

# When European collaboration makes energy efficiency policies more effective

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## Abstract

This paper shows how EU-funded projects are facilitating the definition, implementation and monitoring of energy efficiency policies. It focuses on actions supported by the Horizon 2020 programme for research and innovation (2014–2020) and the Intelligent Energy Europe programme (2003–2013). These two EU programmes have co-funded hundreds of collaborative projects supporting legislation by: generating, testing and converting into actions new policies; checking compliance on the ground; building capacity amongst market actors; and mobilising large scale investments. Of all EU programmes, they have had the closest link to EU energy efficiency policy developments. This paper explains and illustrates the different means of intervention that have been used. It provides examples and lessons learned in various end-use sectors. It builds as much as possible on the results from recent evaluations which have measured the extent to which EU-funded projects have supported energy efficiency policy goals.

## Introduction

The EU has made substantial progress in improving its energy efficiency. It is on track to meet the objective set by Heads of Government for the year 2020. It has started decoupling its economic growth from its energy consumption thanks, in particular, to ambitious local, national and European energy efficiency policies.

Energy efficiency has moved to the top of the EU political agenda and is subject to a comprehensive set of obligations covering energy-related products, buildings, industry, as well as the whole energy supply chain. In addition Member States have agreed to cut energy use by 27 % by 2030 and the European Commission has proposed recently to raise that objective to 30 % and to make it binding.

This is a major difference with 15 years ago when EU energy efficiency legislation mainly covered appliances and had far less political backing. Another difference is that the preparation and implementation of EU legislation now puts greater emphasis on ex-ante impact assessments and on collaboration between national implementing bodies. Such evidence-based policy-making and cross-national collaboration have greatly benefitted from EU funding programmes, in particular the Intelligent Energy Europe and the Horizon 2020 programmes.

After a brief summary of these programmes, this paper illustrates how their projects have supported the definition, implementation and monitoring of energy efficiency policies at all levels of governance.

## The Intelligent Energy Europe and Horizon 2020 programmes

The Intelligent Energy Europe programme (IEE) ran from 2003 to 2013 with a budget of nearly €1 billion. It aimed to remove the market barriers to energy efficiency and renewable energies and it covered all end-use sectors. In its second and last phase (IEE II 2007–2013), the programme supported about 500 cross-national projects. Most of them had about 10 partners each and lasted between 2 and 3 years. About 160 of them were still

on-going at the beginning of 2017. They will be completed by the year end.

The final evaluation of IEE II found that the programme was relevant and useful, that it responded to the evolving needs, problems and barriers related to sustainable energy issues in Europe, and that overall its actions were of good quality.

Since 2014, EU funding to market uptake activities is provided under the Energy Challenge of Horizon 2020, the EU programme for research and innovation (H2020, 2014–20). The same programme also supports R&D actions and therefore covers the whole innovation chain from research to commercialisation. Of the ca. €6 billion allocated to the H2020 Energy Challenge between 2014 and 2020, about €850 million have been earmarked for energy efficiency projects, and at least 15 % of this is expected to fund market uptake actions building on the former IEE programme.

As of June 2017, a little more than 150 energy efficiency projects, from research to market uptake, have been launched under the H2020 Energy Challenge. They cover a broad range of topics: consumers; public authorities; buildings; heating and cooling; energy services; industry; products; and innovative finance.

These projects, as well as the IEE legacy, are managed by the European Commission's Executive Agency for Small and Medium-sized Enterprises (EASME). The Agency is responsible not only for selecting and monitoring projects but also for communicating their results and providing feedback to the European Commission services.

Numerous IEE and H2020 projects are referenced in the recent 'Clean Energy for All Europeans' package, in particular in the accompanying evaluations, impact assessments and the staff working document on good practice in energy efficiency<sup>1</sup>. More generally, for more than a decade, those projects have supported energy efficiency policies and made them more effective. This paper illustrates this by showing how IEE and H2020 projects have helped inter alia to (a) support the Energy Efficiency Directive; (b) strengthen market surveillance; (c) raise the energy performance of buildings; (d) support local and regional public authorities; and (e) mobilise large-scale investments in sustainable energy.

## Supporting the Energy Efficiency Directive

The European Energy Efficiency Directive<sup>2</sup> (EED) is the centre-piece of EU energy efficiency legislation. It sets binding measures for Member States to help the EU reach its 20 % indicative energy efficiency target by 2020.

