ENERGY EFFICIENCY TOPICS

LC-SC3-EE-1-2018-2019-2020: Decarbonisation of the EU building stock: innovative approaches and affordable solutions changing the market for buildings renovation

LC-SC3-EE-2-2018-2019: Integrated home renovation services

LC-SC3-EE-3-2019-2020: Stimulating demand for sustainable energy skills in the construction sector

LC-SC3-EE-4-2019-2020: Upgrading smartness of existing buildings through innovations for legacy equipment

LC-SC3-EE-5-2018-2019-2020: Next-generation of Energy Performance Assessment and Certification

LC-SC3-EE-6-2018-2019: Business case for industrial waste heat/cold recovery

LC-SC3-EE-8-2018-2019-2020: Capacity building programmes to support implementation of energy audits

LC-SC3-EE-10-2018-2019: Mainstreaming energy efficiency finance

LC-SC3-EE-11-2018-2019-2020: Aggregation - Project Development Assistance

LC-SC3-EE-13-2018-2019-2020: Enabling next-generation of smart energy services valorising energy efficiency and flexibility at demand-side as energy resource

LC-SC3-EE-14-2018-2019-2020: Socio-economic research conceptualising and modelling energy efficiency and energy demand

LC-SC3-EE-16-2018-2019-2020: Supporting public authorities to implement the Energy Union

LC-SC3-EE-18-2019: Bioclimatic approaches for improving energy performance in buildings in Africa and Europe

Call - BUILDING A LOW-CARBON, CLIMATE RESILIENT FUTURE: SECURE, CLEAN AND EFFICIENT ENERGY

H2020-LC-SC3-2018-2019-2020

*This call includes the contribution of the Horizon 2020 Societal Challenge "Secure, clean and efficient energy" to the focus area "Building a low-carbon, climate resilient future" which underpins the goals of the Paris Agreement and the "Clean Energy for all European" package, including the Communication "Accelerating Clean Energy Innovation" (COM (2016) 736) and the SET-Plan priorities, with concrete R&I actions focussing on the accelerated transformation of the energy system, and other sectors, towards carbon neutrality and climate resilience. Activities also fully contribute to the Sustainable Development Goals and the Horizon 2020 spending targets on Sustainable Development and climate action.*

*Achieving climate neutrality in the energy sector – while ensuring at the same time a more efficient energy use, a secure supply of energy, affordable prices and low environmental impact – is a complex endeavour which requires R&I activities on multiple fronts. Activities supported in this call should deliver:*

1. *on the supply side, cheaper and more performant generation technologies (e.g. renewable energy technologies) which are better integrated in various levels of the energy system;*
2. *a smarter, more flexible and resilient energy system (including affordable and integrated energy storage solutions), taking into account current and future climate change adverse impacts;*
3. *on the demand side, increased overall energy efficiency (e.g. in the EU's building stock) and provision of means to enable consumers to play a more active role in the energy transition;*
4. *a better understanding of the specific socio-economic contexts in which the energy transition takes place which will allow to address obstacles in a more effective way;*
5. *increased market-uptake of innovations, including the implementation of energy policy, the preparation for rolling-out investments, and the support for capacity-building.*

Energy efficiency

*Energy efficiency needs to be considered as a source of energy in its own right. It is one of the most cost effective ways to support the transition to a low carbon economy, to prompt further investment opportunities and to create growth and employment. Putting energy efficiency first will bring down costs for consumers, reduce our import dependency and redirect investments towards the kind of infrastructure that are smart and sustainable.*

*An ambitious approach to energy efficiency is needed across all the sectors, but the major challenge of the next decade – in line with the ACEI priority to decarbonise the EU building stock by 2050*[[1]](#footnote-1) *– lies in buildings. Buildings represent 40% of energy used in the EU and the construction industry provides 18 million direct jobs in Europe, while SMEs contribute to 70% of the value added in the EU building sector. Renovating buildings adds almost twice as much value as the construction of new buildings and represents multiple benefits for building owners, occupants and the whole society. Proper valuation of these multiple benefits, supported under this call, will help to change business approach to buildings renovation ensuring flows of financing and massive investments. This, in turn, will improve living/working conditions of the Europeans, spur economic growth and create jobs.*

*With the transition to a decentralised and decarbonised energy system, digital smart technologies will be playing an increasingly important role. Not only that they will enable buildings and equipment in buildings to become interactive elements by optimising energy consumption, distributed generation and storage in the home and vis-à-vis the energy system. They will also trigger new business opportunities and revenue streams for up-graded, innovative energy services which valorise energy savings and flexible consumption. This call supports both technology and business development and test it in real market & regulatory conditions to pave the way towards the uptake of innovative energy services enabled by energy decarbonisation, decentralisation and digitalisation. That way, active consumers will not only be able to benefit from cost reductions but also from a bigger variety of services that bring along a more comfortable, convenient and healthier living environment.*

*Innovation is however also needed in the financing of energy efficiency where innovative financing schemes and approaches can help bridge the gap between project development and financing.*

*Actions included in this call contribute to the specific objectives, targets and relevant Implementation Plans*[[2]](#footnote-2) *of the SET Plan action 5.1 and 5.2. In particular, topic LC-SC3-EE-1-2018-2019-2020 aims at development and deployment of the materials and technologies for energy efficiency solutions for buildings renovation including renovation of buildings heating and cooling systems. As regards industrial energy efficiency, topic LC-SC3-EE-6-2018-2019 has been designed to address the cross-cutting priority of SET Plan Action 6: maximising the recovery of industrial excess heat/cold in a cost efficient manner. The choice of a cross-cutting priority rather than a sector-specific one has been taken in order to maximise EU added value of the funded projects.*

Upgrading buildings' energy performance and smartness

Proposals are invited against the following topic(s):

LC-SC3-EE-1-2018-2019-2020: Decarbonisation of the EU building stock: innovative approaches and affordable solutions changing the market for buildings renovation

Specific Challenge: The market for deep renovation of buildings needs to be transformed in terms of technologies, processes and business models. The multiple benefits of improved energy efficiency are well known, but more action is needed for Europe to achieve the higher rates of renovation that would reduce energy use and decarbonize the building stock in order to meet long-term climate and energy targets. In particular, deep renovations need to become more attractive to all relevant stakeholders, more reliable in terms of performance, less disruptive for occupants (especially in residential buildings), less time-consuming, less energy-intensive from a life cycle perspective, more environmentally friendly regarding applied materials and more cost-effective. There is a need to demonstrate and roll out holistic consumer-centred solutions that involve the whole value chain, ensuring high levels of comfort and a high quality of the indoor environment.

Scope:

**2018-2019 (Innovation Action):**

Proposals should demonstrate solutions addressing building fabric and/or technical systems that ensure faster and more cost-effective deep renovations that result in high energy performance. Proposals should include innovations in technology and in design and construction methods with low embodied energy and on-site works organisation, industrialization and lowering cost of energy retrofitting and they should take into account any architectural constraints. They should also include innovations in business models and the holistic integration of disciplines across the value chain. Proposals should also consider energy efficient and low carbon solutions to retrofit building-level heating and cooling systems and the integration of on-site renewable energy generation[[3]](#footnote-3), energy storage systems which allow for optimisation and flexible consumption, and, if relevant, integration with district heating and cooling systems. Proposals could address drivers of building renovation that go beyond a desire to reduce energy consumption and related energy costs. For example, decisions to renovate may sometimes coincide with structural repairs. They could also consider further development and improvement of hybrid energy systems using fossil fuel based heating systems coupled with RES based heating systems as well as the integration of highly-efficient buildings and local energy system solutions such as District Heating and Cooling, including hybrid solutions.

Solutions should include quick and simple installation of components and systems, minimizing disruption for building occupants and the time spent on site. Proposals should include monitoring and displaying of real time energy performance and other relevant data and consider the ways in which consumers and others could access and make use of such information. Solutions should ensure high levels of occupant comfort (thermal, visual and acoustic) and indoor environmental quality (e.g. air quality, humidity) if possible based on bio-based materials, as well as low risk of moisture-related problems, summer overheating and other harmful unintended consequences, and should address the multiple benefits of energy efficiency. Proposals should demonstrate solutions that aim for large scale roll-out according to defined business models and financial schemes for owners.

Projects are expected to bring the technology to TRL level 8-9 (please see part G of the General Annexes).

This topic contributes to the roadmap of the Energy-efficient Buildings (EeB) cPPP.

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 and 4 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

**2020 (CSA):**

Projects are expected to increase the depth and breadth of renovations, i.e. to increase the ambition and reliability of energy performance after renovation, to increase market uptake and to up-scale deep energy renovation solutions that excel in terms of technologies, renovation and/or decision-making processes, service provision, business models, environmental performance.

Proposals are expected, as a minimum, to include the following activities:

* Demonstrate deep and/or NZEB renovation approaches more reliable, faster, cheaper and easier to implement than standard practices;
* Demonstrate a high replication, as much as possible across regions and climatic zones, different economic and social conditions, sustainability and market change potential of the proposed solutions including viable concepts for financing the renovation;
* Tackle all relevant barriers (e.g. uptake by the professionals, financing, legal/regulatory framework, decision-making etc.) and suggest solutions to the relevant stakeholders;
* Demonstrate effective involvement of, and communication and dissemination to the buildings supply chain, and to the building owners/tenants and other relevant stakeholders.

In addition, proposals should, as much as possible:

* Include convincing business models;
* Offer guarantees of energy performance and consumer service;
* Employ innovative working practices, processes and offers;
* Propose attractive package solutions which offer multiple benefits;
* Include monitoring of the real energy performance in-use before and after the renovation.

