

INTERREG IVC analysis report



Renewable energy

October 2014

Credits

Experts for thematic capitalisation on renewable energy:

This study was performed by the experts of Greenovate! Europe EEIG for GEIE GECOTTI (Groupement Européen pour la coopération Transfrontalière Transnationale et Interrégionale)



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"The contents of this work reflect the views of the author(s) and do not necessarily represent the position of the INTERREG IVC programme. The authors are entirely responsible for the facts and accuracy of the data presented."

Foreword: Capitalising on achievements

Over the last seven years, with the goal of improving regional policies, more than 2 000 public institutions across Europe have been learning from each other through cooperative policy learning in 204 interregional projects supported by the INTERREG IVC territorial cooperation programme.

The programme can now point to hundreds of examples of how a region or city has built on the experiences of their counterparts elsewhere to enhance their own policy and delivery strategies.

A few examples:

- o inspired by the approaches taken by the Welsh ECO Centre and an Educational Centre in the Dutch city of Sittard-Geleen, the Hungarian city of Vecsés developed educational activities on renewable energy and sustainability for its school children;
- o after consulting the Spanish city of Paterna, the Latvian Daugavpils City Council was able to successfully modernise its soviet-era industrial parks, giving a major boost to business development;
- o after consulting the Cypriot authorities, the Greek Region of Crete invested in water recycling and re-use schemes, applying the Cypriot models.

The policy learning enabled by the INTERREG IVC Programme is not just a paper exercise: it has helped, through 204 projects, almost 6 000 staff involved in regional policy to acquire new skills and capabilities, and it has led directly to the improvement of more than 400 policies. The programme was therefore determined to go a step further and share its tremendous wealth of policy experience and know-how even more widely.

The programme therefore asked 12 teams of experts covering 12 different fields of policy to analyse the achievements of its projects and to report back on 'what works'. This report, which focuses on **Renewable energy**, is the fruit of their work. It **showcases a selection of tried-and-tested renewable energy policies and practices** that have been shared through the INTERREG IVC programme, and which will be of interest to all EU regions. Policymakers and practitioners interested in this topic – whether working on regional, national or European scales – will also find policy recommendations tailored to them.

Cooperative policy learning makes sense. It makes sense because, in an era of tight budgetary constraints, local and regional authorities are seeking best value for money, and robust evidence can enhance the chances of policy success by eliminating the risks and costs of trial and error.

To take forward the programme's key strategic task of sharing policy know-how, the new programme for 2014-2020, INTERREG EUROPE, is developing 'Policy Learning Platforms' which will stimulate a process of continuous policy learning among all interested regional policy stakeholders around Europe.



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Executive Summary

Renewable energy sources (RES) are capable of providing solutions to all of the energy challenges that we face as a society, meeting our needs in terms of electricity, heating and cooling and, increasingly, in transportation. By 2011, renewable energies accounted for 13% of the total energy generated in the European Union, up from 8.5% in 2005. Whilst the overall trend is positive, countries and regions in Europe vary greatly in their performance. Most EU countries are currently on track for meeting their 2020 renewable electricity commitments. However, almost all countries look set to miss their targets for heating, cooling, and transportation.

Renewable electricity generation not only focuses on the obvious sources that most people are aware of, such as wind and solar energy, but also taps substantial resources of low enthalpy geothermal and small hydropower, the latter of which has an estimated potential of generating 116,775 GWh/year in the EU.¹

Renewables provide an opportunity for value creation at regional and local levels, where jobs and growth can be created by harvesting, transforming, transporting and storing renewable energy, as long as the right framework conditions have been created. Renewable technologies initially require support to become competitive, but as RES are decentralised, regional investment can bring long term economic advantages and guarantee security of energy supply. RES already generate a turnover in the EU of around €130 billion, and account for at least 1.18 million jobs. Further investment in renewable energy, according to estimations, could create an additional 300,000 jobs by 2020. It is for this reason, that the INTERREG IVC programme has supported regional development of RES systems.