A key instrument supporting Member States is the Concerted Action on the Energy Efficiency Directive<sup>3</sup> (CA EED) launched in 2013 under the IEE programme. It brings together all implementing bodies of the 28 Member States responsible for the transposition and delivery of the EED at national level. It aims to enhance and structure the sharing of information and experiences from national implementation whilst promoting good practice concepts. More than 150 national policy makers

from the 28 Member States are making use of the regular meetings to learn from their peers. This approach creates favourable conditions for an accelerated degree of convergence of national procedures in EED related matters.

In addition, a number of key projects are facilitating the implementation and revision of the EED:

- Project Odysseysee Mure II<sup>4</sup> for example monitors energy efficiency trends and measures in all 28 Member States and Norway and records them in two complementary databases: ODYSSEE which comprises all sectorial energy efficiency/CO<sub>2</sub> indicators, including detailed data on energy consumption, activities and related CO<sub>2</sub>-emissions (around 1,000 data series); and MURE which includes around 2,000 energy efficiency policy measures with their impact assessment. These databases have provided inputs for the revision of the EED and they are a resource for policy makers for the design of energy efficiency policies.
- ENSPOL<sup>5</sup>: The project assessed the relative strengths and weaknesses of Energy Efficiency Obligation schemes and alternative measures in accordance with Article 7 of the EED based on the existing experiences and plans of Member States. It then provided recommendations for the most appropriate approaches against different criteria and under different conditions. It also developed monitoring and verification guidelines in line with the requirements of the EED. The project improved the capabilities of Member States with regards to the different options available for Article 7.

The above examples provide only a small snapshot of how EU funded projects are supporting the delivery of the EED. These projects provide bottom-up data, market analysis, feedback loops, and finally actual solutions to facilitate the EED implementation.

## Strengthening market surveillance

Another cornerstone of the EU energy efficiency policy framework is product efficiency legislation. The latter is expected to be one of the most important contributions to the EU's 2020 energy efficiency target. The effective implementation of the Ecodesign and Energy Labelling Directives is estimated to save 165 Mtoe of primary energy annually by 2020, delivering almost half of the 20 % energy efficiency target by the same year. Yet, non-compliance with these rules is estimated to result in the loss of around 10 % of envisaged energy savings.

Therefore it is imperative to strengthen market surveillance activities in the EU. Since 2009, 9 projects have been funded by IEE and more recently by the H2020 programmes, with a total budget of over €16 million, in an effort to leverage resources, build capacity and provide support for joint market surveillance actions. These coordinated exercises between Market Surveillance Authorities (MSAs), industry and civil society stakeholders, have resulted in a visible engagement of industry players and improved levels of compliance. The series of EU-funded projects, which have been providing continuous policy feedback to the relevant European Commission (EC) services

1. SWD(2016) 404 final [http://ec.europa.eu/energy/sites/ener/files/documents/5\\_en\\_autre\\_document\\_travail\\_service\\_part2\\_v4-1.pdf](http://ec.europa.eu/energy/sites/ener/files/documents/5_en_autre_document_travail_service_part2_v4-1.pdf)

2. Directive 2012/27/EU

3. <http://www.esd-ca.eu/>

4. [www.odyssee-mure.eu/](http://www.odyssee-mure.eu/)

5. <http://enspol.eu/>

concerning the implementation of these Directives with a view to their improvement, marked a step change in the way knowledge was shared in this field and taken forward by other stakeholders. Some notable activities of these projects include:

- Capacity building and sharing of best practises: the ATLETE projects initiated a series of monitoring, verification and enforcement (MVE) projects by measuring the level of compliance with the ecodesign and energy labelling requirements<sup>6</sup>. In doing so, it raised manufacturers' awareness of the issue and motivated them towards higher energy efficiency through discussions and processes for remedial actions (e.g. escalation procedure). Project *Ecopliant* developed and tested best practice guidelines for MVE activities in the most cost-effective manner (e.g. use of low cost tests for pre-screening), as well as the coordination of these between MSAs. Building on this momentum, its successor *EEPLIANT* (including 12 MSAs) is now taking forward joint product testing (focusing on LEDs, imaging equipment and space heaters) and the adoption and refinement of the best practice guides. Project *CompliantTV*, which focused on inspections of TVs (in-store and online), improved the expertise and testing capability of laboratories by developing guidelines for standardised product testing performed by European MSAs and other testing laboratories. Project *MarketWatch*, bringing together 16 NGOs across the EU, highlighted the role of civil society organisations in support of market surveillance and produced, for example, a retailer's guide on labelling of appliances, with a view to facilitating the proper display of energy labels when offered to consumers.
- Databases and related digital technology: The coordinated market surveillance exercises, with testing and data sharing taking place across the EU, have led to the acknowledgement of the need for easy access to the growing amount of data, leverage it effectively across MSAs and monitor compliance. Concretely, building on the experience from the pilot database established under *Ecopliant*, projects *EEPLIANT* and *MSTyr15* are working towards further integration with the European Commission's internet-supported Information and Communication System for the pan-European Market Surveillance (ICSMS)<sup>7</sup> and have prompted the Advisory Committee of Member States (ADCO)<sup>8</sup> support in this direction. Directive Related Product Information forms (DRPIs)<sup>9</sup> for specific implementing measures are being discussed and *MSTyr15* is developing and implementing a solution to synchronise real-time inspection data with ICSMS and sharing it across MSAs to avoid unnecessary duplication of inspections.

Further inspiration for future MVE activities of energy using and energy related products can be drawn from two other projects: *Efficiency 2.1* produced the first smartphone appli-

cation tailored for reading and processing data directly from the EU energy label for a number of home appliances; and *Digilabel*, keeping in pace with digital technology advances, anticipates possible additional references on the revised energy label (e.g. QR codes), allowing consumers to access more detailed information on product performance through electronic means.

While there have been significant improvements in enforcement activities<sup>10</sup>, as also acknowledged in the EC's Communication on the Ecodesign Working Plan 2016–2019, further actions need to be undertaken to achieve a better enforcement of existing Ecodesign and Energy Labelling regulations, allowing for the full benefits of these policies to be reaped. Projects under H2020 are to be directed towards product groups representing new challenges for market surveillance, aiming at building capacity and leveraging specific expertise where it already exists. For example, project *INTAS* is now dealing with large products such as transformers and industrial fans but efforts are encouraged towards other issues such as the investigation of suspected defeat devices. These efforts have demonstrated the benefits of joint market surveillance activities, which are now established and will continue in the future, with a view to leveraging MSAs' resources and increase product compliance rates, ultimately supporting the achievement of the EU's energy and climate goals.

### Raising energy performance of buildings

Heating and cooling consume 50 % of the final energy used in Europe today<sup>11</sup>, most of it in buildings. Technologies to turn buildings from major energy consumers into energy efficient virtual powerhouses which consume little and are able to generate and store energy have become increasingly market ready. Moreover, very large untapped cost-effective saving potentials have been identified in the European building stock. This combination of high importance, high savings potential and market-readiness of technical solutions led to buildings becoming a focal area of energy-efficiency policy making in Europe. The Energy Performance of Buildings Directive<sup>12</sup> forms the basis of European policy-making in this field. The obligations introduced by this directive have been effectively supported by a whole series of IEE and H2020 projects. According to a recent evaluation of 63 IEE projects<sup>13</sup>, these projects followed closely the policy developments and clearly enhanced policy implementation in Member States. The main areas covered were nearly-zero energy buildings (nZEB), (deep) energy efficiency renovation, construction skills, renewable energy integration in buildings, minimum energy efficiency requirements, Energy Performance Certificates as well as the provision of better data and tools for policy-making and scenario modelling. Moreover, the implementation of the EPBD by the EU member states

6. E.g. The ATLETE II project randomly tested 50 washing machines and found 100 % compliance rate with the energy efficiency class and energy consumption declarations for the energy label. <http://www.atlete.eu>

7. <https://webgate.ec.europa.eu/icsms/>

8. [http://ec.europa.eu/growth/single-market/goods/building-blocks/market-surveillance/organisation/administrative-cooperation-groups\\_en](http://ec.europa.eu/growth/single-market/goods/building-blocks/market-surveillance/organisation/administrative-cooperation-groups_en)

9. <http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetailDoc&id=141113&no=3>

10. The compliance rates in project ATLETE were 43 % while in subsequent projects (ATLETE II, PremiumLight, ECOPLIANT, MarketWatch etc.) compliance rates were much higher with several product groups in the range of 80–100 %.