Furthermore, proposals may also, where relevant:

* Establish new or amend existing standards, certificates, protocols or other quality assurance mechanisms including for skilled workers;
* Address split incentives and/or counter-productive structures, regulations and incentives;
* Pursue step-by-step renovation approaches;
* Include one-stop-shop approaches;
* Include building logbooks/passports and/or individual building renovation roadmaps and related concepts, as well as lean production approaches;
* Offer guarantees of absence of health or environmental risks for workers and users;
* Highlight the increased marked value of energy efficient property (green investments);
* Tackle peak load savings and demand response;
* Improve the Smartness Readiness Indicator (SRI) of the dwelling.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

**2018-2019 (Innovation Action):**

Proposals are expected to demonstrate the impacts listed below using quantified indicators and targets wherever possible:

1. Primary energy savings triggered by the project (in GWh/year);
2. Investments in sustainable energy triggered by the project (in million Euro);
3. High energy performance in the renovated buildings;
4. Measurable cost reduction compared with a typical renovation (i.e. a renovation that meets current minimum requirements of existing building regulations) or major energy performance improvement at comparable cost;
5. Reduction of time needed on site for renovation works by 20% compared to current national standard practice;
6. Demonstration of the effectiveness and replicability of the proposed solutions to lead to an increased rate of renovation for defined building typologies in several districts/cities/regions.

Additional positive effects can be quantified and reported when relevant and wherever possible:

1. Reduction of the greenhouse gases emissions (in tCO2-eq/year) and/or air pollutants (in kg/year) triggered by the project.

**2020 (CSA):**

Proposals are expected to demonstrate the impacts listed below, using quantified indicators and targets wherever possible:

* Primary Energy savings triggered by the project (in GWh/year)
* Investments in sustainable energy triggered by the project (in million Euro);
* Replication of the chosen renovation approach in specific districts/ cities/ regions/ countries to reach an increased rate of deep/nZEB renovation at large scale;
* Number of public or private renovation schemes set up;
* Building renovations triggered (in number of dwellings or square meters).

Type of Action: Innovation action (2018-2019), Coordination and support action (2020)

***The conditions related to this topic are provided at the end of this call and in the General Annexes.***

LC-SC3-EE-2-2018-2019: Integrated home renovation services

Specific Challenge: Many project promoters – public authorities, individuals or businesses – lack the skills and capacity to set up, implement and finance ambitious low-energy and clean energy building projects. In addition, many project developers still face obstacles in raising the necessary up-front costs for their projects – particularly as the small-size of investments and the lack of turnkey solutions increase implementation cost – and lack access to attractive and adequate financing products from the market.

Scope: This topic aims at creating or replicating innovative local or regional "integrated home renovation services". The developed services should cover the whole "customer journey" from technical and social diagnosis, technical offer, contracting of works, structuring and provision of finance (e.g. loans or EPCs), to the monitoring of works and quality assurance. Such integrated services should be operational at the end of the project and create more demand for holistic approaches as a result of improved offer by trustful market operators and better awareness from homeowners. They should also support the streamlining of standards and practices into consistent and transparent processes investors can rely on, and by doing so help connect the supply of finance with demand for it.

Proposals should build upon the promising experiences of integrated renovation services emerging in Europe[[4]](#footnote-4) and aim at developing / improving economically viable business models, ultimately running without the need for public subsidies.

Projects funded under this topic will optimise the services required along the renovation process (based on a thorough analysis of the local needs and actors in place), improve trust and awareness of homeowners towards such services, reduce renovation costs and time on-site through standardised approaches (e.g. optimized business processes, standardised contractual arrangements, branding of the proposed services etc.), mainstreaming innovative technical solutions adapted to the local context, help improve their legal and regulatory environment, and overall improve financing conditions for energy renovation.

The services can be developed through dedicated operators (new public or public/private entity or mandated private operator) and/or through an improved co-ordination between existing local actors.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.5 and 1.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: Proposals are expected to demonstrate the impacts listed below, using quantified indicators and targets wherever possible:

1. Implementation and upscale of economically viable business models, ultimately running without the need for public subsidies. Data evidence made available to market actors. Proof of the replication of these initiatives by other market actors;
2. Availability of adequate financing offer for integrated renovation services;
3. Strong and trustworthy partnerships with local actors (e.g. SMEs, ESCOs, financial institutions, energy agencies, NGOs) and quality of the proposed services recognized by market actors;
4. Development of large, locally-developed investment pipelines for home renovation, connecting the supply of finance with demand for it (in million Euro of investments within the first 5 years);
5. Uptake of home energy renovation at local level and corresponding primary energy savings triggered (in GWh/year).

Additional positive effects can be quantified and reported when relevant and wherever possible:

1. Reduction of the greenhouse gases emissions (in tCO2-eq/year) and/or air pollutants (in kg/year) triggered by the project.

Type of Action: Coordination and support action

***The conditions related to this topic are provided at the end of this call and in the General Annexes.***

LC-SC3-EE-3-2019-2020: Stimulating demand for sustainable energy skills in the construction sector

Specific Challenge: Based on results of the BUILD UP Skills initiative[[5]](#footnote-5), in particular the National Qualification Platforms and Roadmaps, as well as the qualification and training schemes developed in various Member States, the challenge is now to act at market level and to support legislative changes that will stimulate the demand for energy skills.

The objective is to increase the number of skilled building professionals and/or blue collar workers across the building design, operation and maintenance value chain (designers, architects, engineers, building managers, technicians, installers, blue collar workers including apprentices, and other building professionals), with a specific focus on the engagement of SMEs. Recourse to skilled professionals/workers both for renovations and new constructions of buildings and district scale solutions should be made more attractive and easier for companies and home owners alike.

Scope: The focus of submitted proposals should be on the direct stimulation of demand for energy skills in construction. This is calling for the development, up-scaling and combination of a range of tools and initiatives, e.g.:

1. Tools facilitating the mutual recognition of energy skills and qualifications in the construction sector: development of sustainable energy skills passports/registers for workers at regional/national level and support for their take up at EU level, mobile applications facilitating the comparison of workers' skills and qualifications between countries (e.g. by enabling the direct comparison of learning outcomes);
2. National, regional or local initiatives raising awareness of home and building owners and tenants about the benefits of sustainable energy skills and providing financial incentives for renovations done using skilled workers/professionals;
3. Support to public authorities for the development of new legislative frameworks, e.g. requirements for skilled workers in public procurement;
4. Partnerships with producers and retailers of construction products (e.g. DIY stores) to raise awareness of the salesforce and of consumers about energy efficient products, skilled workers and good practice in construction/renovation;
5. Initiatives reinforcing the link between skills/education and energy performance/quality of construction e.g. tools showing the reduction of the performance gap as result of an increase quality of the works.

Proposals need to be focused and are not necessarily required to address the whole range of professions and crafts involved in the building sector. They may however consider the entire design chain (e.g. manufacturers). If the proposal addresses specifically design, material life cycles and embodied energy have to be considered. Adequate consideration should also be given to improved appreciation of the end user's needs including the quality of indoor environment (thermal and visual comfort, acoustics, air quality, etc.) as well as improved operation and maintenance.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.5 and 1 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below using quantified indicators and targets wherever possible:

1. Primary Energy savings triggered by the project (in GWh/year);
2. Measurable energy savings and/or renewables production resulting from improved skills;
3. Investments in sustainable energy triggered by the project (in million Euro);
4. Increased number of certification schemes for energy efficiency skills;
5. Improved mutual recognition of sustainable energy skills between Member States and neighbouring countries;
6. Improved collaboration and understanding across different trades and professional groups;
7. Increased market acceptance of sustainable energy skills;
8. Legislative changes stimulating the demand for energy skilled construction workers/professionals;
9. Demonstrated reduction in the gap between designed and actual energy performance through improved quality of construction.

Additional positive effects can be quantified and reported when relevant and wherever possible:

1. Reduction of the greenhouse gases emissions (in tCO2-eq/year) and/or air pollutants (in kg/year) triggered by the project.

Type of Action: Coordination and support action

***The conditions related to this topic are provided at the end of this call and in the General Annexes.***

LC-SC3-EE-4-2019-2020: Upgrading smartness of existing buildings through innovations for legacy equipment

Specific Challenge: An essential part of Europe's clean energy transition is the changing role of buildings from consuming energy to actively controlling and optimising indoor environment while contributing to energy system flexibility by ensuring distributed energy generation from renewable energy sources, energy storage, facilitate smart charging of EVs, load reduction through energy efficiency and load shifting through demand response. Innovative technologies will enable smart buildings to interact with their occupants and the grid in real time and to manage themselves efficiently, so as to become an active element of the energy system. Intelligent and connected devices, smart sensors and controllers, supported by the development of new business models for new energy services, will create new opportunities for energy consumers.

Today in the EU, the existing building stock represents the main challenge for a more efficient energy use, in buildings as well as across the whole energy system. The smart readiness of buildings may evolve faster for devices and systems easily replaced and installed, than for other parts of the building's equipment such as HVAC and DHW systems due to higher costs of replacement, longer lifecycles and difficulties related to integration in buildings. This installed equipment remains highly relevant for buildings interactions with the energy system, making its upgrade to higher levels of smartness an essential step. The revised Energy Performance of Buildings Directive introduces a Smart Readiness Indicator (SRI) to reflect the level of services offered by a smart building. Once established, this indicator will give a framework to assess the smart readiness of buildings and building units to adapt operation to the needs of the occupant and the grid and to improve energy efficiency and overall performance.