To assist the development of renewable energies, European governments have been implementing incentives and support policies, such as feed-in tariffs, that have become amongst the most commonly used policy schemes worldwide. However, in order to have maximum impact, national level policies alone are not enough, and renewables especially need to be supported at the regional and local levels where renewable energy sources are available. As one project co-ordinator put it, "Without regional involvement, the EU 20/20/20 targets will fail. Results are essentially developed at a local level, where people live."²

There are many innovative support tools available for regional authorities that are seeking to support renewable energy generation, such as training programmes for renewable energy installers, farmers and engineers; spatial and territorial planning for wind farms, specialised clusters, community-financed and managed renewable energy installations and investment pipelines. Combining practices into a long-term, stable framework of support policies is a pre-requisite for boosting regional renewable energy use and creating substantial economic benefits. Several European regions and municipalities are frontrunners in renewable energy development and have set themselves ambitious targets for renewable energy use.

The main aim of the present thematic capitalisation study on renewable energy was to undertake a programme level analysis of the thematic knowledge gained from eight INTERREG IVC projects concerning the renewable energy sector. Of these eight projects, three projects had a strong technology focus (geo-thermal, biomass and offshore-wind) and five projects took a more general approach encompassing all RES. A total of 71 regions participated in these projects, each recognising the large potential of renewables for regional development.

To analyse the many practices identified by the INTERREG IVC projects, a policy development cycle was created. It features policy practices for four levels of market maturity:

- Commitment and Planning (i.e. regional SWOT analysis, stakeholder involvement, developing action plans and target setting, etc.)
- Emerging Markets (i.e. initial demonstration projects, communication campaigns, regional financing instruments, encouragement of R&D co-operation, etc.)
- Mature markets (i.e. strong commitment to R&D, dedicated training at university level, support to business start-ups, etc.)
- Saturated markets (i.e. export orientation, business leadership, world-class R&D, etc.).

This is a continuous cycle within which, depending on the stage of the renewables' development, certain policy tools are more appropriate than others. A new cycle can be started by a region to review targets, to start developing a new renewable energy source, or to start completely from scratch with the

¹ European Small Hydropower Association – *Small Hydropower situation in the new EU Member States and Candidate Countries* (2004)

² Thomas Engelke, RENREN Co-ordinator

introduction of renewables. It is estimated that, based on previous case studies, reaching the stage of a saturated regional market takes around 30 years.

Each good practice collected in our database could be assigned to one of the four development stages, depending on the descriptions, success factors and difficulties assigned to each one. This has been used to shape our analysis, but also, in part, to develop a Support Cycle later in the report, which presents recommendations and also highlights the most promising, and wide-spread types of practices identified by INTERREG IVC projects. The Support Cycle is presented by development phase, providing easy access to inspiration on instruments that may be suitable for a given region.

The RES Support Cycle was elaborated with existing literature and through documenting the 259 policy practices collected by the eight INTERREG IVC projects. All practices were recorded in a database, which enabled the identification of common trends, prerequisites for success and market maturity requirements. In this way, the Support Cycle is both a methodological tool for assessing good practices and projects, and also a framework for providing recommendations and creating an inclusive package of policy actions, suitable for any region. The Support Cycle has been further enhanced by experiences from other projects, and can form the basis of a learning platform for sharing practices.

The intensive exchange in INTERREG IVC projects has identified many robust tools and practices and created a pool of regional experience that can be useful for better understanding the role of regions in supporting renewable energies. In this way, INTERREG IVC projects have provided an opportunity for the identification and transfer of policy instruments to a large number of European regions. The study has shown that INTERREG IVC projects are beneficial for regions that already have experience with regard to renewables, which are seeking inspiration for innovative, new policy schemes and for learning regions, which can get a head start by adapting policy schemes and approaches that have already been tried and tested. The majority of practices concern the 'Commitment & Planning' (15%) and 'Emerging Markets' (70%) stages, which appears to be the right concentration since most regions are in these development stages. These practices help regions to meet the key pre-requisites for success in renewables: commitment, collaboration and communication.

For regions with more experience in renewables, the projects have collected more advanced policy practices ('Mature Markets' 13% and 'Saturated Markets' 2%). Within the 'Emerging Markets' segment, a high concentration of technology demonstration practices can be observed, mainly originating in the sector-specific projects. The focus on demonstrating and showcasing technologies underlines a strong need for information and awareness-raising on the technological and economic possibilities that renewables can offer.