11. An EU Strategy on Heating and Cooling – SWD(2016)24final.

12. Reference 2010/31/EU.

13. ICF International: 'Evaluation of Intelligent Energy Europe buildings projects' – 2017 (to be published).

(plus Norway) was and continues to be directly supported by the EPBD Concerted Action<sup>14</sup>.

In order to improve the data base needed for tailor-made policy making, projects like EPISCOPE<sup>15</sup>, Tabula<sup>16</sup>, ENTRANZE<sup>17</sup> and ZEBRA2020<sup>18</sup> developed data bases, references and comparisons, supplemented by market research, scenario building and policy recommendations. Despite considerable work done by these projects, it became clear that there are persistent gaps when it comes to reliable and comparable data in the field of energy and buildings. The EU Buildings Stock Observatory<sup>19</sup> is the latest attempt to improve the data base for informed policy-making.

Amongst the many projects supporting the introduction of the nearly Zero Energy Buildings concept are AIDA, Zero-Plus, Nearly Zero Energy Hotels, Cohereno, and Powerhouse NZC whilst others focused on the already established Passive House standard, e.g. PassReg and EuroPHit<sup>20</sup>.

Another strand of action with increasing importance is renovation. The evaluation of the EPBD and the evaluation of the IEE II buildings projects have revealed that while the nZEB requirements for new buildings are on a good way in many member states, the majority of the current buildings stock of Europe will remain in use for many decades to come. The new-build rate is only about 1 % of the buildings stock, just as the rate of renovation. Projects working on this challenge include for instance Total Concept<sup>21</sup>, focusing on profitability of ambitious energy efficiency renovation for non-residential buildings and H2020 projects like REFURB<sup>22</sup> and Transition ZERO<sup>23</sup> working on integrated solutions and highly attractive renovation offers, or RentalCal<sup>24</sup> working on investments into rented property.

How to improve and make best use of Energy Performance Certificates and the related databases was another topic many projects chose to work on, for instance Qualicheck, Request-2Action and LEAF<sup>25</sup>.

Finally, the lack of capacity was addressed in a series of other projects. The most recent and significant attempt to raise energy skills in the construction sector was done through the BUILD UP Skills initiative. Launched in 2011 under IEE, it has targeted craftsmen and other on-site workers. It has supported 50 IEE and H2020 projects. The recent evaluation of its first phase showed that it was relevant to the needs of the Member States and other participating countries<sup>26</sup>. About 1,800 people around Europe have been involved in the creation of national qualification platforms in 30 European countries (EU28, FYROM and

Norway) and training schemes are now being launched or re-inforced in 21 countries. Among the 400 stakeholders surveyed during the evaluation process 78 % of them agreed that the BUILD UP Skills initiative was helping their country achieve its energy savings objectives in the construction sector by 2020. The experience of Build Up Skills has shown that future efforts should focus on: cross-craft understanding, financing, mutual recognition of training schemes, innovative training methods and incentives, and market acceptance.

## Supporting local and regional public authorities

EU-funded projects have had a positive influence on increasing political commitments to energy efficiency, which resulted in permanent changes at local level and increased levels of investment in sustainable energy<sup>27</sup>.

The sustainability of institutional changes in public authorities was facilitated by the mobilisation and support of existing and emerging networks of stakeholders: energy agencies, utilities, associations and technical consultants, together with other public authorities in other member countries. This networking process is a crucial step to embed sustainable energy into decision making and help to reach consensus on future investments affecting all stakeholders. Energy agencies in particular are playing a significant role, working closely with local authorities in the development and implementation of sustainable energy policies and projects: many of those agencies were created thanks to the support of the IEE programme<sup>28</sup> and were supported since 2002 by the EU ManagEnergy initiative.

A key achievement of the funded projects is the tangible support for the EU Covenant of Mayors initiative: the IEE programme helped 650 local authorities to join the Covenant of Mayors (over 11 % of total signatories in 2015, representing 20 % of the EU population) and to develop more than 500 Sustainable Energy Action Plans (SEAPs). Further challenges related to the empowerment of public authorities, to enhance their role of energy transition leaders at local level, are now being addressed under the H2020 Programme.

