

**PRIORITY AXIS 4: Supporting the Shift Towards A Low Carbon Economy In All Sectors**

**2.A.2 Justification for the establishment of a priority axis covering more than one category of region, thematic objective or Fund (where applicable)**

The challenge to move England's economy towards a low carbon model by reducing the levels of Green House Gas (GHG) emissions, increasing the share of renewable energy, and enhancing the energy efficiency of homes, businesses and transport is one which impinges on all territories across the country.

There are differences across England in terms of the amount of energy generated from renewable sources, with a range of 767 GWh and 3,871 GWh in 2012<sup>108</sup> but this does not map neatly against the three category of regions. Instead, it reflects other geographical factors, for example coastal locations, as well as levels of generating capacity (from wind, bio-energy and bio-mass) and investment across England. Likewise, carbon emissions reflect industrial activity and transport use and are highest in the South East and North-West and lowest in the North-East, South West and East Midlands.

Whilst the position is not the same in all areas, the key development needs and opportunities that will be prioritised for European Regional Development Fund are shared across all categories of region: market opportunities in the low carbon goods sector, the need to develop holistic whole-place carbon reduction plans, localised renewable energy/micro generation and scope to develop products and services to improve energy efficiency in domestic and non-domestic buildings and within Small and Medium Sized Enterprises apply across all territories.

Therefore a single Priority Axis for supporting the shift towards a low carbon economy in all sectors will cover all three categories of region: Less Developed, More Developed and Transition. This approach will best ensure a coherent and streamlined approach to tackling the most acute development needs and opportunities across England. The interaction between national strategies, such as the Renewable Energy Roadmap, and local ESIF strategies that draw on knowledge of local conditions and opportunities will ensure that European Regional Development Fund is targeted at specific challenges and potential across different territories at the most appropriate spatial level.

**2.A.4 Investment priority 4a : Promoting the production and distribution of energy derived from renewable sources**

**2.A.5 Specific objectives corresponding to the investment priority and expected results**

---

<sup>108</sup> DECC (2013) Sub national renewable electricity  
<https://www.gov.uk/government/publications/energy-trends-september-2013-special-feature-articles-renewableelectricity-in-scotland-wales-northern-ireland-and-the-regions-of-england-in-2>

**Specific objective:** 4.1 - to increase the number of small scale renewable energy schemes in England

The UK has the 9th lowest share amongst EU countries of low carbon energy in 2011 with the UK's share of supply being around half that of the EU average of 26 per cent. The EU 2020 target is to raise the share of EU energy consumption produced from renewable resources to 20 per cent and in the UK to 15%.

There are three ways of measuring renewable energy across all sectors.

- The amount of electricity generated from renewable sources in England in 2013 was 32,417GWh.<sup>109</sup> Most came from wind or bioenergy. Improvements in these figures are likely to be affected more by big infrastructure projects funded by sources other than ERDF;
- It is also possible to measure installed capacity, and break down the figures to NUTS1 level. The total for 2013 is 11,137.7 MWe. This will capture all types of renewable energy across England, and improvements can be achieved by new sites as well as improving capacity at existing sites. It also allows for supply chain work that will lead to increased capacity. However, this has been included in the common set of output indicators and so cannot be used as a result indicator;
- Finally, the number of sites generating electricity from renewable sources was 394,681 in 2013<sup>110</sup>, but this is heavily distorted by solar photovoltaics, which we would not want to exclude as an activity as there may be parts of the England where this is the most effective way of increasing the generation of renewable energy. We therefore propose two measures; to increase the number of sites, both including and excluding solar photovoltaics. A quantified target will be set only for the number excluding solar photovoltaics, where the impact of ERDF could be more readily distinguished.

To introduce a territorial dimension, activity should take place with the context of a low carbon strategy which will set a benchmark against 2013 data for the local authority areas covered by it. The strategy will be required to show an increase by the end of the programming period. However this will not form part of the result indicator below. Activity under this investment priority will be complementary to, and work alongside, activity under investment priority 4e.

**Table 3: Programme Specific Result Indicators by specific Objective (for European Regional Development Fund)**

ID	Indicator	Measurement unit	Category of region (where relevant)	Baseline value	Baseline year	Target value (2023)	Source of data	Frequency of reporting
4.1	number of sites generating	Number		4031	2013	20-40 additional	DUKES, (DECC)	annual

<sup>109</sup> all figures cited are from DUKES

<sup>110</sup> *Renewable electricity in Scotland, Wales, Northern Ireland and the regions of England in 2013.*  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/357527/Renewable\\_electricity\\_2013.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/357527/Renewable_electricity_2013.pdf)

	electricity from renewable sources (excluding PV)					sites		
--	---	--	--	--	--	-------	--	--

## 2.A.6 Action to be supported under the investment priority

### 2.A.6.1 Description of the type and examples of actions to be supported and their expected contribution to the specific objectives, including, where appropriate, the identification of main target groups, specific territories targeted and types of beneficiaries.

