sometimes struggles.

“We know that the PRIMES model wasn't always really adjusted to the field of energy efficiency. We are revisiting that to make sure that we have a model that better reflects the needs in terms of policy of energy efficiency. There are the assumptions that the model will give when we calculate how much efficiency gains come from a certain target for instance. But then the reporting is key.”

The EU Commission representative acknowledged a delayed reporting on energy efficiency gains in the Member States: they only get the data with a year delay.

“If you don’t measure it, it doesn’t exist. If you measure it, but it comes too late, it loses the impact. The EU Commission is therefore now requiring Member States to provide data every two months for demand consumption and reduction. From where do efficiency gains come: is it just destruction or is it really efficiency gains? And who is contributing to it? (industry, households)?”

The idea would be to develop a methodology which will allow the European Commission to estimate where the energy savings are generated, to identify where the possible efficiency gains can be obtained. The other issue is how to communicate about the data. One way the Commission does it is through the **EPRL database**, allowing people to know what is the efficiency of each appliance. The Commission is working on all these aspects to make all of this much more visible, tangible, measurable and allowing everyone to act on it in more concrete manners.

How easy is it for the IEA to get efficiency data visible? **Dr. Brian Motherway** adds that the IEA is relying on governments and that data needs to be improved so that the IEA can play the role of making it visible, analyse it and help policymakers make the right decisions.

“We mentioned the multiple benefits of energy efficiency: energy efficiency is not just about saving carbon or energy, it’s about improving people’s lives through job creation, health improvements, more comfortable homes, reducing energy bills, directing the political discussions on fairness and social impacts.”
The IEA calls on institutes and governments with data to share data and discuss how to better measure the social impacts of energy efficiency and clean energy policies generally, including the distributional effects.

"With the European elections next spring, the question of who pays and who benefits from net zero policies is going to be a political question. So, bringing data into the discussion to show that the net zero and clean energy policies are fair is key to raise acceptance."

How difficult is it in Czech Republic to get good data, such as to do the progress reporting that Paula Pinho mentioned? Petr Holub highlights the difficulty. They know the consumption per sector, per fuel, but not for instance the energy performance of buildings, of the industries; it is hard to get the data and get it timely. Petr is investigating with the Eurostat counterpart in Czech Republic how to have tools to collect data to understand the state of the art (buildings and industry data, at specific times).

"It won't be an easy task, I know it cannot be done within two months, but I hope it can be done within a year or two. And then when we have the data, we can visualise it."

The event discusses among other aspects how to build narratives for policymakers. But policymakers are not the end beneficiaries of energy efficiency measures. So how we can find and tailor relevant narratives to appeal to policymakers and to make sure that energy savings and energy efficiency can be prioritised?

For Paula Pinho, the challenge is not the narrative for policymakers, they are convinced already of the benefits, but to the implementers: industry (and what they can get, structurally in terms of costs savings), households (better air quality, lower bills). We should tailor the messages to the ones who benefit from energy efficiency.

"I think in Europe in the last few years, many more people have a direct experience of energy efficiency, whether they realise it or not, whether they retrofitted their home or whether they bought a much more efficient appliance, etc. And there's a greater understanding: if they don't call it energy efficiency, they call it something else. Our mission here is not to sell energy efficiency (an abstract concept) but to provide solutions." adds Dr. Brian Motherway.

The IEA analysis shows that for the doubling target for 2030, every policy that we need to do to achieve that target exists somewhere in the world. Peer to peer exchange is more than ever needed to learn from each other, to see what works in implementation and delivery terms.

Arianna Vitali concludes reminding key elements from the exchange: we need better data, on time, and to translate those data into specific narratives that work. We heard a lot about how the energy efficiency first principle can be operationalised.

Useful resources
- About narratives, see the Energy Efficiency Watch project and DEESME
- See resources on the ENSMOV+ website - Design, Implementation, Monitoring, Verification, and Evaluation of Energy Saving Policies, under Member States' energy savings obligation (Article 8 of the Energy Efficiency Directive)
Moderated by Jean-Sébastien Broc, asking how to provide robust and useful data. He welcomes the first speaker, Marek Sturc (Eurostat), who provides an update on the latest developments in Europe, on energy consumption data and energy efficiency (available to all for free) and the plans and projects in this area for the future. Technically, Eurostat is one of the Directorate General of the European Commission. They do not collect data from the energy domain at EU level, all the data collection is done at the national level.

“Essentially, the European statistical system for energy heavily depends on the partnership with national authorities. Today we collect the data in Eurostat from 40 reporting countries, so beyond the 27 Member States.”

Marek Sturc presents the methodologies used and how they compare and build from each other, for instance also with the IEA questionnaires.

“Indeed, energy efficiency is not shown in energy balances as a fuel. Inherently the calculated energy savings or estimated energy efficiency improvements are based on balances, being commodity balances or energy balances for different fuels. We very often use decomposition analyses, requiring more detailed data from different statistical domains and reporting schedules.”