Local authorities have been helped to establish dedicated energy management teams, to incorporate sustainable energy into all aspects of their processes and to set sustainable energy targets, resulting in a long-lasting impact through institutional changes and permanent improvement of skills and capacities. Projects like Energy for Mayors<sup>29</sup>, Covenant Capacity<sup>30</sup>, Mayors in Action<sup>31</sup>, 50000&1 SEAPs<sup>32</sup>, CASCADE<sup>33</sup>, BEAST<sup>34</sup>, MESHARTILITY<sup>35</sup> and Data4Action<sup>36</sup> focused on improving institutional capacity for planning and implementation of sustainable energy policies, and on facilitating new approaches

14. [www.epbd-ca.eu](http://www.epbd-ca.eu)

15. [www.episcope.eu](http://www.episcope.eu)

16. [www.episcope.eu/iee-project/tabula](http://www.episcope.eu/iee-project/tabula)

17. [www.entranze.eu](http://www.entranze.eu)

18. [www.zebra2020.eu](http://www.zebra2020.eu)

19. [www.ec.europa.eu/energy/en/eubuildings](http://www.ec.europa.eu/energy/en/eubuildings)

20. [www.aidaproject.eu](http://www.aidaproject.eu); [www.zeroplus.eu](http://www.zeroplus.eu); [www.nezeh.eu](http://www.nezeh.eu); [www.cohereno.eu](http://www.cohereno.eu); [www.powerhouseeurope.eu](http://www.powerhouseeurope.eu); [www.passreg.eu](http://www.passreg.eu); [www.europhit.eu](http://www.europhit.eu)

21. [www.totalconcept.info](http://www.totalconcept.info)

22. [www.go-refurb.eu](http://www.go-refurb.eu)

23. [www.transition-zero.eu](http://www.transition-zero.eu)

24. [www.rentalcal.eu](http://www.rentalcal.eu)

25. [www.qualicheck-platform.eu](http://www.qualicheck-platform.eu); [www.building-request.eu](http://www.building-request.eu); [www.lowenergyapartments.eu](http://www.lowenergyapartments.eu)

26. [http://ec.europa.eu/easme/sites/easme-site/files/bus\\_evaluation\\_final\\_report.pdf](http://ec.europa.eu/easme/sites/easme-site/files/bus_evaluation_final_report.pdf)

27. ICF International: 'Evaluation of Intelligent Energy Europe Support for Sustainable Energy', <http://publications.europa.eu/s/b1kD>.

28. EASME 2015 "Energy Agencies in Europe - Results and perspectives", <http://www.managenergy.net/news/articles/703>.

29. <http://energyformayors.eu/en>

30. <http://www.covenant-capacity.eu/EU>

31. <http://www.mayorsinaction.eu/home/>

32. <http://www.50001seaps.eu/home/>

33. <http://www.cascadecities.eu/>

34. <http://www.beastproject.eu/>

35. <http://www.meshartility.eu/en/about-meshartility>

36. <http://data4action.eu/en/?cd=eu>



to delivering concrete changes at the local level, e.g. developing the first ever joint SEAP, facilitating the integration of ISO50001 Energy Management Systems into SEAPs, ensuring robust data availability and analysis and establishing data exchange models through regional energy observatories.

It is worth mentioning that energy projects at local level usually demonstrate a strong political commitment to contribute or even surpass national targets, to show that more ambitious results are achievable through integrated urban and energy planning. Examples of cities supported by the H2020 project URBAN LEARNING<sup>37</sup> include Vienna, with a goal of 80 % reduction in CO<sub>2</sub> emissions by 2040 (compared to 1990), together with Stockholm and Berlin, which aim at becoming climate neutral by 2040 and 2050, respectively. Moreover, the innovative integration of energy and transport planning, crucial to achieve significant energy savings, are investigated by the H2020 project SIMPLA<sup>38</sup>. Looking more broadly, 57 lighthouse and follower cities have also been supported under the H2020 Smart Cities initiatives to develop projects at the intersection of energy, transport, and ICT<sup>39</sup>.