Scope: Proposals should develop and demonstrate cost-effective technological solutions to manage energy within existing buildings and interact with the grid providing energy efficiency, flexibility, generation and storage, based on user preferences and requests. These solutions should be aimed to upgrade existing buildings, either residential or tertiary, using automation and IT to offer new services and control to the building users, thereby improving their comfort and increasing their satisfaction. This upgrade should translate into improvements in the areas put forward by the revised EPBD, in relation to the smart readiness indicator.

Proposals should demonstrate how the smart systems, smart controls and smart appliances can be integrated seamlessly in existing buildings to interface and/or to control the major energy consuming domestic appliances that are already installed. These pilots should involve several types of domestic appliances and technical building systems with longer lifecycles (boilers, radiators, DHW preparation, motors for ventilation, windows opening and shading; lighting etc.) and with shorter lifecycles (dryers, washing machines, fridges, etc.), testing several types of control modes (ON/OFF, power modulation, etc.) possible for a given type of appliance. Recharging points for electric vehicles and other forms of energy storage should also be incorporated in the pilots. The proposed solutions should not adversely affect the original functionalities, product quality, lifetime, as well as warranties of the appliances.

Besides the pilot demonstrations, proposals are expected to include clear business model development and a clear path to finance and deployment. Key partners should have the capability and interest in making the developed solution a core part of their business/service model to their clients.

These business models and exploitation strategies should target the broad uptake of the proposed smart systems into specific building typologies in Europe and their integration with evolving electricity markets, e.g. dynamic pricing or other services and information offered by energy suppliers and/or aggregators. Integrations with other energy networks (e.g. DHC) can also be considered.

The solutions should focus on cost-effectiveness and user-friendliness: easy installation and maintenance, maximising consumer comfort (e.g. self-learning) and information on own consumption (e.g. recommendations to the user in order to maximise savings) as well as on gains from its contribution to grid operation.

These solutions should build on innovative technologies, initiatives and approaches contributing to building smartness: semantics, data models, data layers, protocols, software building blocks, APIs, middleware, solutions for smart services, standards, relevant industrial consortia or technology initiatives, etc. Interoperability is essential to ensure the required smart readiness, in particular integration with legacy equipment, user-friendliness and broad market uptake.

A realistic estimate should be provided on the total energy savings/year and on the impact of the innovations demonstrated in the project on the total power available for cost effective demand response actions. The projects should involve technology providers (e.g. manufacturers of appliances, movable envelope components, smart control/ home systems providers), energy services providers (aggregators and/or suppliers and/or ESCO's), user representatives, electricity system operators and other actors as relevant.

The activities are expected to be implemented at TRL 6-8 (please see part G of the General Annexes).

The Commission considers the proposals requesting a contribution from the EU of between 3 to 4 million would allow this specific challenge to be addressed appropriately. Nonetheless this does not preclude submission and selection of proposals requesting other amounts.

This topic contributes to the roadmap of the Energy-efficient Buildings (EeB) cPPP.

Expected Impact: Proposals are expected to demonstrate the impacts listed below using quantified indicators and targets wherever possible:

1. Primary Energy savings triggered by the project (in GWh/year);
2. Investments in sustainable energy triggered by the project (in million Euro);
3. Upgrade of existing buildings to higher smartness levels, including a significantly enlarged base of existing building equipment and appliances monitored by energy management systems and activated through demand response actions;
4. Reduction in energy consumption and costs, exceeding the additional consumption from IT and its cost.

Additional positive effects can be quantified and reported when relevant and wherever possible:

1. Reduction of the greenhouse gas emissions (in tCO2-eq/year) and/or air pollutants (in kg/year) triggered by the project.

Type of Action: Innovation action

***The conditions related to this topic are provided at the end of this call and in the General Annexes.***

LC-SC3-EE-5-2018-2019-2020: Next-generation of Energy Performance Assessment and Certification

Specific Challenge: Under the Energy Performance of Buildings Directive[[6]](#footnote-6), all EU countries have established independent energy performance certification systems supported by independent mechanisms of control and verification. However, current practices and tools of energy performance assessment and certification applied across Europe face a number of challenges.

Assessment processes and certificates have to become more reliable, user-friendly, cost-effective, have comparable good quality and be compliant with EU legislation in order to instil trust in the market and incite investments in energy efficient buildings. They have to increasingly reflect the smart dimension of buildings and at the same time, facilitate convergence of quality and reliability of Energy Performance Certificates (EPCs) across the EU. The building energy performance methodologies should also ensure a technology neutral approach, be transparently presented making use of International and European standards, in particular the ISO/CEN standards developed under Commission mandate M/480[[7]](#footnote-7) aimed at enabling the presentation of national and regional choices on a comparable basis.

Next-generation energy performance assessment schemes will value buildings in a holistic and cost-effective manner across several complimentary dimensions: envelope performances, system performances and smart readiness (i.e. the ability of buildings to be smartly monitored and controlled and, to get involved in demand-side management strategies). The assessment should be based on an agreed list of parameters/indicators, such as e.g. calculated annual final energy use, share of renewable energy used, past (climate corrected) final energy consumptions and energy expenditure, comfort levels or the level of smartness. The assessment methods should increasingly take into account output measures of performance (actual measured data) making use of available and increasing number of building energy related data from sensors, smart meters, connected devices etc. These new schemes should contribute to improving the effectiveness of certificates, by demonstrating how these could be strengthened, modernised and best linked to integrated national/regional certification schemes within a framework that aids compliance checking and effectiveness of financial support.

Scope: **2018 (Coordination and support action):**

Proposals should involve relevant stakeholders (including national and regional certification bodies) to stimulate and enable the roll-out of next-generation of energy performance assessment and certification, with a view to achieve enhanced reliability, cost-effectiveness and compliance with relevant EU standards and the Energy Performance of Buildings Directive. Proposals should develop strategies to encourage convergence of EPC practices and tools across the EU so as to ensure a comparable level of high quality, independent control and verification. The applicability of assessment and the certification schemes should be assessed through a broad set of well-targeted and realistic cases, featuring various locations, building types, climatic conditions and field practices including existing national EPC schemes. The assessment will aim at demonstrating the potential of an EU-wide uptake of the proposed assessment and certification schemes, along well-defined criteria. Embedding the EPCs and their recommendations in broader concepts such as energy audits, wider-buildings related databases (e.g. national EPC databases, national housing surveys, EU Building Stock Observatory) and one-stop-shops including administrative, financial and supply side information and linking EPCs to related concepts such as buildings renovation passports, individual buildings renovation roadmaps or building logbooks should also be considered.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

**2019 (Innovation action):**

Proposals should address the definition and demonstration of innovative approaches for the assessment of building energy performance, focusing at first on the reliable assessment of building intrinsic performances (e.g. using inverse modelling) but working also towards output-based assessments using available building energy related data[[8]](#footnote-8). Proposals should involve relevant stakeholders (including national and regional certification bodies). The proposed approaches should be more reliable as well as cost-effective and compliant with relevant EU standards[[9]](#footnote-9), in order to allow for an EU-wide deployment. Such approaches should rely on the combination of existing and proven technology components (starting from TRL 6-7, please see part G of the General Annexes) with well-structured methodologies and protocols that can lead to the definition of new certification schemes. They could also consider implications when using EPCs in building passports and renovation roadmaps.

The Commission considers that proposals requesting a contribution from the EU of between EUR 2 and 2.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This topic contributes to the roadmap of the Energy-efficient Buildings (EeB) cPPP.

**2020 (Coordination and support action):**

As a continuation of the 2018 Coordination and support action, proposals should involve relevant stakeholders (including national and regional certification bodies) to take on board the lessons learnt from previous projects as well as any developments on the use of EPCs that have taken place in the Member States, in order to further stimulate and enable the roll-out of next-generation of energy performance assessment and certification.

Proposals should develop strategies to encourage convergence of EPC practices and tools across the EU so as to ensure a comparable level of high quality, independent control and verification. The applicability of assessment and the certification schemes should be assessed through a broad set of well-targeted and realistic cases, featuring various locations, building types, climatic conditions and field practices including existing national EPC schemes. The assessment will aim at demonstrating the potential of an EU-wide uptake of the proposed assessment and certification schemes, along well-defined criteria.

Proposals should also address issues regarding the training requirements and certification procedure for experts that are allowed to issue EPCs. Proposals should demonstrate the benefit of EPCs increasingly covering also work on inspections (Articles 14 and 15 of the Energy Performance of Buildings Directive). Embedding the EPCs and their recommendations in broader concepts such as inspections and energy audits, integrating them in wider-buildings related databases (e.g. national EPC databases, national housing surveys, EU Building Stock Observatory), in practices related to quality assurance and reducing the performance gap, and one-stop-shops including administrative, financial and supply side information and linking EPCs to related concepts such as buildings renovation passports, individual buildings renovation roadmaps or building logbooks should also be considered.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: **2018 (Coordination and support action):**

Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below using quantified indicators and targets wherever possible:

1. Primary energy savings triggered by the project (in GWh/year);
2. Investments in sustainable energy triggered by the project (in million Euro);
3. Increased convergence of good quality and reliable energy performance assessment and certification and uptake and compliance with EU Directives and related standards;
4. Increased rate of application and compliance of EPCs and independent control systems with the provisions of EU and national legislation, in a defined region;
5. Increase of EPCs databases for compliance checking and verification, linking with financing schemes and building stock characteristics research etc.