Of the 259 practices, the majority focused on bioenergy, geothermal energy, solar power and wind energy, though there were also a few practices that noted the potential of small hydropower and emerging developments in ocean energy. Other practices did not focus on a particular renewable energy, instead covering multiple technologies, often coupled with energy efficiency concerns.

With regard to the difficulties that regions encounter in achieving the desired impact, the project partners were mainly concerned by the complexity of transferring good practices to a different regional policy context and by the fact that projects stop when they are finally starting to have an impact. Whilst the desired impact on policy learning and governance processes can be achieved relatively quickly following the establishment of a consortium, the policy impact only comes towards the end of the project once good practices have been analysed and chosen for transfer. The projects have therefore suggested extending the project duration by one or two years so as to finalise the transfer process and achieve greater impact on improving regional policies. The new approach to be taken by the INTERREG EUROPE Programme should help to resolve this issue. Post-project monitoring can help to deliver long-term impact by focusing projects even more on how to implement transfer of their chosen practices.

This Capitalisation study makes a series of recommendations for regional authorities and policy makers, as well as for INTERREG IVC projects and the INTERREG IVC Joint Technical Secretariat (JTS). The main recommendations for policy makers revolve around the Support Cycle, which suggests actions for regions of different market maturities. Along with market-specific recommendations, some general principles and pre-requisites for renewable energy support have also been outlined:

- Regional analysis and energy statistics are important for understanding regional performance and potentials;
- Focus on regional strengths and make use of the resources with the highest potential and fastest possible return-on-investment;
- Have a long-term view, with targets for renewable energy use, as well as action plans that outline actions to be taken and when they should be taken by;
- Secure regional buy-in with the involvement of all stakeholders – and politicians in particular;

- Raise awareness and make the business case for renewables as an opportunity for economic growth and job creation. Make sure that communication with the public and business is consistent and clear;
- As no two regions are the same, policy tools must be tailored to fit local conditions. It should never be expected that good practices can be directly transferred, but can instead provide inspiration;
- Integrate renewable energy into broader regional strategies, using Structural Funds, Smart Specialisation Strategies and other EU regional programmes and initiatives.

1. Introduction

INTERREG IVC is a European Union programme that fosters interregional co-operation to improve the effectiveness of regional development policies and contribute to the economic modernisation and competitiveness of Europe. INTERREG IVC forms part of the European Territorial Co-operation objective of the Cohesion Policy, and has two priority areas: 'innovation and the knowledge economy', and, 'environment and risk prevention'. This Thematic Programme Capitalisation focuses on collecting, analysing and disseminating the knowledge gained from eight projects under the 'energy and sustainable transport' sub-theme of the 'environment and risk prevention' priority.

Capitalisation makes links between projects' results and provides an analysis of collective experience and practices. The process allows for the identification and elaboration of additional results, lessons and policy recommendations, and also acts as a way of disseminating and communicating on the various successes of the INTERREG IVC Programme. The report is aimed at policy makers, programme bodies, regional authorities and journalists, who should make use of this collected knowledge to assist in designing future policy.

The Capitalisation exercise began in 2012, and a first year's Capitalisation report was completed. Information was gathered from the projects through desk research, interviews (face-to-face and telephone) and attendance at project events. The authors also held a thematic workshop in Brussels, attended by representatives from all projects. Later on, the Capitalisation authors also interviewed each of the projects' co-ordinators.

The second year of the Capitalisation exercise – of which this current report is a result – builds upon the first year's work by elaborating further on project achievements, catching up with the ongoing projects, and advancing policy recommendations based on synergies between in the INTERREG IVC projects and other EU initiatives so as to provide a more authoritative guide for EU regions on how to increase use of RES in their regions. In order to achieve this, more interviews and meetings have been held with project partners, and the Capitalisation Team have made links with projects and programmes outside of INTERREG IVC. This second year report is more policy-focused than the first, with policy makers at regional, national and local levels as its main target audience. The report will, of course, still be of interest to INTERREG project partners and stakeholders.