Different projects explore the necessity for enhanced coordination of energy efficiency efforts between different administrative levels, in a multi-level governance perspective. In order to reach this goal, the H2020 project *MultEE*<sup>40</sup> aims to improve the consistency and quality of energy efficiency policy planning and implementation through innovative monitoring and verification schemes based on bottom-up data (to ensure that the impact of energy efficiency measures is correctly evaluated and useable for future energy efficiency planning) as well as through improved vertical coordination between different administrative levels.

The above examples show that EU-funded projects have helped regional and local actors to support a market transformation towards more efficient energy systems, by engaging them in the energy transition, sharing good practices at international level, implementing energy efficiency policies and delivering concrete actions: the commitments established by local actors will effectively contribute to build a more secure, competitive and sustainable energy system and to achieve European energy and climate target. Moreover, feedbacks from local actors have contributed to the improvement of EU policy action: the projects and their results have been used as an indicator of the necessities of public authorities, in order to tailor funding programmes to real needs.

## Mobilising large-scale investments

Like in other parts of the world, the European market for energy efficiency is already sizable and expected to further grow<sup>41</sup>. Each year, it generates around 15 Mtoe of primary energy sav-

ings<sup>42</sup> attributable to increased energy efficiency. However, with a view to efficiently pursuing the EU's 2020 and 2030 climate and energy and, in particular, energy efficiency targets, an appropriate policy framework facilitating tailored financing solutions attractive to private market actors is required to mobilise private capital at sufficient levels. In order to tackle various market failures, facilitate the adequate structuring of market framework conditions and, overall, enable increased market uptake of energy efficiency investments, a number of projects have been funded under the IEE and H2020 programmes which support the three pillars of the Smart Finance for Smart Buildings Initiative, namely: (a) more effective use of public funding; (b) aggregation and project development assistance (PDA); and (c) de-risking of energy efficiency investments.

## EFFECTIVE USE OF PUBLIC FUNDS TO MOBILISE ENERGY EFFICIENCY INVESTMENTS

Due to the limited availability of public funds, a key challenge is to adequately tailor their application to maximise their impact. In this context, a main emphasis is on leveraging private capital and developing financing instruments (e.g. loans or guarantees), while limiting the use of non-reimbursable grants mainly to address various forms of market failure.

Under the IEE and H2020 programmes, a number of projects have been financed with a view to mobilising and enhancing private capital investments based on public funds, e.g.:

- Facilitating Energy Performance Contracting (EPC): The project *Streetlight-EPC*<sup>43</sup> creates demand and supply for EPC projects in 9 regions by setting up regional EPC facilitation services. These services provide comprehensive support to municipalities and potential Energy Service Companies (ESCOs). Moreover, around 40 EPC pilot projects are implemented on this basis.
- Blending of public and private funds: Project MARTE<sup>44</sup> develops energy retrofitting investments in the healthcare sector of the Italian Marche Region applying EPC combined with financial resources provided by the Energy and Mobility Fund established based on European Structural and Investment Funds 2014–2020. The project expects to trigger investments of approx. €12 million during the project duration.

## AGGREGATION AND PROJECT DEVELOPMENT ASSISTANCE (PDA)

As underlined by the Energy Efficiency Financial Institutions Group (EEFIG)<sup>45</sup>, technical assistance and project aggregation (e.g. in the form of tailored bundling approaches) are key to establish bankable projects of an adequate size as well as a track record in the form of a large-scale pipeline of actual energy efficiency projects supporting confidence in their technical and financial performance, as well as economic viability. The PDA facilities co-funded under the IEE and H2020 programmes, including the ELENA facility<sup>46</sup> managed by the European In-

37. <http://www.urbanlearning.eu/>

38. <http://www.simpla-project.eu/en/>

39. <http://smartcities-infosystem.eu/>

40. <http://multee.eu/>

41. According to the IEA Energy Efficiency Market Report 2016, the global investment in energy efficiency was USD 221 billion in 2015, an increase of 6 % from 2014. [https://www.iea.org/ee/mr16/files/medium-term-energy-efficiency-2016\\_WEB.PDF](https://www.iea.org/ee/mr16/files/medium-term-energy-efficiency-2016_WEB.PDF)

42. SWD(2014) 255 final

43. <http://www.streetlight-epc.eu/>

44. <http://www.marteproject.eu/en>

45. <http://www.eefig.eu/index.php/the-eefig-report>

46. <http://www.eib.org/products/advising/elena/index.htm>

vestment Bank (EIB), aim at building technical, economic and legal expertise needed for project development and leading to the launch of concrete investments during the project duration. Since 2009, more than 120 projects have been supported under these facilities and are expected to trigger around €6 billion of investments in energy efficiency and renewable energy focused on existing public and private buildings, street lighting, district heating and clean urban transport. The minimum required leverage factor (i.e. each Euro of EU support is required to trigger at least €15–20 of investment) has been exceeded.