**2019 (Innovation action):**

Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below using quantified indicators and targets wherever possible:

1. Improved user-friendliness of EPCs in terms clarity and accuracy of the information provided;
2. Enhanced user awareness of building energy efficiency;
3. Primary energy savings triggered by the project (in GWh/year);
4. Investments in sustainable energy triggered by the project (in million Euro).

Additional positive effects can be quantified and reported when relevant and wherever possible:

1. Reduction of the greenhouse gases emissions (in tCO2-eq/year) and/or air pollutants (in kg/year) triggered by the project.

**2020 (Coordination and support action):**

Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below using quantified indicators and targets wherever possible:

* Primary energy savings triggered by the project (in GWh/year);
* Investments in sustainable energy triggered by the project (in million Euro);
* Increased convergence of good quality and reliable energy performance assessment and certification and uptake and compliance with EU Directives and related standards;
* Increased rate of application and compliance of EPCs and independent control systems with the provisions of EU and national legislation, in a defined region;
* Increased use of EPC databases for compliance checking and verification, linking with financing schemes and building stock characteristics research etc.
* Increase convergence of training requirements and certification procedures for experts working on EPCs
* Increased integration of inspections and energy audits in the EPCs.

Additional positive effects can be quantified and reported when relevant and wherever possible:

* Reduction of the performance gap;
* Additional market value of the building (single unit) with better EPC class.

Type of Action: Coordination and support action (2018, 2020), Innovation action (2019)

***The conditions related to this topic are provided at the end of this call and in the General Annexes.***

LC-SC3-EE-6-2018-2019: Business case for industrial waste heat/cold recovery

Specific Challenge: Energy and fuels represent an important part of the production costs in several Resource and Energy Intensive Industries (REII). While a lot of technical progress has already been done in REII to reduce the energy consumption of the main industrial processes, significant parts of the input-energy are still lost in the form of waste heat/cold by gas, liquid or solid streams. Wide-scale deployment of industrial waste heat/cold recovery is hindered, among others, by the lack of financial/ economic justification for the required equipment and, at times, by the limited industrial applicability (i.e. process re-integration). Often, it is forgotten that directly or after an intermediate transformation step, the sources of heat/cold losses of a given industry can be a valuable resource for other industries and buildings/ District Heating and Cooling operators and that they could be of commercial interest for the waste heat/cold producer. Furthermore, other energy cooperation activities between industries can also contribute to increase their energy efficiency. Thus physical clustering (e.g., of buildings and processes, energy exchange, collective production) and/ or service clustering (e.g., joint contracting) can deliver a more stable cumulative demand, economy of scale for larger installations with higher efficiencies and smaller spatial footprint and an optimised demand response.

Scope: **2018 (Innovation action):**

*Cost-benefit models for industrial waste heat/cold recovery:*

Proposals should develop integrated cost-benefit simulation tools that, based on the characterization of processes, heat/cold streams and other relevant variables, can determine the best utilisation options of recovered waste heat/cold and/ or surplus renewable energy from industrial and eventual other sources (when available). Proposals should also consider the possibility to contribute to efficient use/system integration of renewable energy sources through e.g. heat/cold storage and flexible production.

The proposals are expected to put forward simulation tools that would allow industrial sites/parks to determine the most financial attractive option for using their recovered waste heat/cold and/or surplus renewable energy. This should be based on, inter-alia, waste heat/cold recovery (and storage if necessary) costs (including equipment and process adaptation), retail and/ or whole sale energy prices, (new contracts) administrative and legal costs, (external connecting) infrastructure costs, internal and external demand, waste heat/cold as source of flexibility in electricity system. Other relevant variables should also be included, inter-alia, characterisation of barriers and opportunities on the DHC side (e.g. competition with other heat/cold sources, thermal storage, regulatory conditions). The simulation tools are expected to be flexible enough to allow a large number of different types of industrial sites/ parks to use it, i.e. should allow many energy intensive process characterizations irrespective of the industrial sector and geographic location, and should also take into account supply-demand dynamics.

The simulation tools should be validated through demonstration in real operating conditions in industrial facilities.

Proposals are expected to include clear business model development and a clear path to finance and deployment. Key partners should have the capability and interest in making the developed solution a core part of their business/service model to their clients.

Proposals are expected to look at relevant business models for the collaboration outside the plant/industrial park and have strong communication and dissemination components in order to reach many industries, large private facilities and public authorities.

This topic contributes to the roadmap of the Sustainable Process Industry through Resource and Energy Efficiency (SPIRE) cPPP.

The activities are expected to be implemented in the range of TRL 4-8 (please see part G of the General Annexes).

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 and 4 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

**2019 (Coordination and support action):**

*Symbiosis in industrial parks and clusters- non-technological barriers*

Proposals should improve the energy efficiency of industrial parks districts and clusters by unlocking the market potential and supporting the demand and offer of high-quality energy services by addressing at least one of the following points:

1. The development and testing of instruments facilitating, at customer/ business level, the actual implementation of energy cooperation such as setting up appropriate process and business organisation, operation and plant design, cooperation mechanisms, related contractual and financial arrangements, better planning, good practices. Proposals need to include capacity building activities such as skills development and engagement of senior and executive management (e.g. CEO, CFO, energy managers) of companies from industrial parks and other related stakeholders.
2. The development and testing of replicable business models and service concepts, at service provider level (i.e. ESCOs or other relevant 3rd party organisations such as DHC operators), for joint energy services such as identification of horizontal energy services attractive for businesses, identification of the most relevant innovative technical solutions, setting up contractual and financial arrangements, best practices, cost-reduction models. Proposals need to include capacity building activities such as sharing skills, know-how and specific expertise of ESCOs or other 3rd party organisations that would boost the market uptake for such joint energy services contracting in industrial parks.

This topic contributes to the roadmap of the Sustainable Process Industry through Resource and Energy Efficiency (SPIRE) cPPP.

Proposals need to also address legal issues in order to adapt regulatory and legal frameworks at local, regional and national level. Issues related to the sustainability of the proposed symbiosis in case one or more of the involved parties are changing activity (including leaving the park) should be taken into account. Proposals are expected to ensure applicability of the solutions to other industrial parks/ business sectors while strong communication and dissemination components will be needed in order to reach many industries, industrial park managers and ESCOs.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: **2018 (Innovation action):**

Proposals are expected to demonstrate the impacts listed below, using quantified indicators and targets wherever possible:

1. Accurate prediction and holistic modelling of industrial waste heat/cold and/or surplus renewable energy from industrial or other sources from different geographical and market settings;
2. Better impact of the various factors/ variables on the cost-benefits of industrial waste heat/cold and/or surplus renewable energy from industrial or other sources;
3. Valorisation in assessments of cost-benefit of industrial waste heat/cold and/or surplus renewable energy from industrial and eventual other sources;
4. Number of industrial sectors/ sites/ parks, public authorities (including energy agencies), large private facilities (e.g. sport and shopping centres, non-energy intensive industrial parks) and DHC operators aware, interested and supporting the implementation of waste heat/cold and/or surplus renewable energy from industrial and eventual other sources recovery/use for process re-integration or commercial use, depending on the outcome of the simulations;
5. Primary energy savings triggered by the project (in GWh/year);
6. Investments in sustainable energy triggered by the project (in million Euro).

Additional positive effects can be quantified and reported when relevant and wherever possible:

1. Reduction of the greenhouse gases emissions (in tCO2-eq/year) and/or air pollutants (in kg/year) triggered by the project.

**2019 (Coordination and support action):**

Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below, using quantified indicators and targets wherever possible:

1. Primary energy savings triggered by the project (in GWh/year);
2. Investments in sustainable energy triggered by the project (in million Euro);
3. Number of (operational and organisational separated) plant sites (within one industrial park) and the number of industrial parks where businesses commit to energy cooperation;
4. Number of relevant stakeholders (e.g. ESCOs, industrial park managers) aware of and/or interested in/ implementing joint energy services;
5. Number of policies and legal frameworks created and/ or adapted to facilitate energy cooperation among businesses.

Additional positive effects can be quantified and reported when relevant and wherever possible:

1. Reduction of the greenhouse gases emissions (in tCO2-eq/year) and/or air pollutants (in kg/year) triggered by the project.

Type of Action: Innovation action, Coordination and support action

***The conditions related to this topic are provided at the end of this call and in the General Annexes.***

LC-SC3-EE-8-2018-2019-2020: Capacity building programmes to support implementation of energy audits

Specific Challenge: The Energy Efficiency Directive, in its art.8, requires Member States to develop programmes encouraging SMEs to undergo energy audits and to implement the recommended energy-saving measures. SMEs represent enormous energy saving potential. However, the lack of expertise, time and capital, including energy audit supporting scheme, often prevents SMEs from implementing energy conservation measures or from getting access to the energy services market.

The effectiveness of energy audit recommendations is influenced by people's behaviours and the improvement of enterprises' energy cultures. The availability of reliable energy consumption data is of utmost importance to monitor the impact of energy saving measures and behaviours. The actions should lead SMEs to become fully aware of the multiple benefits resulting from energy audits as well as facilitating their actual implementation. Moreover, capacity building programmes should also support implementation of the recommended energy-saving measures both for small and large enterprises.