There are limits to the impact that the European Regional Development Fund can make to national renewable energy obligation which will be significantly met through alternative public/private sector investment in renewable energy infrastructure. The European Regional Development Fund is best targeted at approaches which stimulate micro-energy installations, off-grid energy productions, renewable heat networks and ground source and air source heat pumps, in order to address deficits in specific territories as well as development opportunities in places and sectors. However, there is also scope for activity within whole place low carbon plans. Furthermore, support from ERDF can build supply chains or provide small-scale infrastructure necessary to unlock bigger renewable energy projects.

The UK's Renewable Energy Action Plan<sup>111</sup> provides a framework for investment and the type of measures that might be implemented with support from ERDF.

Under this investment priority, indicative actions to be supported by European Regional Development Fund may include:

- Measures to support increased production of renewable fuels and energy, in particular wind energy, solar and biomass;
- Support to build capability and capacity for supply chains in renewable energy;
- Demonstration and deployment of renewable energy technologies;
- Measures to support the wider deployment of renewable heat, including micro-generation, geothermal, renewable heat networks or district heating, ground source and air source heat pumps, and biomass systems with associated heat off-take and heat distribution networks along with recycling processing reprocessing and remanufacturing facilities; and
- Anaerobic digestion plants and other biomass or landfill gas schemes.

### 2.A.6.2 The Guiding principles for the selection of operations

<sup>111</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/47871/25-nat-ren-energy-action-plan.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47871/25-nat-ren-energy-action-plan.pdf)

The Programme Monitoring Committee will approve criteria for the selection of projects that the Managing Authority and (for Sustainable Urban Development) the Intermediate Body will apply to the assessment and appraisal of all applications. As required by the Common Provisions Regulation, the criteria will take into account the general principles of sustainable development and promotion of equality between men and women and non-discrimination.

Operations must take into account the development needs and integrated approach to territorial development set out in the ERDF Operational Programme. Within the context of the Operational Programme and in line with the overarching strategy described in section 1, the specific territorial development needs described in local ESI Funds strategies will be considered in the selection of operations. The Renewable Energy Directives (2003/30/EC and 2009/28 EC) define energy from renewable sources as “energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases”.

Biomass projects, including anaerobic digestion, should take into account sustainability criteria, including the emission of air pollutants. This means in particular that:

- Biomass fuel should meet a lifecycle greenhouse gas (GHG) emissions target of 34.8g CO<sub>2</sub> equivalent per MJ of heat, or 60% GHG savings against the EU fossil fuel average;
- Biomass fuel should meet land criteria, which will differ for different types of biomass:
  - For woodfuel: the criteria are outlined in the UK Timber Standard for Heat and Electricity:  
<https://www.gov.uk/government/publications/timber-standard-for-heat-electricity>
  - For other types of biomass: land criteria will correspond to the Renewable Energy Directive (RED) for transport biofuels and bioliquids. Energy crops which have been assessed as meeting the requirements of the Energy Crops Scheme or equivalent will be deemed to meet land criteria.

Any use of biomass for the generation of energy should be accompanied by emissions standards and abatement measures, especially for particular matters.

The Government’s Renewable Energy Roadmap, published in 2011, provides an overarching framework for investments.

In selecting operations, account should be taken of whether projects are already generating and therefore receiving feed-in tariffs or other forms of revenue

London’s integrated territorial investment will draw from this Priority Axis. As the Greater London Authority will be designated as an intermediate body, it will have

responsibility for the selection of operations. In exercising this responsibility in respect of operations under this priority axis, it will take account of the guiding principles set out above and its Sustainable Urban Development Strategy, as well as the project selection criteria agreed by the Programme Monitoring Committee.

The sustainable urban development strategies to be prepared by the Core City Regions are also likely to propose integrated actions that draw from this priority axis. They too will have responsibility for tasks relating to the selection of operations, as part of the implementation in the UK of Article 7 of the ERDF Regulation. In exercising this responsibility in respect of operations under this Priority Axis, it will take account of the guiding principles set out above and its Sustainable Urban Development Strategy, as well as the project selection criteria agreed by the Programme Monitoring Committee.

The integrated territorial investment for Cornwall and the Isles of Scilly will include the allocation for this Priority Axis in respect of the less developed category of region, together with the corresponding targets in the performance framework.

### 2.A.6.3 Planned use of financial instruments (where appropriate)

Financial instruments may be used to support activity under this investment priority, subject to the outcome of an ex ante assessment. These will also draw from experiences gained in the implementation of financial instruments under the 2007-2013 programmes.

### 2.A.6.4 Planned use of major projects (where appropriate)

No major projects are planned.