The report will proceed by providing an overview of the state-of-the art of Renewable Energy technologies, as well as a summary of current support policies at the European, national and regional level. This will then lead into Capitalisation methodology, and a two-level analysis: one level for the seven projects under the renewable energy sub-theme, as well as a related 'satellite project' and a second for the projects taken together to allow for the identification of broader trends and themes. After this, key policy recommendations are made, including the presentation of a Support Cycle, making recommendations for different maturity stages of renewable energy use, and providing overviews of the most promising practices and policies identified. Recommendations are then provided for different stakeholder groups, with a final conclusion that draws together the main findings of the report.

2. Policy context: Renewable Energy in Europe

Renewable Energy (RE) refers to “any energy resource naturally generated over a short timescale that is derived directly from the sun (such as thermal, photochemical and photoelectric), indirectly from the Sun (such as wind, hydropower and photosynthetic energy stored in biomass) or from other natural movements and mechanisms of the environment (such as geothermal and tidal energy).”³ Today, different forms of renewable energies offer solutions to all of society’s energy needs: electricity, thermal energy for heating and cooling, and fuels for transportation.

A region that has invested in renewables will benefit for decades through economic activity, local employment and a cleaner environment. RES are infinite and usually free (the wind, the sun, the flow of water), so, most forms of renewable energy systems have very low operational costs. Renewable energy production is also CO₂-neutral, meaning it does not cause climate change, as is the case of our current fossil-fuel-based energy system.

Finally, renewables are indigenous sources of energy that add to the security of Europe’s energy supply and help to drive down energy import dependency from its current level of around 70%. RES do not result in a cash-outflow, and in fact, their development results in local value-creation in the form of local investments and jobs. The decentralised nature of RES has potential for the creation of permanent jobs that are not threatened by globalisation, even in structurally weak areas.

2.1. Renewable Energy Technologies

A wide variety of renewable technologies have been developed to suit energy needs in different regions. Most of them have reached technological maturity, but continued market deployment and R&D efforts will result in further efficiency improvements and cost reductions. Since different renewable energy technologies (RETs) use different natural resources, there is usually at least one RET that can be used in a given geography or climate zone.

Hydropower holds the largest share of total installed Renewable Energy capacity in the world and is also one of the oldest, with hydroelectric dams being used for electricity generation since the late 1800s. Large hydropower installations (defined as having an installed capacity of over 10MW) can have significant environmental impacts, and are not covered by EU RE support schemes. The benefits of pump storage are, however, undeniable: providing on-demand additional generation capacity in peak electricity use periods, and storing over-capacity at night when there is low energy demand. Hydropower installations are found around the world, with China becoming the world leader, with 23% of capacity.⁴ Most new large hydropower installations are located in the developing world, with Europe instead refurbishing and modernising existing small hydropower (SHP) plants.⁵

SHP plants (installed capacity of under 10MW) usually consist of run-of-river schemes without dams, resulting in low environmental impact. Potential could be easily tapped by refurbishing and upgrading existing small plants, as new plants often suffer from lengthy permitting procedures and pressure from environmental groups that misperceive SHP as being environmentally invasive, despite state-of-the-art impact mitigation measures. SHP can be one of the most cost-effective methods of generating electricity, as plants have a long life-span, and although start-up costs are high, they have very low maintenance costs. SHP is slowly gaining ground in Europe, with around 17,800 installations at present (40,517GWh).⁶ In 2010, 45.7% of all RE generated in the EU27 was from large hydropower, and 7.8% from SHP plants.⁷

Wind power is the fastest growing electricity generation technology and when situated in locations with good conditions, it is already cost-competitive. Since 2000, wind power has gained a growing share of the global market, with almost a quarter of all new power plants built being powered by wind. However, it is Europe that is the front-runner, with growth that has largely been driven by Feed-In-Tariffs. The current technological trend is to develop ever larger turbines, which produce greater amounts of energy.

³ European Renewable Energy Council – Renewable Energy in Europe: Building Markets and Capacity (2004), pp. xxxvi.

⁴ REN21 – Renewables 2013 Global Status Report (2013), p. 36.

⁵ REN21 – Renewables 2012 Global Status Report (2012), p. 42.