Scope: Proposals should focus on one, or more, of the following issues:

1. Staff trainings and capacity buildings programmes, facilitating SMEs to undergo energy audits and to implement the recommended energy-saving measures, should be developed according to SMEs specificities (size, sectors, lifetime of the company etc.) and highlighting the financial aspects. Programmes should aim at bridging the gap between demand and supply side (SMEs, auditors, finance institutions, managing authorities of supporting schemes). An active participation of both managerial and operational staff must be ensured. The proposed solution should be tailored to national/local conditions in order to ensure the effective uptake by the SMEs.
2. Capacity building to support the take-up of audits recommendations and undertake the actions necessary to reduce energy consumption (maintenance or investments in new equipment but possibly also behavioural actions) in the companies required to undergo energy audits (large enterprises). Development and implementation of corporate policy measures involving all actors (from decision makers/corporate board members to employees in each department) willing to undertake more efficient energy-related actions (motivations, behaviour change, mitigation of perceived risks and barriers). Evaluation of the total costs of building investments, in terms of financial, environmental and health impact.
3. Initiatives supporting Member States in empowering or establishing national supporting schemes for SMEs providing appropriate incentives to undergo energy audits and/or to implement the recommended energy-saving measures.

Proposals should demonstrate how the proposed activities will be continued commercially beyond the project lifetime. Involvement of relevant multiplier organisations is also encouraged.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below using quantified indicators and targets wherever possible:

1. Primary energy savings triggered by the project (in GWh/year);
2. Investments in sustainable energy triggered by the project (in million Euro);
3. Market stakeholders with increased skills/capability/competencies (to be measured in number of people with increased capacity) and long-lasting training schemes;
4. Number of people/enterprises with enhanced energy culture documenting why and how changes are an effect of particular measures taken as consequence of energy audits, as well in terms of the sustainability of the behavioural change;
5. Policies and strategies created/adapted at national level (to be measured in number of initiatives/actions taken to improve/create audit supporting schemes and/or number of SMEs supported in the implementation of energy audit).

Additional positive effects can be quantified and reported when relevant and wherever possible:

1. Reduction of the greenhouse gases emissions (in tCO2-eq/year) and/or air pollutants (in kg/year) triggered by the project.

Type of Action: Coordination and support action

***The conditions related to this topic are provided at the end of this call and in the General Annexes.***

LC-SC3-EE-9-2018-2019: Innovative financing for energy efficiency investments

Specific Challenge: There is a need to set up innovative financing schemes at regional or national level in order to create the conditions for adequate supply of private finance for energy efficiency investments. Innovative financing schemes for energy efficiency aim to progressively maximise the leverage ratio of public funds to private finance. This is in line with the "Smart Finance for Smart Buildings"[[10]](#footnote-10) initiative that aims at using public funds more effectively.

Scope: Proposals should address the development or replication and implementation of innovative financing schemes for energy efficiency investments. They can involve different types of organisations, ownership structures and financing models such as dedicated credit lines; guarantee facilities; factoring/forfaiting schemes; on-bill (e.g. utility-financed) or on-tax financing schemes; citizen financing (e.g. crowd-funding) for energy efficiency; finance models for the deep renovation of buildings, addressing both property and rental markets; finance models for different industry sectors and cross-sectorial initiatives; financing solutions integrating existing market-based instruments relevant for energy efficiency (e.g. carbon finance instruments, including those under the European Emissions Trading System; energy efficiency obligations, including white certificates; etc.); or schemes based on project aggregators or clearing houses at regional or national level, which should support project development and match demand and supply of energy efficiency finance. These schemes should address the provision of finance as well as the structuring of demand, in particular at regional/national level, and target specific areas (e.g. energy-intensive industries, buildings etc.). Proposals should justify how the proposed schemes complement already available funding and how they are tailored and innovative for the targeted regions and market segments; as well as clearly demonstrate the market potential, as well as business case and financial viability of the scheme (including investment sizes targeted, expected savings, transaction and management costs, expected returns etc.).

Proposals should address one or more of the following points:

1. Establishment of new innovative, operational financing schemes;
2. Replication of previously successful solutions e.g. developed and implemented under various project development assistance (PDA) facilities under the Horizon 2020 and Intelligent Energy Europe programmes (including MLEI PDA or ELENA);
3. Establishment of regional/national aggregators which are able to develop large (standardized) project pipelines;
4. Creation of EU or regional/national energy efficiency investment roundtables/platforms to organise dialogue with and between the relevant stakeholders and (among others) develop roadmaps, propose improvements in the legal frameworks and develop and validate template documents and contracts leading to a better understanding of the market. Proposals should include a clear action plan to communicate across Europe towards potential replicators.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 1.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below, using quantified indicators and targets wherever possible:

1. Primary energy savings triggered by the project (in GWh/year);
2. Investments in sustainable energy triggered by the project (in million Euro);
3. Delivery of innovative financing schemes that are operational and ready to finance energy efficiency investments;
4. Regional/national aggregators with demonstrated/traceable capacity to set up large-scale pipeline of (standardized) sustainable energy investments (in terms of number of and/or amount of investment);
5. EU or regional/national energy efficiency investment roundtables/platforms providing a comprehensive range of support and/or services to facilitate access to energy efficiency finance.

Additional positive effects can be quantified and reported when relevant and wherever possible:

1. Reduction of the greenhouse gases emissions (in tCO2-eq/year) and/or air pollutants (in kg/year) triggered by the project.

Type of Action: Coordination and support action

***The conditions related to this topic are provided at the end of this call and in the General Annexes.***

LC-SC3-EE-10-2018-2019: Mainstreaming energy efficiency finance

Specific Challenge: Energy efficiency is not yet considered as an attractive investment by the financial sector which limits the possibility to use external private finance on top of equity of project owners and available public funding. The lack of statistical data on the actual energy and costs savings achieved by energy efficiency investment projects, as well as on payment default rates, results in financial institutions attributing high risk premiums to energy efficiency investments.

Energy efficiency represents high transaction costs for rather small investments, which is not financially very attractive. Technical and legal standardisation is highly needed at all steps of the investment value chain in order to simplify transactions and increase the confidence of financial institutions. The lack of standardisation of projects also prevents securitisation of energy efficiency assets (loans or equity) so that financial institutions are not able to refinance their debt on the capital markets[[11]](#footnote-11).

Whereas energy efficiency investments are usually expected to be paid back exclusively through the reduction of the energy bill, there is increasing evidence that non-energy benefits play a key role in the decision to invest in energy efficiency. This includes for instance increased building value, lower tenant turnover or vacancy rates etc. These benefits need to be quantified through data collection and monetised in order to evolve the parameters used by financiers to assess an energy efficiency investment.

Scope: Proposals should address at least one of the following issues:

1. Development, demonstration and promotion of frameworks for the standardisation, aggregation and benchmarking of sustainable energy investments. This could include for example, but not exclusively, labelling schemes, project rating methodologies and risk assessment tools, standardised legal and financial structures of assets (loans, guarantees, energy performance contracts etc.) in order to develop securitisation for energy efficiency based financial products. Proposals integrated in a broader approach such as socially responsible investment should focus on the energy component;
2. Capacity building for banks and investors at the national and local level, in particular on underwriting sustainable energy investments;
3. Gathering, processing and disclosing large-scale data on actual financial performance of energy efficiency investments, in order to create a track record for energy efficiency in different sectors (buildings, industry, transport, etc.) Proposals should build upon or complement the work of the Energy Efficiency Financial Institutions Group (EEFIG) e.g. the De-risking Energy Efficiency Platform[[12]](#footnote-12);
4. Further integration of non-energy benefits in project valuation, in particular in the building sector, leading to evolution of existing financial products or creation of new targeted products;
5. Targeting institutional investors (e.g. public pension schemes) in order to increase the share of their funds invested in energy efficiency, or to develop specific funds or investment products. Supporting the integration of energy efficiency in portfolio management strategies for institutional investors and/or fund managers, including through re-definition of fiduciary duties;
6. Exploring the impact of revised risk ratings and requirements for energy efficiency on financial regulations (Basel III, Solvency II).

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 million and EUR 1.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below, using quantified indicators and targets wherever possible:

1. Number of financial institutions and other stakeholders reached as well as their potential volume of investment concerned;
2. Frameworks, standardisation, benchmarking, standardised descriptions and data evidence of financial returns of energy efficiency investments agreed and accepted by the market;
3. Higher allocation of institutional investments to energy efficiency; standardisation of assets enabling securitisation; development of a secondary market for energy efficiency assets (in million Euro of investment within 5 years after the end of the project);
4. Primary energy savings triggered by the project (in GWh/year);
5. Investments in sustainable energy triggered by the project (million Euro).

Additional positive effects can be quantified and reported when relevant and wherever possible:

1. Reduction of the greenhouse gases emissions (in tCO2-eq/year) and/or air pollutants (in kg/year) triggered by the project.

Type of Action: Coordination and support action

***The conditions related to this topic are provided at the end of this call and in the General Annexes.***

LC-SC3-EE-11-2018-2019-2020: Aggregation - Project Development Assistance

Specific Challenge: Investors and lenders need to gain more confidence on investment projects related to energy efficiency which are still seen as risky and fragmented. EU added value can be realised in particular where projects introduce innovation to the market regarding project aggregation and financing solutions minimising transaction costs and engaging the private finance community. EU added value could also be realised where projects demonstrably remove legal, administrative and other market barriers for mainstreaming large scale sustainable energy investment schemes.

Scope: Project Development Assistance (PDA) will be provided to public and private project promoters such as public authorities or their groupings, public/private infrastructure operators and bodies, energy service companies, retail chains, large property owners and services/industry. The action will support building technical, economic and legal expertise needed for project development and leading to the launch of concrete investments, which are the final aim and deliverable of the project.