Eurostat has gradually updated their legal act, with more detailed official statistics on final energy consumption, called disaggregation of final energy consumption. The key categories for which Eurostat collects energy consumption in households are covering space heating, water heating, space cooling, lighting and other appliances.
Industry was introduced more recently in 2019 and Eurostat has already collected and published data for reference years 2020 and 2021. There are mandatory and voluntary elements for countries with more detailed statistics available and the voluntary items go beyond the economic classifications (selected industry processes). Eurostat must deal with statistical confidentiality issues: not all data can be released, especially in smaller countries, where commercial information might be derived from the statistics. Transport was introduced only very recently, and the first data collection is yet to be executed. It will be for a reference year 2022, with a deadline in March 2024. So detailed statistics are provided to Eurostat 15 months after the end of the reference period.

"Eurostat is well aware of the need for more timely data, yet we need to consider the system surveys, the complexities of the national systems in the European countries, and this is the deadline that we have managed to negotiate in the European statistical system."

Eurostat is also looking into the specific end uses in the service sector, but as with industry, this is challenging to report in many countries.

"Data input for detailed sectoral analysis of efficiency is extremely detailed and challenging, some countries don’t even have the resources to collect such statistics. So, we are exploring in a project if decomposition analysis based only on official statistics is possible and can deliver results."

The project should finish by the end of this year and will likely result in a new dataset and new visualisation tools being able to calculate or decompose energy consumption in the official statistics, for instance showing in a chart a decomposition of the industry consumption between the activity structure and energy intensity (where the energy intensity effect is a kind of approximation of energy efficiency).

"My estimate is that there will be at least six months between the time when we can release energy balances and the energy savings as official statistics."

Asked whether Eurostat could foresee a EU-level dashboard on buildings and renovation to track the renovation wave, Marek answered that Eurostat has a lot of requests for detailed data on buildings. However, they need to agree in the European Statistical System with reporting countries, to provide harmonised data – as to aggregate in a meaningful way. They need data from all/most countries, in a harmonised and comparable manner. This is difficult and takes time. Jean-Sébastien adds that Member States must report data about their building stock and renovations as part of their National Energy and Climate Progress Reports. You can find a summary about these data among the reports published as part of the State of Energy Union this year. There is also a European observatory on buildings funded by the Commission.
Didier Bosseboeuf (ADEME / ODYSSEE-MURE) follows, reminding that the ODYSSEE-MURE project is celebrating its 30 years of existence in 2023 – and 40 partners. It aims at monitoring energy efficiency at detail level and evaluate the impact of energy efficiency policies, relying on 2 databases, the ODYSSEE database on energy efficiency indicators and energy consumption by end-use and their underlying drivers in industry, transport and buildings, and MURE, on energy efficiency policies and measures by country in industry, transport and buildings. There is one update done every year, this one will use activity data like GDP, tons of cement, etc. You can find on the website country profiles, a scoreboard, nearly 40 policy briefs, national and sectoral profiles and more.

"We have 3000 national energy efficiency policies in MURE, and the idea is to really try to gather the analysis on indicators and policies in a policy assessment tool developed for the Commission. We will apply that at national level."

The presentation is then focused on ODYSSEE, as dealing with energy efficiency indicators and data. First example is the Energy Efficiency Index - ODEX, aggregating all detailed statistics and energy efficiency indicators to have a more aggregated view, for example by sector or at the level of one country. This uses physical indicators. The best improvements can be seen in the residential sector, and this is probably linked to the number of policies in the sector, especially through the EPBD (vs the service sector). Overall trends are shown in the scoreboard, as well as short term indicators (based on the econometric approach enabling to evaluate energy efficiency with a shorted time lag, at minus one year).

"I always mention that to monitor energy efficiency, we need to have long time series because it changes every year. And if you want really to see what a real development is, we need to have long time series."

"The Commission has been supporting our project for many years and we are able to work on a more detailed data collection: we add to the pure official data some national data – as a collaboration. We have around 120 experts in that network and every year we have workshops where we discuss the methodology and results."

"The green part is avoided consumption: with that reference here we can say that energy efficiency is the first fuel in Europe."
Bérengère Mesqui, from the French Ministry of Ecological Transition, closes the event with her presentation on the French dashboard on energy renovation, which was pointed as a good practice in the latest publication on buildings by the Commission as part of the State of the Energy Union. Such initiatives contribute to visibility and transparency for all stakeholders, policymakers, market players, citizens about multiple impacts of energy efficiency. Created in September 2019 and hosted by the Data and Statistical Studies Department of the Ministry of Ecological Transition, its mission is to improve knowledge on the renovation of buildings and characterise the state of the housing stocks in terms of energy consumption classes (energy labels), and to analyse the consumption of housing stock. Then, to monitor the support schemes, their effectiveness as well as disseminate data.