### 2.A.6.5 Output indicators by investment priority and, where appropriate by category of region

**Table 5: Common and Programme-specific output indicators (by investment priority, broken down by category of region for the ESF and where relevant for the European Regional Development Fund)**

ID	Indicator	Measurement Unit	Fund	Category of region (where relevant)	Target value			Source of data	Frequency of reporting
					M	W	T		
C1	Number of enterprises receiving support	Enterprises	European Regional Development Fund			1011	Monitoring data	Quarterly	
C5	Number of new enterprises supported	Enterprises	European Regional Development Fund			220	Monitoring data	Quarterly	
C30	Additional capacity of renewable energy	MW	European Regional Development Fund			130	Monitoring data	Annual	

	production								
C34	Estimated annual decrease of GHG	Tonnes of CO <sub>2</sub> eq	European Regional Development Fund				80759	Monitoring data	Annual

**2.A.4 Investment priority 4b: Promoting energy efficiency and renewable energy use in enterprises**

**2.A.5 Specific objectives corresponding to the investment priority and expected results (Article 96 (2) (b) (i)-(ii))**

**Specific objective: 4.2** Increase energy efficiency in particular in SMEs, including through the implementation of low carbon technologies

Energy intensity (energy use per unit of value added) has declined by 31.8 per cent between 2011 and 1997. If however UK emissions targets are to be met energy efficiency will need to increase across all sectors. There is a potential for growth in this area to increase non-domestic energy efficiency in England, especially in promoting socially cost-effective investment in energy efficiency, where there is the potential to save 196 TWh in 2020, equivalent to 22 power stations. If this was realised, final energy consumption in 2020 would be 11% lower than current levels.

Generally, companies lack consistent and effective energy efficiency plans and understanding of appropriate measures and energy savings. Small and Medium Sized Enterprises are particularly adversely affected in this respect and are either unaware of resource efficiency technologies or business processes or lack the know-how about approaches to adopt and embed new methods.

This presents an opportunity to use the European Regional Development Fund to support improvements in the energy efficiency of companies, including the buildings they use.

The indicator proposed is to reduce the percentage of SMEs that have no methods to measure energy efficiency. This would be based on a survey by the power company, npower.<sup>112</sup> One consequence of ERDF investment in the actions set down in the priority axis would be that there would need to be a way of measuring the impact.

**Table 3: Programme Specific Result Indicators by specific Objective (for European Regional Development Fund) (Article 96.2(b)(ii))**

ID	Indicator	Measurement unit	Category of region (where)	Baseline value	Baseline year	Target value	Source of data	Frequency of reporting
----	-----------	------------------	----------------------------	----------------	---------------	--------------	----------------	------------------------

<sup>112</sup> [http://www.npower.com/idc/groups/wcms\\_content/@wcms/@busi/documents/digitalassets/nbei8pdf.pdf](http://www.npower.com/idc/groups/wcms_content/@wcms/@busi/documents/digitalassets/nbei8pdf.pdf)

			relevant)			(2023)		
4.2	SMEs that have no methods to measure energy efficiency	percentage		23	2013	0	nPower	annual

## 2.A.6 Action to be supported under the investment priority

### 2.A.6.1 Description of the type and examples of actions to be supported and their expected contribution to the specific objectives, including , where appropriate, the identification of main target groups, specific territories targeted and types of beneficiaries.

The main target group is SMEs.

Under this investment priority indicative actions to be supported by European Regional Development Fund may include:

- Enhanced advice, support, information and action to promote innovation in businesses and how they operate, in order to deliver best practice in energy management. This will include innovation in energy efficiency and energy cost reduction to improve businesses' competitiveness and resilience;
- Support to businesses to undertake 'green' diagnostics or audits of energy efficiency and potential for renewable generation and energy use, which will be followed by provision of energy efficiency information and guidance, tailored energy action plans and of support to implement them;
- Investing in energy efficiency measures, processes and renewable generation capacity to improve a business' or building's environmental performance or its resilience to the impacts of climate change;
- Investing in measures to stimulate cost-effective deep renovations of buildings, including staged deep renovations;
- Supporting an increase in energy efficiency in enterprises including an emphasis on "whole place" especially through improving industrial processes, designing out waste, recovery of "waste" heat energy and CHP;
- Supporting increased SME access to national and local government procured contracts for energy efficient goods and services;
- Developing low carbon innovation in relation to energy efficiency within enterprises, including through technologies and engagement practices;
- Building retrofit and energy efficiency measures, especially whole building solutions to exemplify, and support the commercialisation of, next phase

technologies which are near to market and low carbon construction techniques to improve the energy efficiency of buildings.

### **2.A.6.2 Guiding principles for the selection of operations**

The Programme Monitoring Committee will approve criteria for the selection of projects that the Managing Authority and (for Sustainable Urban Development) the Intermediate Body will apply to the assessment and appraisal of all applications. As required by the Common Provisions Regulation, the criteria will take into account the general principles of sustainable development and promotion of equality between men and women and non-discrimination.

Operations must take into account the development needs and integrated approach to territorial development set out in the ERDF Operational Programme. Within the context of the Operational Programme and in line with the overarching strategy described in section 1, the specific territorial development needs described in local ESI Funds strategies will be considered in the selection of operations. London's integrated territorial investment will draw from this priority axis.

As the Greater London Authority will be designated as an intermediate body, it will have responsibility for the selection of operations. In exercising this responsibility in respect of operations under this Priority Axis, it will take account of the guiding principles set out above and its Sustainable Urban Development Strategy, as well as the project selection criteria agreed by the Programme Monitoring Committee.

The sustainable urban development strategies to be prepared by the Core City Regions are also likely to propose integrated actions that draw from this priority axis. They too will have responsibility for tasks relating to the selection of operations, as part of the implementation in the UK of Article 7 of the ERDF Regulation. In exercising this responsibility in respect of operations under this Priority Axis, it will take account of the guiding principles set out above and its Sustainable Urban Development Strategy, as well as the project selection criteria agreed by the Programme Monitoring Committee.