Proposals should focus on one or more of the following sectors:

1. existing public and private buildings including social housing, with the aim to significantly decrease energy consumption in heating/cooling and electricity;
2. energy efficiency of industry and service;
3. energy efficiency in all modes of urban transport (such as highly efficient transport fleets, efficient freight logistics in urban areas, e-mobility and modal change and shift); and
4. energy efficiency in existing infrastructures such as street lighting, district heating/cooling and water/wastewater services.

The proposed investments will have to be launched before the end of the action which means that projects should result in signed contracts for sustainable energy investments to that effect, e.g. construction works, energy performance contracts, turnkey contracts.

Whilst proposals may address investments into distributed, small-scale renewable energy sources in combination with energy efficiency, the main focus should lie on capturing untapped high energy efficiency potentials.

Proposals should include the following features:

1. an exemplary/showcase dimension in their ambition to reduce energy consumption and/or in the size of the expected investments;
2. deliver organisational innovation in the financial engineering (e.g. on-bill financing schemes, guarantee funds, or factoring funds) and/or in the mobilisation of the investment programme (e.g. bundling, pooling or stakeholder engagement);
3. demonstrate a high degree of replicability and include a clear action plan to communicate experiences and results towards potential replicators across the EU;
4. build on the experiences from previous PDA projects[[13]](#footnote-13).

This PDA facility focuses on small and medium-sized energy investments of at least EUR 7.5 million to EUR 50 million. Large scale investments are covered by the ELENA facility.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.5 and 1.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: Proposals are expected to demonstrate, the impacts listed below, using quantified indicators and targets wherever possible:

1. Delivery of a series of sustainable energy investment projects and innovative financing solutions and/or schemes;
2. Every million Euro of Horizon 2020 support should trigger investments in sustainable energy worth at least EUR 15 million;
3. Primary energy savings, renewable energy production and investments in sustainable energy triggered in the territory of participating parties by the project (respectively in GWh/year and in million Euro of investments);
4. Demonstration of innovative and replicable investment financing solutions, documenting feedback/uptake from potential replicators.

Additional positive effects can be quantified and reported when relevant and wherever possible:

1. Reduction of the greenhouse gases emissions (in tCO2-eq/year) and/or air pollutants (in kg/year) triggered by the project.

Type of Action: Coordination and support action

***The conditions related to this topic are provided at the end of this call and in the General Annexes.***

Energy efficiency is an energy source

Proposals are invited against the following topic(s):

LC-SC3-EE-13-2018-2019-2020: Enabling next-generation of smart energy services valorising energy efficiency and flexibility at demand-side as energy resource

Specific Challenge: Energy Efficiency services (e.g. Energy Performance Contracting (EPC)) are available on the market already for quite some time. However, there is a big untapped potential in sectors and with actors not yet engaged in services triggering energy, CO2 and cost savings. At the same time, new technologies have emerged opening the door for new types of services which use ICT to better control and steer energy consumption according to market and system needs and to the availability of renewable energy; others are able to integrate energy services with non-energy benefits such as comfort. By bundling various services and benefits, additional target groups, sectors and financial resources can be accessed. Actions are also needed to structure and label the quality of demand side service providers (like ESCOs aggregators and energy cooperatives) and improve their accessibility for end energy users.

Finally, ICT-tools and big data generated by smart meters, smart devices and sensors will help monitor and verify energy savings and flexibility and thus provide for appropriate remuneration of optimised consumption. A particular challenge for energy services of this kind is that while they aim to involve different services (e.g. system services) and benefits (e.g. comfort) towards increasing their viability, they should nevertheless result in real, measurable energy savings and performance improvements of the overall energy system.

Scope: **2018 (Coordination and support action)**:

Actions should allow different market actors to get together and focus on developing integrated concepts and models which

1. enhance and refine successful energy performance contracting models and/or;
2. include pay-for-performance schemes and/or;
3. include customer individualized energy services as a result of better understanding of customer behaviour and needs derived of new data analytics tools;
4. engage new sectors and actors and/or;
5. integrate energy efficiency services with other energy services like distributed generation and demand response and including storage/hybrid energy systems and/or non-energy related services; these should be endorsed by relevant stakeholders and validated (for example tested around existing projects or projects under development);
6. factor in potential legal and contractual aspects (e.g. in relation to existing contracts or warranty, safety and data security issues linked to existing and newly deployed equipment).

Proposed actions should cover at least two (but not necessarily all) of the relevant areas and aspects identified below:

1. Energy service models (like EPC) and services that target new sectors and new actors;
2. Business models which work equally for energy efficiency and other services, building on contractual arrangements across different actors (ESCOs, aggregators, DSOs, energy cooperatives, obliged parties under the Energy Efficiency Obligation Schemes implementing art 7 EED and eventually the consumers) which traditionally cover different use cases business interests and different revenue;
3. "Pay for performance"-schemes which focus on permanently reducing power consumption in particular at peak times, thus attracting new sources of financing;
4. The use of 'big data' generated by smart meters, equipment, sensors and tools for standardised processes enabling a more accurate and dynamic measurement and verification of energy savings and flexible consumption, also in order to ex-ante identify and develop business opportunities;
5. Additional non-energy features that support the up-take of innovative energy efficiency services and technologies;
6. Improving the accessibility and quality of demand side service providers while enhancing their access to the market.

Proposals are expected to include clear business model development and a clear path to finance and deployment. Key partners should have the capability and interest in making the developed solution a core part of their business/service model to their clients.

The Commission considers that proposals for Coordination and Support Actions requesting a contribution from the EU of between EUR 1 million and 2 million would allow this specific challenge to be addressed. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

**2019 (Innovation action):**

Projects should focus on demonstrating and testing innovative energy services in a real environment, across several market segments and across different actors in the value chain. To be economically viable, these services need to be able to rely on sound measurement and verification methodologies. They should cover several but not necessarily all of the relevant areas and aspects identified above, blending in innovative manner different revenue streams coming from different market segments and they should in all cases include innovative verification and monitoring measures. Moreover, they should demonstrate how potential legal and contractual aspects (e.g. in relation to existing contracts or linked to the use of equipment) have been accounted for.

Proposals should demonstrate that the tested business models and services are self-sustainable after the end of the project. The upfront investments in energy efficiency measures (e.g. upgrading of building energy performance) and in smart building systems should be paid back at least in part by revenues coming from energy savings and remunerated flexibility.

The Commission considers that proposals for Innovation Actions requesting a contribution from the EU of between EUR 3 and 4 million would allow this specific challenge to be addressed. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Where possible and appropriate, the actions should cooperate with the projects funded under the topics: DT-ICT-10-2018: Interoperable and smart homes and grids, DT-ICT-11-2019: Big data solutions for energy in the WP 5.i ICT, and LC-SC3-ES-6-2018-2020: LC-SC3-ES-5-2018-2020: TSO – DSO – Consumer: Large-scale demonstrations of innovative grid services through demand response, storage and small-scale (RES) generation.

**2020 (Coordination and support action)**:

The scope of the call 2020 is based on the areas identified for the call 2018 but should moreover take into account key aspects required for the call 2019, i.e. the focus on new revenue streams, the use of innovative monitoring and verification schemes and the consideration of contractual aspects. However, while under the call 2019 service models and the underlying technologies will be tested in a real market environment, there will be a need in 2020 and beyond to adapt and refine the concepts which have been developed, proved and tested under Horizon 2020 actions and/ or which have evolved in the market, in parallel with the progressive deployment of new technologies. Projects under this topic in 2020 should therefore demonstrate that they gather and help converge innovative, successfully tested service elements which are well adapted to the needs of the market and of the potential users and which are compatible with on-going technological innovation.

Given that the service models will have advanced and matured, project results are, even more strongly than under the foregoing calls, expected to be considered and endorsed by key market stakeholders. They should take into account any relevant results from concluded or existing projects that are (gradually) available, including projects under the topics listed above. Projects however are expected to consider those elements that promise to yield a particularly high level of business innovation. Energy efficiency should constitute a core aspect of the service models.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 million and 2 million would allow this specific challenge to be addressed. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: Proposals are expected to demonstrate the impacts listed below, using quantified indicators and targets wherever possible:

1. Primary Energy savings triggered by the project (in GWh/year);
2. Investments in sustainable energy triggered by the project (in million Euro);
3. Improved viability of innovative energy services.

In addition, proposals are expected to demonstrate, the impacts listed below, using quantified indicators and targets wherever possible:

1. A growing offer and up-take of services that combine energy efficiency with other energy services, technologies and non-energy benefits;
2. A growing up-take of innovative data gathering and processing methods in the monitoring and verification of energy savings and flexibility;
3. The application of methods and concepts to ensure that: (i) innovative energy services are reliable and verifiable, (ii) service providers are trustworthy and accessible.

Additional positive effects can be quantified and reported when relevant and wherever possible:

1. Reduction of the greenhouse gases emissions (in tCO2-eq/year) and/or air pollutants (in kg/year) triggered by the project.

Type of Action: Coordination and support action, Innovation action

***The conditions related to this topic are provided at the end of this call and in the General Annexes.***

LC-SC3-EE-14-2018-2019-2020: Socio-economic research conceptualising and modelling energy efficiency and energy demand

Specific Challenge: In the Energy Union Strategy, Energy Efficiency was recognised as a resource in its own right which should be enabled to compete on equal terms with generation capacity and to have primary consideration across all policies[[14]](#footnote-14). However, the structure of energy demand as well as the real value beyond the fuel's cost and the (energy and non-energy) impacts of energy efficiency are still not well understood with the effect that benefits of energy efficiency are not sufficiently taken into account in financial and political decision making, and planning, while prices of fossil fuels remain relatively low.