⁶ EREC – Renewable Energy in Europe, 2nd Ed., p. 170-172.

⁷ European Small Hydropower Association – Small Hydropower Roadmap: Condensed Research Data for EU-27 (2012), p. 12.

In offshore wind (OSW), turbines are installed near to the coast, but the technology is being developed for deep offshore floating turbines, to be built further out to sea where winds are stronger and visual impact is lessened. Challenges for wind energy include intermittency of the wind and grid connection. There are plenty of opportunities for job creation in the manufacturing sector, as well as in installation and service provision along the entire supply chain. By 2025, wind energy is expected to overtake hydropower as Europe's dominant RES.⁸

Biomass is a very flexible energy source that can be transformed into heat, electricity, liquid fuels (such as biodiesel) and biogas, depending on how it is converted, and on what form of biomass is used. Raw materials come, broadly, from three strands: forestry, agriculture and waste (forestry, agricultural and biodegradable municipal solid waste). Conversion methods are combustion, thermo-chemical conversion, and biochemical and physico-chemical processes.⁹ The most widely used conversion method is simple combustion which produces heat, and this is biomass's main use, with around 95% of renewable heat coming from biomass combustion. Wooden logs and pellets are viable for small-scale heating systems, but larger systems are able to use waste and refuse from the wood industry. Emerging technologies include the production of lignocellulosic ethanol, which uses only the wood of plants – rather than the edible parts, or energy crops – to produce ethanol that can be mixed with fuel or used in industrial processes, with other current efforts aimed at integrating yet unused biomass into the formal energy supply chain.

Solar energy can be used in a variety of applications. The production of electricity from solar power can be achieved through both concentrated solar power (CSP) and the use of photovoltaics (PV), whilst solar thermal collectors produce heat for both water and spatial heating. The PV sector has grown substantially since the 1990s, though Europe's level of PV manufacturing has declined, with only one of the top 15 manufacturers now found in Europe. However, in 2011, the top five countries for solar PV per inhabitant were in Europe¹⁰ and of the 38.3GW of new energy capacity added in the EU27 that year, 21.5GW was from solar PV.¹¹ Trends include the emergence of concentrated PV cells to increase the yield of receptors, without increasing their size and surface area, and the integration of PV into roof tiles and other construction elements.

CSP is mainly used in hot, dry areas with direct sunlight (i.e. deserts) that are unsuitable for agriculture, giving a boost to local economies. CSP plants are usually multi-MW installations, initially creating construction jobs, followed by service and maintenance jobs. The European CSP sector is the world leader, with Spain at the fore.¹² Current trends are to produce plants that can use thermal storage with phase-changing materials (PCM) to store heat and release it at night, so as to be able to produce electricity 24 hours a day and to act as a true base load (the minimum power supply needed to meet demand). Solar thermal is a technology that can be implemented throughout the continent, being both inexpensive and easy to install, mostly on individual houses. Emerging developments include the use of medium temperature solar thermal systems to produce process heat for use in industry.

Geothermal energy can be used as an energy source for both heating and cooling (its main use) as well as for electricity production (dependent on geological conditions). Geothermal heating and cooling technology has developed in such a way as to be useable almost anywhere; geothermal heat is an indigenous source that is available everywhere. Systems either operate in low temperature soils at a shallow level using a heat pump, or by exploiting hot groundwater from deep in the soil. Either source can be used for individual heating systems, or in district heating. There are currently 216 such district heating systems in Europe, with 4,000 MWth capacity. Geothermal electricity production has been used since the early 1900s, and Europe has a combined installed capacity of 1.7 GWe, from 62 plants. Geothermal electricity systems are installed much deeper in the soil, and use heat and groundwater to produce steam that drives a turbine. Geothermal energy has huge potential to supply a stable base load, but high drilling costs continue to hold back large-scale deployment.

⁸ European Renewable Energy Council – 45% by 2030: Towards a truly sustainable energy system in the EU (2011), p. 37.

⁹ EREC - Renewable Energy in Europe, p. 41.