The integrated territorial investment for Cornwall and the Isles of Scilly will include the allocation for this Priority Axis in respect of the less developed category of region, together with the corresponding targets in the performance framework.

### **2.A.6.3 Planned use of financial instruments (where appropriate)**

Subject to the evidence of need being ascertained through an ex ante assessment, there will be a strong focus on use of financial instruments to support this investment priority, although grants will still necessarily play a role where there is no market incentive for energy efficiency measures.

The Managing Authority will draw on the experience gained in the implementation of financial instruments under the 2007-2013 Programme. Investments may target the creation/refurbishment of urban infrastructure through urban regeneration and low carbon projects.

**2.A.6.4 Planned use of major projects (where appropriate)** No major projects are planned

**2.A.6.5 Output indicators by investment priority and, where appropriate by category of region)**

**Table 5: Common and Programme-specific output indicators (by investment priority, broken down by category of region for the European Social Fund and where relevant for the European Regional Development Fund)**

ID	Indicator	Measurement Unit	Fund	Category of region (where relevant)	Target value			Source of data	Frequency of reporting
					M	W	T		
C1	Number of enterprises receiving support	Enterprises	European Regional Development Fund			12106	Monitoring data		
C34	Estimated GHG reductions	Tonnes of CO <sub>2</sub> eq	European Regional Development Fund			66075	Monitoring data		

**2.A.4 Investment priority 4c** : Supporting energy efficiency, smart energy management and renewable energy use in public infrastructure, including in public buildings, and in the housing sector

**2.A.5 Specific objectives corresponding to the investment priority and expected results**

**Specific objective:** 4.3 Increase energy efficiency in homes and public buildings, including through the implementation of low carbon technologies

There is a potential for growth in this area to increase energy efficiency in households in England, especially in growing household investment in heat saving measures.

According to the English Housing Survey in 2012, 34% of dwellings had 200mm or more of loft insulation, up from just 3% of dwellings in 1996. Over the same period, the proportion of homes with cavity wall insulation increased from 14% to 40% and the proportion of homes with full double glazing increased from 30% to 79%. A range of measures to improve these kinds of conventional domestic insulation are in place, through national initiatives. Where European Regional Development Fund can make a particular difference is in innovation-based technologies, and demonstrator activities to develop radical, ultra-efficient energy efficiency. These will also stimulate economic growth in business activity, particularly through Small and Medium Sized Enterprise supply chains.

The chosen result indicator is Domestic energy consumption per household. The target will be to seek a reduction in this. The contribution of ERDF will be assessed through evaluation.

**Table 3: Programme Specific Result Indicators by specific Objective (for European Regional Development Fund)**

ID	Indicator	Measurement unit	Category of region (where relevant)	Baseline value	Baseline year	Target value (2023)	Source of data	Frequency of reporting
4.4	Index of Domestic energy consumption per household (1990 =100)	Number		91	2012	average reduction of 2% each year, taking account of service demand	DECC Energy Efficiency Statistical Summary	annual

## 2.A.6 Action to be supported under the investment priority

### 2.A.6.1 Description of the type and examples of actions to be supported and their expected contribution to the specific objectives, including, where appropriate, the identification of main target groups, specific territories targeted and types of beneficiaries.

Under this investment priority indicative actions to be supported by European Regional Development Fund may include:

- Provision of advice and support to increase the use and take up of low carbon technologies, energy efficiency measures, renewable energy technologies and smart energy systems in housing stock and public buildings;
- Supporting low carbon innovation in relation to the integrated ‘whole place’ energy management approach including energy waste and re-use;
- Investing in building retrofit, energy efficiency measures, renewable and smart energy systems deployment, especially whole building or place solutions exemplifying next phase technologies which are near to market;
- Investing in domestic energy efficiency, renewable energy and smart construction techniques;
- Investment in the development and wider use of Energy Performance Contracting in the public buildings and housing sectors.

### 2.A.6.2 Guiding principles for the selection of operations

The Programme Monitoring Committee will approve criteria for the selection of projects that the Managing Authority and (for Sustainable Urban Development) the Intermediate Body will apply to the assessment and appraisal of all applications. As required by the Common Provisions Regulation, the criteria will take into account the

general principles of sustainable development and promotion of equality between men and women and non-discrimination.

Operations must take into account the development needs and integrated approach to territorial development set out in the ERDF Operational Programme. Within the context of the Operational Programme and in line with the overarching strategy described in section 1, the specific territorial development needs described in local ESI Funds strategies will be considered in the selection of operations.

All types of housing will be covered, but the focus will mainly be on social housing and on areas where other publicly funded schemes are not addressing the need. For public buildings, the expectation is that financial instruments will be the main delivery mechanism but it is recognised that in some instances, grant-based support may be more appropriate, for example where the activity is the provision of advice and support.