The dashboard, updated quarterly, contain 2 main parts: on the housing stock's energy consumption and CO2 emissions, and on the energy renovation grants.

She presents the main indicators in the dashboard: Energy consumption and CO2 emissions of the housing stock (both are disaggregated by end use of the energy, and we can see that both are slowly decreasing since 2012), energy used for heating, energy efficiency, renovation grants. Bérengère analyses the graphs (see link in the useful resources) and explains the decrease in energy consumption and emissions with new buildings being more energy efficient, building renovation and electrification. The housing stock per energy efficiency level is one of the most checked charts of the dashboard, the French Government having decided to bind from rental the most energy consuming houses (G from January 1, 2024, F in 2028 and E in 2034). Bérengère then presents the various grants supporting energy renovation and the main type of works that are subsidised: heating, water systems, external wall insulation.

The dashboard also gives information on who benefits from the subsidies (income of the households), showing that if low-income households were the main recipients before, there are now more middle-income households using them.

Useful resources
- Presentation - Making energy efficiency data attractive: a 30-year ODYSSEE
- ODYSSEE-MURE website

Useful resources
- Presentation - France’s dashboard on energy renovation: another way to make key information visible
- Website of the French Observatory: https://www.ecologie.gouv.fr/observatoire-national-renovation-energetique
The panel then tackles few questions. The first is on whether there are any statistics available on energy demand (in kilowatt vs kilowatt-hours). Marek Sturc answers that Eurostat collects data for all fuels, fuels disaggregated to certain fuel cut categories, roughly 70 different categories in forms of commodity balances that cover supply and demand. In addition, for several fuels or phenomenon, they collect additional indicators complementing the consumption in the form of commodity and energy balances. For example, for the solar panels they also collect their capacity. But this is not all data and all information that is out there, there is a lot of data and information outside of the scope of official statistics, such as the data of transmission system operators.

Bérengère Mesqui is asked about the graph “distribution per energy label”: how exactly estimations are made for these energy levels, as it could be inspiring for other countries. She answers that this is coming from a database (open, from ADEME) of all energy performance certificates, and it was matched with fiscal data on housing, types of construction, if rented or not. Using this information, they estimated the probability for all houses to be A,B,C, D,E,F, G and then model. She shared a link to the methodology (in French) (see above).

Jean-Sébastien adds that indeed combining different data sources and modelling estimation is very illustrative of what Marek said: different organisations with different missions provide different information for different purposes, they are very complementary.

Is there any way to visualise the potential for energy efficiency in sectors? Didier Bosseboeuf mentions that yes, we can evaluate the energy savings potential in comparing adjusted indicators across all MSs. This is available in ODYSSEE. It is hard to go in the detail by technology, but comparing energy efficiency indicators, for instance, among countries, can give a rapid assessment of the energy efficiency potential. In fact, in ODYSSEE for industry, for some end uses, we have more sophisticated indicators.

“**For instance, for space heating, we calculate the useful energy per square meter per degree days. So, this is what I call adjusted indicators and with this very detailed indicator, we made benchmark among countries. The answer is yes, it can be used for a rapid evaluation of the energy efficiency potential, but it doesn’t replace a very detailed end-use potential assessment.”**

On the issue of timing (when the data becomes available and how frequently to publish information and data), Marek Sturc adds that indeed this is a very important topic and the plans for the future are to introduce the results of the on-going study in their dissemination, to help increase the acceptance and to update data visualisation and dissemination tools to add into them the energy efficiency and savings based on the official statistics. Patience is though needed. Didier Bosseboeuf adds that this is a very important issue on communication, and that they developed the short-term indicators to fill the gap of using energy intensity as a weak proxy of energy efficiency: we cannot provide validated data on energy saving at less than year minus 2. Bérengère Mesqui agrees and insists that we should progress on the availability of data, but time is needed. One of the added value of the Observatory is that they can work with estimations, also on modelling, which helps to fill that gap, yet again there is a time and effort issue to do so more than once a year.
“I think as a final word, that beyond technical details, it’s very important to correctly visualise energy efficiency, because this is really the start for planning policy measures in a good way. We also heard that beyond data, it is really important to visualise the concrete impacts and benefits and results of energy efficiency improvements and very much necessary to use the correct narratives, because at the end of the day is the narrative and the communications that will make it happen and convince also the end users”.

“Marek Sturc explained that Eurostat was developing new analysis to make complementary energy efficiency data available soon. The International Energy Agency (IEA) is also doing a valuable work for building capacity in this field, with training programmes and various resources. But as the experts pointed at the roundtable: sufficient means need to be allocated to data collection and analysis, so that results can be ready in a timely manner,” concludes Jean-Sébastien Broc.

Useful resources