¹⁰ REN21, Renewables 2012 Global Status Report (2012), pp. 47-48 (Germany, Italy, Czech Republic, Belgium and Spain)

¹¹ European Commission, JRC Scientific and Policy Reports: PV Status Report 2012, p. 18.

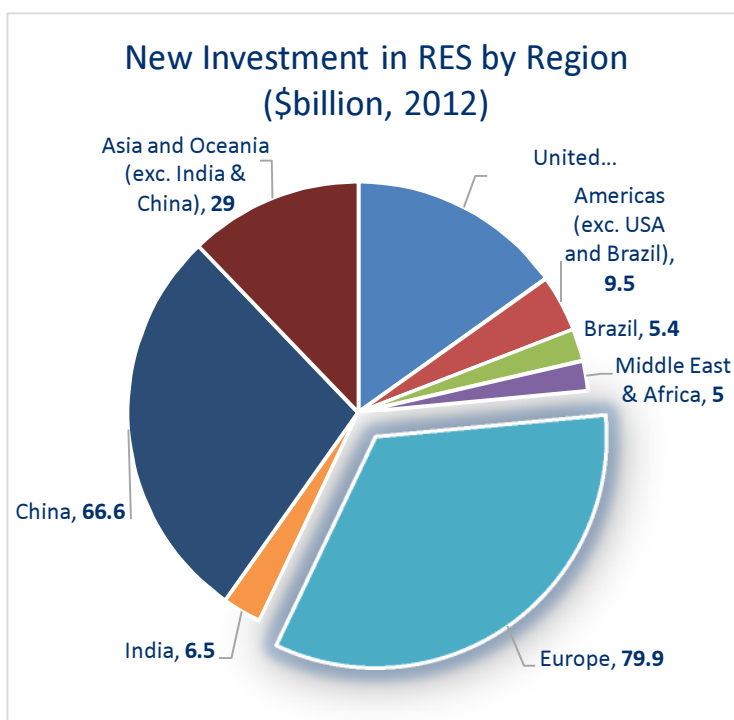
¹² REN21, Renewables 2013 Global Status Report (2013), p. 44.

Tidal, wave and ocean energy is a developing form of RE electricity production, which, after years of research and small pilot projects, is now becoming a realistic source of energy. The UK is leading the development and commercialisation of the technology (particularly in Scotland), although France and Germany are also investing in demonstration. South Korea is leading in installation.

2.2. Renewable Energy Deployment

According to estimates, RES already provide around 17% of world final energy consumption. However, only 8% of this is from 'modern renewables', with the rest from large hydropower and traditional biomass sources. The EU has already made good progress in the transition to RES and, in the global context, it leads the way, with nearly 44% of global non-hydro renewable capacity.

New global investment in renewables in 2012 was down 12% to \$244 billion from the previous year's record, of \$279 billion.¹³ Yet, this was still the second highest figure ever recorded for RES investment. The stall in investment growth is a result of uncertain support policies in the major markets of the EU and the United States. Europe (not only the EU27) attracted around \$79 billion of this investment, a large drop from \$112 billion in 2011 and \$101 billion in 2010.



Investment may be lower than in previous years, but renewables are still creating new jobs, with a high of 1.18 million jobs in 2013 (see Table 1). RE jobs are mostly performed by skilled workers and technicians; they are created where RE projects or technologies are developed – including structurally weak areas – and they are rarely threatened by globalisation. It has been estimated that investing in RES could create an additional 300,000 European jobs by 2020.¹⁴

Table 1 - Socio-Economic Indicators in RES (2013)¹⁵

Renewable Energy Source	EU27	Global	Turnover (EU27)
	Thousand jobs		€ billion
Biomass	274	753	27.7
Biofuels	109	1,379	14.5
Biogas	71	266	5.7
Geothermal	51	180	1.2
Hydropower (Small)	24	109	3.3
Solar PV	312	1,360	30.8
Concentrated Solar Power	36	53	-
Solar Heating/Cooling	32	892	3.9
Wind Power	270	6,753	34.4
Total	1,179	5,745	129.4

¹³ REN21 – Renewables 2013: Global status report (2013), p. 57.