London's integrated territorial investment will draw from this Priority Axis. As the Greater London Authority will be designated as an intermediate body, it will have responsibility for the selection of operations. In exercising this responsibility in respect of operations under this priority axis, it will take account of the guiding principles set out above and its Sustainable Urban Development Strategy, as well as the project selection criteria agreed by the Programme Monitoring Committee.

The sustainable urban development strategies to be prepared by the Core City Regions are also likely to propose integrated actions that draw from this Priority Axis. They too will have responsibility for the selection of operations, as part of the implementation in the UK of Article 7 of the ERDF Regulation. In exercising this responsibility in respect of operations under this Priority Axis, it will take account of the guiding principles set out above and its Sustainable Urban Development Strategy, as well as the project selection criteria agreed by the Programme Monitoring Committee.

The integrated territorial investment for Cornwall and the Isles of Scilly will include the allocation for this priority axis in respect of the less developed category of region, together with the corresponding targets in the performance framework.

### **2.A.6.3 Planned use of financial instruments (where appropriate)**

Subject to the completion of an ex ante assessment, in accordance with Article 37 of the Common Provisions Regulation, financial instruments may be used to help deliver this Investment Priority.

The Managing Authority will draw on the experience gained in the implementation of financial instruments under the 2007-2013 programmes. Investments may target the creation/refurbishment of public buildings as part of urban regeneration and low carbon projects, and improve their energy efficiency.

The Managing Authority will also explore options how financial instruments could support energy conservation and generation in existing social housing, subject to the outcome of the ex ante assessment.

## 2.A.2.4 Planned use of major projects (where appropriate)

No major projects are planned

## 2.A.2.5 Output indicators by investment priority and, where appropriate by category of region

**Table 5: Common and Programme-specific output indicators (by investment priority, broken down by category of region for the European Social Fund and where relevant for the European Regional Development Fund)**

ID	Indicator	Measurement Unit	Fund	Category of region (where relevant)	Target value			Source of data	Frequency of reporting
					M	W	T		
C31	Number of households with improved energy consumption	Households	European Regional Development Fund			5747	Monitoring data	Annual	
C32	Decrease of annual primary energy consumption of public buildings	KWh/year	European Regional Development Fund			5,547,224	Monitoring data	Annual	
C34	Estimated GHG reductions	tonnes of CO <sub>2</sub> eq	European Regional Development Fund			91771	Monitoring data	Annual	

**2.A.4 Investment priority 4e** : Promoting low-carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures

## 2.A.5 Specific objectives corresponding to the investment priority and expected results

**Specific objective:** 4.4 Increase implementation of whole place low carbon solutions and decentralised energy measures.

This investment priority and specific objective recognises that the implementation of low carbon solutions leading to reductions in GHG emissions is best done holistically as part of integrated strategies. The investment priority specifically refers to sustainable multimodal urban mobility but the approach is equally applicable to low carbon transport plans in other types of territory. But transport cannot be looked at in isolation. Urban design, distributed energy, smart grids and other activity also need to be considered within a single, coordinated approach within a specific territory.

There will be one result indicator:

- Reduction in carbon emissions in areas with low carbon strategies.

The low carbon strategy should set a benchmark against 2011 data for the local authority areas covered by it. The strategy will be required to show a reduction by the end of the programming period. The benchmark for the specific objective will therefore be the total derived from all low carbon plans when prepared. A key implementation step will be the development of such strategies.

Activity under this investment priority will be complementary to, and work alongside, activity under investment priority 4(a).

**Table 3: Programme Specific Result Indicators by specific Objective (for European Regional Development Fund) (Article 96.2(b)(ii))**

ID	Indicator	Measurement unit	Category of region (where relevant)	Baseline value	Baseline year	Target value (2023)	Source of data	Frequency of reporting
4.5	Reduction in carbon emissions in areas with low carbon strategies	Tonnes		To be established in each low carbon strategy	2012	decrease	DECC local authority and regional carbon dioxide national statistics	Annual

## 2.A.6 Action to be supported under the investment priority

### 2.A.6.1 Description of the type and examples of actions to be supported and their expected contribution to the specific objectives, including, where appropriate, the identification of main target groups, specific territories targeted and types of beneficiaries.

Activity under this investment priority is based on a holistic approach to the reduction of GHG emissions, ensuring that actions are integrated within the framework of an overarching strategy or strategies. This includes the development of “whole place” low carbon initiatives through approaches such as smart cities and communities that include low carbon transport infrastructure, energy efficiency, low carbon energy supply and smart meter/smart grid programmes and related ICT platforms, technologies and applications. Where the purpose is to reduce whole place energy requirements or carbon emissions, green and blue infrastructure and other climate change mitigation or adaptation activities are important components.

In order to promote such strategies, examples of actions to be supported by European Regional Development Fund may include:

- investments in local/regional smart grid demonstration projects, including validation and solving system integration issues;

- sustainable energy action plans for urban areas, including public lighting systems, smart metering and distribution through smart grids;
- Investments in combined heat and power from renewable sources;
- Investments to encourage the adoption of renewable technologies.