The topic addresses three different dimensions of this challenge with the aim to trigger actions which

1. make the energy efficiency first principle more operational (2018);
2. substantiate the demand side aspects in energy modelling (2019);
3. improve the understanding of non-energy benefits linked to energy efficiency (2020).

Scope:

**2018:**

The research projects should help to make the Energy Efficiency First principle more concrete and operational and to better understand its relevance for energy demand and supply and its broader impacts across sectors and markets. In particular, it needs to be analysed how energy efficiency programmes along the efficiency chain, i.e. end-use, operation, transmission and generation/utilisation of resources, can compete in reality with supply side investments (e.g. additional generation capacities or import capacities) including at the level of countries and having in mind limited public budgets. It would also be necessary to describe and assess how it interacts with and correlates to other policy objectives, at a policy level as well as at the level of implementation.

Actions which conceptualise and assess the impacts and model the energy efficiency first principle, in particular as regards:

1. its role and value in the energy system (e.g. for planning of generation assets and networks adequacy etc.) and the energy market (participation in capacity market, participation and impact on prices and costs on wholesale and balancing/reserve markets);
2. its role and value in financing decisions (considering as well that in some Member States retail prices do not reflect real costs);
3. its economic and social impacts;
4. its correlation and interaction with other policy objectives (e.g. renewable energy, demand response);
5. existing best practices worldwide where energy efficiency projects are given priority over additional supply side measures.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 million and 1.5 million would allow this specific challenge to be addressed. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

**2019:**

The aim of the action is to deepen the demand side-related parameters in existing models and to include new aspects and data sources (e.g. by tapping DSOs modelling for forecasting of distributed loads). In general, it is to be expected that the introduction of smart meters and smart equipment will lead to more accurate consumption data providing for a more holistic mapping of the demand side and thus for better projections inside energy policy development and a more effective regulatory framework.

The action should complement the existing demand side energy models by developing multiple-agent energy models and/or modelling segments and/or developing methodologies on how to improve and enhance the demand side aspects in modelling.

These models and/or methodologies should:

1. be compatible with the energy models most commonly used at European level;
2. model more accurately those aspects not yet sufficiently considered in the existing models;
3. make use of new data sources, including big data as for example generated by smart meters, smart buildings and smart equipment;
4. identify and refine the structure and patterns of demand and how it will develop;
5. contribute to an enhanced demand-side model to be consistently used at European level.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 million and 2 million would allow this specific challenge to be addressed. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

**2020:**

Action is required to explain the transition of energy efficiency from a "hidden fuel" to the "first fuel" and make the value of the externalities triggered by energy efficiency investments more visible across a variety of areas. The analysis should go beyond the traditional measures of reducing energy demand and greenhouse gas (GHG) emissions; it should include positive and negative externalities relating to other policies such as public health, air quality, impact on ecosystems, etc.

Actions should build upon the existing methodological frameworks and the work already developed in this field in order to:

* create econometric models and other instruments able to quantify and when possible monetise direct and indirect non-energy impacts (both positive and negative) of energy efficiency investments, taking into account all possible challenges (e.g. rebound effect, double counting, etc.);
* provide a simplified and evidence-based tool which can help policy makers at local, regional, national and European level in defining optimised short-term cost-effective policies and measures as well as long-term strategies in the energy domain;
* disseminate the concept to households, businesses and financing institutions in order to increase awareness, information level, and investments in energy efficiency improvements.

The Commission considers that proposals requesting a contribution of between EUR 1 million and 1.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

**2018:**

Actions are expected to support policies aiming to promote and implement the "energy efficiency first-principle" based on a sound assessment of the concept and its impacts. To this end, actions should lead to a better understanding of:

1. all relevant aspects linked to the "energy efficiency first-principle";
2. its impacts (e.g. technical, economic, socio-economic, and ecological etc.) on the relevant sectors and markets;
3. its potential across the different policy areas and sectors;
4. its consideration and valorisation in modelling and assessments; and
5. its interaction with other policy objectives both at policy level (e.g. climate and renewable policies, circular economy) and at the level of concrete application (e.g. design of buildings).

**2019:**

Proposals are expected to demonstrate the impacts listed below, using quantified indicators and targets wherever possible

1. More accurate and holistic mapping and modelling of the demand side and to a better assessment of energy consumption trends for different categories of economic agents.
2. More accurate follow-up of energy efficiency measures implemented at the demand side;
3. Better assessment of demand-side policy needs at European level.

**2020:**

Proposals are expected to demonstrate the impacts listed below, using quantified indicators and targets wherever possible:

* support policies, at all governance levels, aiming to foster investments in Energy Efficiency improvements;
* increase awareness on multiple benefits among policy makers in other-than-energy policy departments e.g. using a simplified language in order to allow their inclusion in future policy developments and monitoring, impact assessments and policy evaluations;
* increased awareness among households, businesses and financing institutions;
* evidenced for example by the number of public officers, private actors and other stakeholders involved and reached out to, number of peer-reviewed articles produced, or references to impact assessments, strategy papers or other policy documents.

Type of Action: Research and Innovation action

LC-SC3-EE-16-2018-2019-2020: Supporting public authorities to implement the Energy Union

Specific Challenge: The delivery of the Energy Union targets requires the full engagement of the public sector at all governance levels.

Local and regional public authorities have a crucial role in setting ambitious energy efficiency strategies, for instance in the framework of the Covenant of Mayors for Climate & Energy and Smart Cities & Communities or the Clean Energy for EU islands initiative. The political commitment at local level should be enhanced and the focus should turn to implementation and effective monitoring of concrete energy efficiency solutions and actions, which can contribute to modernise and decarbonise the European economy. Synergies should be sought, whenever possible, with local and regional air quality plans[[15]](#footnote-15) and air pollution control programmes[[16]](#footnote-16) to reduce costs since these plans rely to a large extent on similar measures and actions[[17]](#footnote-17).

Support should continue and be reinforced in building capacity of public authorities and empowering them to take up their role of energy transition leaders at regional and local level, by permanently improving their skills as public entrepreneurs and supporters of market transformation towards more efficient energy systems.

At national level, the Energy Efficiency Directive[[18]](#footnote-18) has triggered numerous positive developments in the Member States by setting targets to incentivise and enable investment in energy efficiency programmes across all sectors. However, Member States have yet to fully implement the Directive and additional support in building capacity and know-how is needed.

Scope:

**2018-2019:**

a) *Support to local and regional public authorities*

Proposers should aim to focus their proposed action on one of the following points:

1. Deliver higher quality and consistency of energy efficiency measures implemented through enhanced coordination of different administrative levels. Actions should lead to politically approved and jointly applied monitoring and verification schemes of energy efficiency measures across local and regional authorities, enhanced and better coordination of the energy efficiency measures implemented and more efficient use of public spending in energy efficiency;
2. Support public authorities in the development of transition roadmaps that clearly outline the path to the European long-term 2050 targets and inform the ongoing implementation of SEAPs/SECAPs or similar plans and the development of future plans/targets for 2030 and beyond. Actions should link closely to the Covenant of Mayors and/or Smart Cities and Communities initiatives;
3. Innovative ways to enable public engagement in the energy transition, developing interface capacities within public authorities to engage with civil society;
4. Deliver large-scale and action-oriented peer-to-peer learning programmes targeting cities and/or regions, with a strong replication potential European-wide. Proposals should develop transparent, effective and compelling programmes, building on existing initiatives and real needs and ensure embedded conditionalities such as institutionalisation of the skill base and impact monitoring. Programmes should deliver public entrepreneurs able to drive the sustainable energy transition in their respective territories within the Covenant Mayors and beyond.

b) *Supporting the delivery of the Energy Efficiency Directive*

Support will be provided to actions that are assisting Member States to fulfil their obligations under the Energy Efficiency Directive and help with its efficient implementation taking into account existing effective practices and experiences from across Europe. Actions may address, for example, the harmonisation of energy savings calculations under Article 3, implementing Energy Efficiency Obligation Schemes or alternative measures and setting up effective and consistent monitoring and verification systems under Article 7 or the removal of barriers to higher efficiency of the generation, transmission, distribution systems including demand response under Article 15.

Proposals should link into existing, relevant initiatives such as ManagEnergy and target a specific sector with high energy saving potential such as buildings, transport mobility, heating and cooling, or water infrastructure operation etc., as seen relevant by applicants.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 1.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

**2020:**

a) *Support to local and regional public authorities*

The Commission considers it to be equally relevant to address one or more of the following bullet points, as appropriate:

* Enhance decision-making processes of regional and local authorities, to deliver a higher quality, coherence and consistency of energy efficiency measures - and accelerate reaching targets. Actions should foster horizontal and vertical integration of different governance levels, joint application of the energy efficiency measures across local and regional authorities, improved monitoring and verification schemes, and more efficient use of public spending. Proposals should demonstrate political commitment and lead to subsequent institutionalisation of the improved processes in support of the Energy Union Governance Regulation.
* Support public authorities in the development of policy scenarios and transition roadmaps that clearly outline the path to the European long-term 2050 targets and inform the ongoing implementation of SEAPs/SECAPs or similar plans and the development of future plans/targets for 2030 and beyond. Actions should link closely to the Covenant of Mayors initiative and the Energy Union Governance Regulation, where relevant.
* Innovative ways to enable public engagement in the energy transition, developing interface capacities within public authorities to engage with civil society.
* Deliver innovative capacity-building programmes for cities and/or regions to step up their capacity to drive the sustainable energy transition in their respective territories. Proposals should foster a sustained increase in the skill base of public authorities, adapted to their needs and challenges, and support the diffusion of the learning within participating organisations and beyond. The proposed action should include a strategy to replicate results across Europe and a solid impact monitoring.