¹⁴ Greenpeace and EREC – Energy [R]evolution: A sustainable EU27 Energy Outlook (2012), p.69

¹⁵ REN21 – Renewables 2013: Global status report (2013), p. 53 & Observ'ER – State of Renewable Energies in Europe (2013), pp. 140-141.

2.2.1. Renewable Electricity

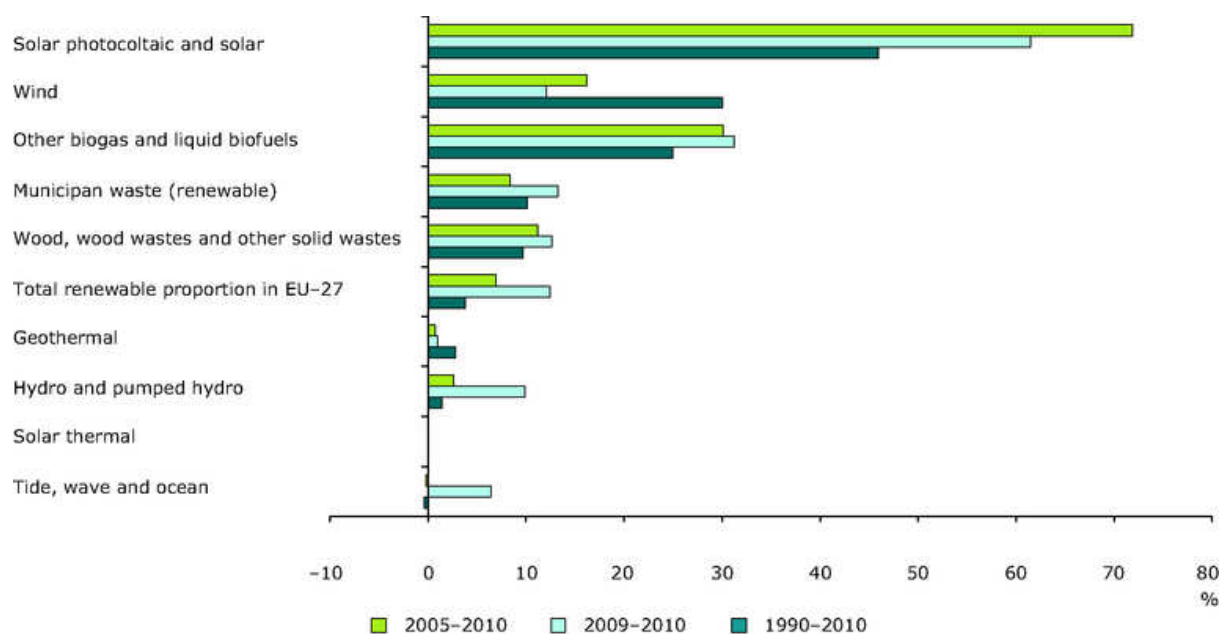
In 2012, almost 70% of all new electricity capacity in the EU was renewable, with support policies and long-term targets acting as the driving force for uptake.¹⁶ Around 37% of this newly installed capacity in the EU was from Solar PV, with Wind also having a strong market presence (26.5%).¹⁷ RES already provides around 21.3% (699.5TWh) of generated electricity in the EU27 (broken down in Table 2).¹⁸ A noticeable development is that hydropower dropped from 57% of renewable generation in 2011 to 48% in 2012, with wind and solar growing by around 5% each.¹⁹

Table 2 - RES-Electricity in the EU27 (2012)²⁰

RES Type	Electricity generated (TWh)	Electricity generated (%)
Hydropower	335.2	48
Wind	179.0	25
Biomass and renewable waste	132.6	19
Solar	46.3	7
Geothermal	5.9	1
Tidal, wave and ocean	0.5	0
All	699.5	100

RES has had a strong rate of growth in Europe over the past two decades but still requires policy support to become a competitive, self-supporting market, especially as fossil and nuclear energy is still heavily subsidised. As the chart below shows, the highest growth rate for total renewable electricity generation occurred in the period 2009-2010, reflecting the outcome of focused policy initiatives.

Average Annual RES-Electricity growth rate (%)²¹



¹⁶ REN21 – Renewables 2013: Global status report (2013), p. 22.