A strategic approach is particularly important in the area of low carbon transport, whether for sustainable urban mobility, or improving links between urban and rural areas, or connecting dispersed rural communities. Examples of actions include:

- investments in actions aimed at improving the capacity at local level to develop and implement integrated and sustainable transport strategies and plans (including for example actions related to modelling data collection, integrated transport management, operations and services, public consultation etc) to reduce transport related air pollution, in particular retrofit or replacement programmes for bus fleets, incentive schemes for cleaner transport, improved public transport infrastructure and alternative forms of transport;
- investments in actions aimed at introducing innovative environmentally-friendly and low-carbon technologies (for example, alternative fuel stations or charging points);
- investments in actions aimed at developing innovative and multi-modal transport services (for example, intelligent transport systems for travel information and planning, traffic and demand management, smart ticketing, multimodal integrated datasets or cooperative systems);
- innovative transport pricing and user charging systems;
- cycle paths, walkways and waterways only where part of an integrated approach to GHG reductions.

#### **2.A.6.2 Guiding principles for the selection of operations**

The investment priority requires a low carbon strategy within which actions can be framed. This low carbon strategy can be developed specifically for the Programme but if there is one already within local areas that provides a satisfactory framework for investment in the eyes of the Managing Authority, that might be sufficient.

Investment in low carbon transport or sustainable urban mobility should focus on reducing GHG emissions, although they have other significant economic and environmental benefits as well. Investments shall be prioritised according to their contribution to mobility, sustainability and to reducing greenhouse gas emissions.

Investments related to low carbon transport or sustainable urban mobility should be consistent with local transport strategies. For urban areas, actions should contribute to the development and/or implementation of sustainable urban mobility plans where appropriate, in line with the concept set out in COM (2013)913.

Actions should where possible support the deployment of innovative technologies and novel approaches and/or strengthen the capacity of relevant local actors to deliver integrated and sustainable local and urban transport strategies.

Projects will need to demonstrate clearly how they would contribute to the relevant low carbon strategy. They should, where possible, be part of an integrated approach to reducing GHG emissions.

Actions should also contribute to air quality plans, where appropriate, in line with the Ambient Air Quality Directive (2008/50/EC) and the Gothenburg Protocol.

Actions should be consistent with noise abatement plans where required under the Environmental Noise Directive (2002/49/EC).

Investments in cycle paths and walkways can be accepted only as part of an integrated approach to ensure low carbon transport and sustainable multi-modality and will not be recreational, isolated investments.

The Programme Monitoring Committee will approve criteria for the selection of projects that the Managing Authority and (for Sustainable Urban Development) the Intermediate Body will apply to the assessment and appraisal of all applications. As required by the Common Provisions Regulation, the criteria will take into account the general principles of sustainable development and promotion of equality between men and women and non-discrimination.

Operations must take into account the development needs and integrated approach to territorial development set out in the ERDF Operational Programme. Within the context of the Operational Programme and in line with the overarching strategy described in section 1, the specific territorial development needs described in local ESI Funds strategies will be considered in the selection of operations.

All applicable law should be complied with. Any public support under this Programme must comply with the procedural and material State aid rules applicable at the point of time when the public support is granted.

London's integrated territorial investment will draw from this Priority Axis. As the Greater London Authority will be designated as an intermediate body, it will have responsibility for the selection of operations. In exercising this responsibility in respect of operations under this Priority Axis, it will take account of the guiding principles set out above and its Sustainable Urban Development Strategy, as well as the project selection criteria agreed by the Programme Monitoring Committee.

The sustainable urban development strategies to be prepared by the Core City Regions are also likely to propose integrated actions that draw from this Priority Axis. They too will have responsibility for tasks relating to the selection of operations, as part of the implementation in the UK of Article 7 of the ERDF Regulation. In exercising this responsibility in respect of operations under this Priority Axis, it will take account of the guiding principles set out above and its Sustainable Urban Development Strategy, as well as the project selection criteria agreed by the Programme Monitoring Committee.

The integrated territorial investment for Cornwall and the Isles of Scilly will include the allocation for this Priority Axis in respect of the less developed category of region, together with the corresponding targets in the performance framework.

### 2.A.6.3 The Planned use of financial instruments (where appropriate)

Subject to the completion of an ex ante assessment, in accordance with Article 37 of the Common Provisions Regulation, the Managing Authority will look to use financial instruments to help deliver this investment priority. These will build on the experience gained in the implementation of financial instruments under the 2007-2013 programmes. Investments may target the creation/refurbishment of urban infrastructure through urban regeneration and low carbon projects.

### 2.A.6.4 Planned use of major projects (where appropriate)

No major projects are planned

### 2.A.6.5 Output indicators by investment priority and, where appropriate by category of region

**Table 5: Common and Programme-specific output indicators (by investment priority, broken down by category of region for the European Social Fund and where relevant for the European Regional Development Fund)**

ID	Indicator	Measurement Unit	Fund	Category of region (where relevant)	Target value			Source of data	Frequency of reporting
					M	W	T		
C1	Number of enterprises receiving support	Enterprises	European Regional Development Fund			9922	Monitoring data	Quarterly	
C34	Estimated GHG reductions	Tonnes of CO <sub>2</sub> eq	European Regional Development Fund			91771	Monitoring data	Annual	