Proposals should build on existing initiatives such as the Covenant of Mayors[[19]](#footnote-19), ManagEnergy[[20]](#footnote-20) or any other relevant initiative as appropriate.

b) *Supporting the delivery of the Energy Efficiency Directive*

Proposers should focus their proposed action on:

Actions assisting Member States to fulfil their obligations under the Energy Efficiency Directive (EED) and – where relevant to the implementation of the EED – under the Energy Union Governance Regulation. Proposals should support efficient implementation by taking into account existing effective practices and experiences from across Europe. Proposals may address, for example, the harmonisation of energy savings calculations under Article 3, the effective implementation of Article 7 including consistent monitoring and verification systems, higher efficiency of the generation under Article 14 and to transmission or distribution systems under Article 15 or an efficient development and continuous reporting of Integrated National Energy and Climate Plans.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 1.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

**2018-2019:**

Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below, using quantified indicators and targets wherever possible:

1. Primary energy savings, renewable energy production and investments in sustainable energy triggered in the territory of participating parties by the project (respectively in GWh/year and in million Euro);
2. Number of public officers with improved capacity/skills;
3. Number of policies influenced through the action;
4. Number of Member States with improved implementation of Art 7. (Energy Efficiency Obligation schemes or alternative measures) / Energy savings achieved through successfully implemented Energy Efficiency Obligation schemes or alternative policy measures;
5. Number of Members States with improved and consistent monitoring and verification systems for energy savings across governance levels.

**2020:**

Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below, using quantified indicators and targets wherever possible:

* Primary energy savings, renewable energy production and investments in sustainable energy triggered in the territory of participating parties by the project (respectively in GWh/year and in million Euro);
* Number of institutionalised collaborations on the energy transition between public authorities;
* Numbers of stakeholders active in delivering the energy transition;
* Number of public authorities and public officers with improved capacity/skills in delivering the energy transition;
* Number of policies influenced through the action;
* Number of Member States with improved implementation of the EED and linked Energy Union Governance Regulation, clearly attributable to project activities.

Type of Action: Coordination and support action

***The conditions related to this topic are provided at the end of this call and in the General Annexes.***

LC-SC3-EE-18-2019: Bioclimatic approaches for improving energy performance in buildings in Africa and Europe

Specific Challenge: Africa is going through a rapid urbanisation phase and it is anticipated that, by 2030, there will be more people living in urban than rural areas. On the other hand, the housing supply is already far from meeting the highly growing demand in cities and the expectations of home owners, in terms of performance, comfort and health. One of the reasons for this situation is the insufficient use of construction materials and technologies, which are adapted to local climate and economic contexts. Imported materials and technologies, which are not always suitable for local conditions, are replacing the traditional and local building designs, construction techniques and materials. Poor indoor thermal conditions, in particular overheating, and high demand for expansive active cooling, are often the result together with an increased buildings' energy footprint. Use of cheap and low-quality materials to cut down construction costs and lack of knowledge about their performance are other problems related to this issue. There is a need to increase the knowledge about the benefits of using bioclimatic buildings design approaches, local materials, and construction techniques suitable to local contexts.

Scope: Proposals should study the performance of a selection of European and African local bioclimatic building designs, local construction materials and techniques to determine how they could be utilized to increase the energy performance, living quality and sustainability of buildings in targeted geographical zones in Africa and their climatic and socio-economic conditions. Proposals should promote innovations, including bioclimatic approaches, to enable adaptation of local materials and techniques to current building design and construction practices and lifestyles. They should include maximizing passive cooling, passive ventilation, natural light gains and suitability for specific local climate conditions (e.g. stark rains). They should investigate how sustainable supply chains of local materials could be established or improved to cope with fast paces of construction, contributing to the support of local businesses. They should foster exchange and mutual learning between European and African stakeholders (policy-makers, architects, auditors, building sector private companies) for better regulation and implementation of locally adapted bioclimatic construction approaches.

Proposals should include the following activities:

1. Identification and documentation of African and European affordable buildings designs, construction techniques and materials suitable for a selection of local climatic and socio-economic contexts in Africa, based on bioclimatic construction approaches.
2. Exchange activities around the topic of fostering low-cost, high performance, locally adapted bioclimatic construction approaches for African and European policy-makers and on the development of building policies, standards, regulations, certificates and other relevant instruments and support measures in a selection of geographical zones in Africa.

They could also include the organization of one or several study visits to demonstration sites for African policy-makers and other key stakeholder including the construction sector. South-south cooperation is also encouraged.

1. Investigation of the measures (in particular policy ones) that could effectively support the development of sustainable and cost-effective supply chains of local construction materials, in order to enhance their competitiveness and contribute to the growth of local businesses.

The Commission considers that proposals requesting a contribution from the EU of around EUR 1 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: Proposals are expected to demonstrate that they will trigger as many as possible of the impacts listed below:

1. Increased use of affordable, locally-adapted bioclimatic construction approaches in buildings in Africa with high energy performance and increase living comfort;
2. Expected (potential for) energy savings (kWh) in buildings thanks to the improved techniques;
3. Number of documented locally-adapted bioclimatic affordable building design, construction techniques and materials;
4. Number of participating policy-makers and other key stakeholders with increased knowledge;
5. Number of exchange meetings and/or study visits;
6. Number of new legislative, regulatory, standardisation, certification schemes or other support measures launched or under preparation;
7. Investments aiming to develop or deploy affordable, locally-adapted bioclimatic buildings design, construction techniques and materials;
8. Promotion of effective sustainable supply chains of local construction materials;
9. Number of workers with increased related skills in the bioclimatic construction sector.

Type of Action: Coordination and support action

***The conditions related to this topic are provided at the end of this call and in the General Annexes.***

1. *COM (2016) 763* [↑](#footnote-ref-1)
2. *For further information please consult the SETIS website: https://setis.ec.europa.eu/actions-towards-implementing-integrated-set-plan* [↑](#footnote-ref-2)
3. possible synergies with RES-3-2018: Renewable energy system integrated at a building or an industrial site, RES-4-2018: Increased performance of technologies for shallow geothermal heating and cooling solutions and their integration in the energy system, RES-5-2018: Demonstrate significant cost reduction for built-in PV solutions for "(nearly) Zero Energy Buildings” [↑](#footnote-ref-3)
4. Please see the examples of good practice in chapter 3 of the Commission Staff Working Document ‘Good practice in energy efficiency’ (SWD(2016) 404 final) [↑](#footnote-ref-4)
5. http://www.buildup.eu/en/skills [↑](#footnote-ref-5)
6. Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings [↑](#footnote-ref-6)
7. ISO/EN 52000-1, 520003-1, 520010-1, 52016-1, 52017-1, and 52018-1. 52022-1, EN 12098-1, EN 12098-3, EN 12098-5, EN 12831-1, EN 12831-3, EN 15232-1, EN 15316-1 , EN 15316-2, EN 15316-3, EN 15316-4-1, EN 15316-4-2 , EN 15316-4-3 , EN 15316-4-4, EN 15316-4-5, EN 15316-5, EN 15378-1, EN 15378-3, EN 15459-1, EN 15500-1, EN 16798-3, EN 16798-5-1, EN 16798-5-2, EN 16798-7, EN 16798-9, EN 16798-13, EN 16798-15, EN 16798-17, EN 16946-1, EN 16947-1, EN ISO 10077-1, EN ISO 10077-2, EN ISO 10211, EN ISO 12631, EN ISO 13370, EN ISO 13786, EN ISO 13789, EN ISO 14683 and EN ISO 6946, ISO/EN 52017-1 and ISO/EN 52022-1. [↑](#footnote-ref-7)
8. The projects relevant for building energy data gathering and computing will be funded through: 1) large scale IoT pilot DT-ICT-10-2018: Interoperable and smart homes and grids; 2) big data pilot DT-ICT-11-2019: Big data solutions for energy. [↑](#footnote-ref-8)
9. CEN standards (provide ref) and EN ISO 52000-1CEN (provide ref) standard, EN ISO 52000-1. [↑](#footnote-ref-9)
10. https://ec.europa.eu/energy/sites/ener/files/documents/1\_en\_annexe\_autre\_acte\_part1\_v9.pdf [↑](#footnote-ref-10)
11. A successful example of standardisation enabling securitisation is the PACE market in the USA [↑](#footnote-ref-11)
12. https://deep.eefig.eu/ [↑](#footnote-ref-12)
13. Records of all PDA projects can be found in CORDIS under the topics EE-20-2014/2015 and EE22-2016/2017. All fact sheets can also be retrieved directly from: <https://ec.europa.eu/easme/sites/easme-site/files/20160805_mlei_projects-factsheets_final.pdf> [↑](#footnote-ref-13)
14. Communication from the Commission A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy /\* COM/2015/080 final [↑](#footnote-ref-14)
15. Directive 2008/50/EC [↑](#footnote-ref-15)
16. Directive 2016/2284 [↑](#footnote-ref-16)
17. Second State of the Energy Union, page 13. [↑](#footnote-ref-17)
18. To be added [↑](#footnote-ref-18)
19. [www.eumayors.eu](http://www.eumayors.eu) [↑](#footnote-ref-19)
20. www.managenergy.eu [↑](#footnote-ref-20)