- Bundling of smaller-sized projects: Project *PadovaFIT*<sup>47</sup> aims to retrofit multifamily buildings through EPC. Since 2014, the consortium has been engaging condominiums throughout the City of Padova in order to build significant demand for energy retrofits. The municipality has procured a private ESCO which concludes contracts with each condominium and finances the energy retrofits, which will be repaid through the energy savings. The investment target is at least €15 million.
- Development of “one-stop-shops” and innovative financing solutions: In the project *Energies POSIT’IF*<sup>48</sup>, the Ile-de-France Region launched a semi-public ESCO able to provide an all-inclusive “Design-Implement-Operate” package with guaranteed energy savings and Third Party Finance (TPF) for a comprehensive deep retrofit programme for condominiums, social housing and public buildings through EPC. The ESCO *Energies POSIT’IF* has signed a loan over €100 million with the EIB based on a guarantee provided under the European Fund for Strategic Investments (EFSI)<sup>49</sup>.

#### DE-RISKING OF ENERGY EFFICIENCY INVESTMENTS

In many cases, energy efficiency investments are still perceived as risky by both project promoters and financiers, since their outcomes, as well as risks and benefits are not fully recognized and/or transparent. Projects are technically diverse and complex. In comparison to “mainstream investments”, the financial and economic assessment of these projects is hampered by lacking specialised expertise by the financial institutions and missing standardisation (of tools, processes etc.), which also leads to comparatively high transaction costs. Moreover, a comprehensive track record providing trust in economic performance and technical default rates based on statistically relevant data is largely absent. A number of IEE and H2020 projects target de-risking of the energy efficiency market in different areas, for example:

- Standardisation to increase investor confidence: The *Investor Confidence Project* (ICP)<sup>50</sup> is an international programme to bring standardisation and transparency to the development of building energy efficiency projects. ICP

addresses the needs of investors and lenders by reducing due diligence costs, decreasing performance risks, enabling capacity building around standard processes and facilitating the aggregation of small projects. The ICP’s Investor Ready Energy Efficiency project certification, which is backed by independent quality assurance, is being used in a growing number of projects and programmes across Europe and is supported by over 250 Allies including major financial institutions.

- Benchmarking to increase attractiveness for institutional investors: The SEI Metrics<sup>51</sup> project is developing a framework to assess the climate performance of institutional investors’ portfolios, i.e. their alignment with the investments that are required to keep global warming under 2 °C. This will allow investors to benchmark themselves, and to set targets for the reallocation of assets to low(er) carbon investments.

#### Conclusions

For more than a decade, IEE projects, followed by H2020 projects, have supported the definition, implementation and monitoring of energy efficiency policies. These projects have made the case for energy efficiency; supported the enforcement of products-related legislation; facilitated the implementation of the Buildings and Energy Efficiency Directives; triggered effective policies at local and regional levels; and improved access to finance for energy efficiency investments.

These actions and the future ones to be supported under the upcoming Horizon 2020 Energy Efficiency Calls will also play a role in the current negotiation and future implementation of the revised EU legislation proposed by the European Commission in its Clean Energy for All Europeans package.

Furthermore results of these projects will provide inputs for the last three years of the H2020 programme (2018–2020). The funding priorities for this period will be adopted by the end of 2017 and will continue to cover the whole innovation cycle and to support energy efficiency policies.

As the EU celebrates in 2017 the 60<sup>th</sup> anniversary of the Treaty of Rome, one can timely emphasise that projects like the ones funded under the IEE and H2020 programme bring added-value and help Europe move towards a more secure, more competitive and cleaner energy landscape.

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47. <http://www.padovafit.it/>

48. <http://www.energiespositif.fr/>

49. <http://www.eib.org/efsi/>

50. <http://europe.eepformance.org/>

51. <http://2degrees-investing.org/>