**2.A.4 Investment priority 4f** : Promoting research and innovation in, and adoption of, low-carbon technologies

### 2.A.5 Specific objectives corresponding to the investment priority and expected results

**Specific objective:** 4.5 Increase innovation in, and adoption of, low carbon technologies

The UK and England are currently making good progress in tackling the level of greenhouse gases, and against the Europe 2020 targets

The Climate Change Act has established a legally binding target to reduce the UK's greenhouse gas emissions by at least 80 per cent below base year levels by 2050. Greenhouse gas emissions in England are currently 28% lower than in 1990.<sup>113</sup>

Large scale investments will play an important role in the obligation to develop further renewable energy capacity to assist in meeting the United Kingdom GHG emissions target. However, to meet the challenging targets, there is also need for a lot of small scale investments, particularly in heat and certainly in transport. Therefore the focus of the European Regional Development Fund will be on small scale projects with a low carbon innovation bias.

The result sought will be similar to the one sought under priority axis 1, which also focused on research and innovation, except here the focus will be on low carbon technologies and the SMEs who develop and commercialise them. The result indicator will be to increase the number of firms in low carbon sectors who are innovation active.

In order to set the baseline, and recognising the shortcomings of existing SIC classifications, we will identify the firms in the 2013 survey who were in the gas and energy sectors. The indicator fell between the 2011 and 2013 surveys so the target is to reverse this and show an increase. From 2017, we propose to add specific questions to the UK innovation survey to provide more clarity on innovative firms in the low carbon sector.

**Table 3: Programme Specific Result Indicators by specific Objective (for European Regional Development Fund)**

ID	Indicator	Measurement unit	Category of region (where relevant)	Baseline value	Baseline year	Target value (2023)	Source of data	Frequency of reporting
4.6	Increase the percentage of firms in low carbon sectors who are innovation active.	percentage		41.5	2013	increase	UK Innovation survey	Biennial

## 2.A.6 Action to be supported under the investment priority

**2.A.6.1 Description of the type and examples of actions to be supported and their expected contribution to the specific objectives, including, where appropriate, the identification of main target groups, specific territories targeted and types of beneficiaries.**

<sup>113</sup> Source: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/318096/da\\_ghgi\\_1990\\_2012\\_report.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/318096/da_ghgi_1990_2012_report.pdf)

Under this investment priority indicative actions to be supported by European Regional Development Fund may include:

- R&D, innovation and supply chain work for low carbon technologies and materials, including, wave and wind energy, smart grids, distributed generation, solar and photovoltaics, heat networks, heat pumps and low carbon heat for energy intensive industries;
- Research underpinning carbon capture and storage, taking account of the restrictions laid down in Article 3.3.b of the ERDF Regulation;<sup>114</sup>
- Technology centres of excellence and test facilities, including relevant Catapult centres;
- Renewable technologies in the UK renewable energy roadmap;
- Research, development, demonstration and adoption of technologies and systems that support low-energy transport and accelerate the establishment of new technologies such as low emissions vehicles (electric, hybrid and hydrogen);
- Knowledge transfer with Higher Education/Further Education institutions and Businesses;
- Supporting low carbon tech start-ups and greater commercialisation of low carbon products and processes;
- Developing financing methods that encourage the adoption of proven low carbon technologies and generate long-term financial savings;
- Demonstration and deployment of decentralised renewable energy technologies;
- Research, development and innovation and supply chain development for low carbon and resource efficient technologies and materials (including small scale pilot programmes that test the market with new low carbon solutions and the use of secondary materials).

#### **2.A.6.2 The Guiding principles for the selection of operations**

The Programme Monitoring Committee will approve criteria for the selection of projects that the Managing Authority and (for Sustainable Urban Development) the Intermediate Body will apply to the assessment and appraisal of all applications. As required by the Common Provisions Regulation, the criteria will take into account the general principles of sustainable development and promotion of equality between men and women and non-discrimination.

Operations must take into account the development needs and integrated approach to territorial development set out in the ERDF Operational Programme. Within the

---

<sup>114</sup> Regulation (EU) No 1304/2013

context of the Operational Programme and in line with the overarching strategy described in section 1, the specific territorial development needs described in local ESI Funds strategies will be considered in the selection of operations.

Investments in research, development and innovation in low carbon goods and services will be consistent with “Smart Specialisation in England”, the national smart specialisation strategic framework submitted to the European Commission, and with local ESIF strategies which have embedded the principles of smart specialisation within them. They should also have regard to the strategic framework produced by the Low Carbon Innovation Coordination Group. The LCICG engages with and supports the delivery of the EU’s Strategic Energy Technologies Plan and contributes to the development of the EU Integrated Roadmap and Action Plan for energy technology development.

All applicable law should be complied with. Any public support under this Programme must comply with the procedural and material State aid rules applicable at the point of time when the public support is granted.

London’s integrated territorial investment will draw from this Priority Axis. As the Greater London Authority will be designated as an intermediate body, it will have responsibility for the selection of operations. In exercising this responsibility in respect of operations under this Priority Axis, it will take account of the guiding principles set out above and its Sustainable Urban Development Strategy, as well as the project selection criteria agreed by the Programme Monitoring Committee.

The sustainable urban development strategies to be prepared by the Core City Regions are also likely to propose integrated actions that draw from this Priority Axis. They too will have responsibility for the selection of operations, as part of the implementation in the UK of Article 7 of the ERDF Regulation. In exercising this responsibility in respect of operations under this Priority Axis, it will take account of the guiding principles set out above and its Sustainable Urban Development Strategy, as well as the project selection criteria agreed by the Programme Monitoring Committee.

The integrated territorial investment for Cornwall and the Isles of Scilly will include the allocation for this priority axis in respect of the less developed category of region, together with the corresponding targets in the performance framework.

### **2.A.6.3 Planned use of financial instruments (where appropriate)**

Subject to the completion of an ex ante assessment in accordance with Article 37 of the Common Provisions Regulation, financial instruments will be used to help deliver this investment priority.

To improve access to Finance for start-ups and SMEs in the low carbon technology sector, the Managing Authority will look to draw on experiences in the implementation of financial instruments during 2007-13 programmes to provide equity, loan, mixed investment and guarantees (where appropriate) to Small and Medium sized Enterprises. Investments may also target the creation/refurbishment of urban infrastructure through urban regeneration, which may include capital for low carbon projects and research and development facilities.

## 2.A.6.4 Planned use of major projects (where appropriate)

No major projects are planned

## 2.A.6.5 Output indicators by investment priority and, where appropriate by category of region

**Table 5: Common and Programme-specific output indicators (by investment priority, broken down by category of region for the European Social Fund and where relevant for the European Regional Development Fund)**

ID	Indicator	Measurement Unit	Fund	Category of region (where relevant)	Target value			Source of data	Frequency of reporting
					M	W	T		
C1	Number of enterprises receiving support	Enterprises	European Regional Development Fund			2433	Monitoring data	Quarterly	
C5	Number of new enterprises supported	Enterprises	European Regional Development Fund			486	Monitoring data	Quarterly	
C26	Number of enterprises cooperating with research institutions	Enterprises	European Regional Development Fund			236	Monitoring data	Annual	
C29	number of enterprises supported to introduce new to the firm products	Enterprises	European Regional Development Fund			389	Monitoring data	Annual	
C34	Estimated GHG reductions	Tonnes of CO <sub>2</sub> eq	European Regional Development Fund			36709	Monitoring data	Annual	

## 2.A.8 Performance framework (Article 96 (2) (b) (v))

**Table 6: The Performance framework of the priority axis (by fund and by category of regions where appropriate)**

ID	Indicator Type	Indicator or key implementation step	Measurement unit	Fund	Category of region	Milestone for 2018			Final target (2023)			Source of data	Explanation of relevance of indicator where appropriate
						M	W	T	M	W	T		
C34	Output	Estimated GHG reductions	tonnes of CO <sub>2</sub> eq		less						17700	Monitoring data	This indicator covers activity under all investment priorities
C34	Output	Estimated GHG reductions	tonnes of CO <sub>2</sub> eq		transition						92590	Monitoring data	This indicator covers activity under all investment priorities
C34	Output	Estimated GHG reductions	tonnes of CO <sub>2</sub> eq		more						256796	Monitoring data	This indicator covers activity under all investment priorities
1	Implementation	Number of enterprises supported from completed or partially completed	Enterprises		Less			74					Evidence from the 2007-13 programmes suggests there will be too few, if any, completed

		operations											operations by 2018 to set a reasonable milestone. This implementation step will measure outputs actually delivered rather than merely contracted. This implementation step is linked to 4 of the five investment priorities under PA4.
1	Implementation	Number of enterprises supported from completed or partially completed operations	Enterprises		Transition			1008					Evidence from the 2007-13 programmes suggests there will be too few, if any, completed operations by 2018 to set a reasonable milestone. This implementation step will measure outputs actually delivered rather than merely contracted. This implementation step is linked to 4 of the five investment priorities under

												PA4.	
1	Implementation	Number of enterprises supported from completed or partially completed operations	Enterprises		More			2769				Evidence from the 2007-13 programmes suggests there will be too few, if any, completed operations by 2018 to set a reasonable milestone. This implementation step will measure outputs actually delivered rather than merely contracted. This implementation step is linked to 4 of the five investment priorities under PA4.	
Financial	F1	Expenditure	Euros	European Regional Development Fund	Less			18484326			72373569	Monitoring data	The milestone for 2018 and target for 2023 relate to the total eligible expenditure entered into the accounting system of the certifying authority and certified by that authority

Financial	F1	Expenditure	Euros	European Regional Development Fund	Transition			96695486			378601700	Monitoring data	The milestone for 2018 and target for 2023 relate to the total eligible expenditure entered into the accounting system of the certifying authority and certified by that authority
Financial	F1	Expenditure	Euros	European Regional Development Fund	More			268181604			1050038788	Monitoring data	The milestone for 2018 and target for 2023 relate to the total eligible expenditure entered into the accounting system of the certifying authority and certified by that authority

**Additional qualitative information on the establishment of the performance framework**

Targets have been developed drawing on information provided in the ESIF strategies prepared by Local Enterprise Partnership territories and on historic data of performance and lessons learnt in the 2007-13 operational programmes for England.