¹⁷ REN21 – Renewables 2013: Global status report (2013), p. 22.

¹⁸ European Commission - EU energy in figures: Statistical pocketbook 2013, pp. 81-82.

¹⁹ Compare Table 3 with, European Commission - EU energy in figures: Statistical pocketbook 2012, pp. 83-84.

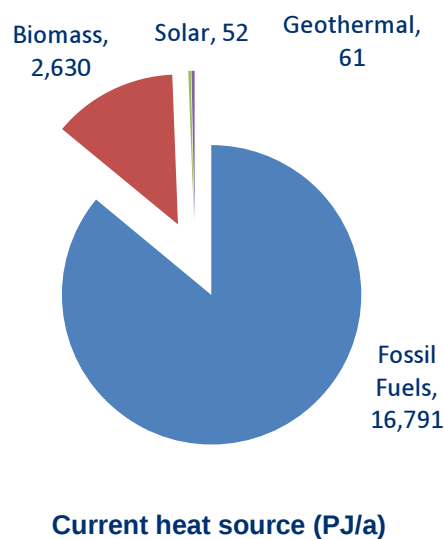
²⁰ European Commission - EU energy in figures: Statistical pocketbook 2013, pp. 81-82.

²¹ <http://www.eea.europa.eu/data-and-maps/figures/average-annual-growth-rates-of-5>

2.2.2. Renewable Heating and Cooling

Heating and Cooling forms 48% of the EU's energy consumption, making it an area that should be of high concern for policy makers.²² A key challenge in renewable heating is that thermal energy is difficult to measure by metre, but at present it is estimated that RES only fuel 16.5% of EU heating requirements, mostly from wood biomass, a traditional heating fuel.²³ The potential of solar and geothermal heat is hugely under-exploited (see pie chart). For this reason, RE heating and cooling is often referred to as the 'sleeping giant'.

The building sector has a particularly large potential for cutting emissions through solar thermal, geothermal and biomass heating, especially when coupled with energy efficiency measures such as insulation and double or triple-glazing. With such measures it is possible to produce nearly-zero, zero, or even positive energy houses. Trends for heating in new constructions include district heating and cooling, powered by RES and industrial waste heat. Also emerging as a strong business area is the refurbishing and retrofitting of buildings with energy efficiency and RE solutions combined.



2.3. Renewable Energy Policy

Although the figures are already impressive, the EU must continue to support RES with ambitious targets, support schemes and involvement at all levels of governance. The International Energy Agency (IEA) has argued that energy prices need to change in order to reflect the true cost of energy, including their external costs, such as environmental impacts through emissions or radioactive waste. As fossil fuels and nuclear currently enjoy a competitive advantage (and government subsidies), RE remains dependent on predictable political and financial supports for deployment. Policy therefore plays a vital role in the expansion of renewables, and levelling the playing field with fossil fuels remains the most important task to be achieved.²⁴ This includes a shift from subsidising fossil fuels, to renewables.

2.3.1. European Union Framework

Since the Treaty of Amsterdam (1997), the promotion of RES has become a priority not just for environmental protection and social and economic cohesion, but also to tackle energy security issues, such as those outlined in the White Paper 'Energy for the Future: Renewable Sources of Energy'.²⁵ From this beginning, long-term strategies began to form, giving the RES market the stability needed to develop and grow.

The 2001 RES-E Directive was the first step, setting a non-binding target of 12% of gross domestic energy consumption from renewables by 2010, with 22.1% of electricity produced by RES.²⁶ Although the RES-E Directive targets were non-binding, it still had positive effects, with national targets

²² European Technology Platform on Renewable Heating and Cooling – *Common Vision for the Renewable Heating & Cooling Sector in Europe* (2011), p. 1.

²³ European Commission - EU energy in figures: Statistical pocketbook 2013, p. 99.

²⁴ International Energy Agency – Tracking clean energy progress: Energy technology perspectives 2012. Excerpt as IEA input to the Clean Energy Ministerial (2012), p. 8.

²⁵ Communication from the Commission – Energy for the Future: Renewable Sources of Energy. White Paper for a Community Strategy and Action Plan (COM(97)599final)

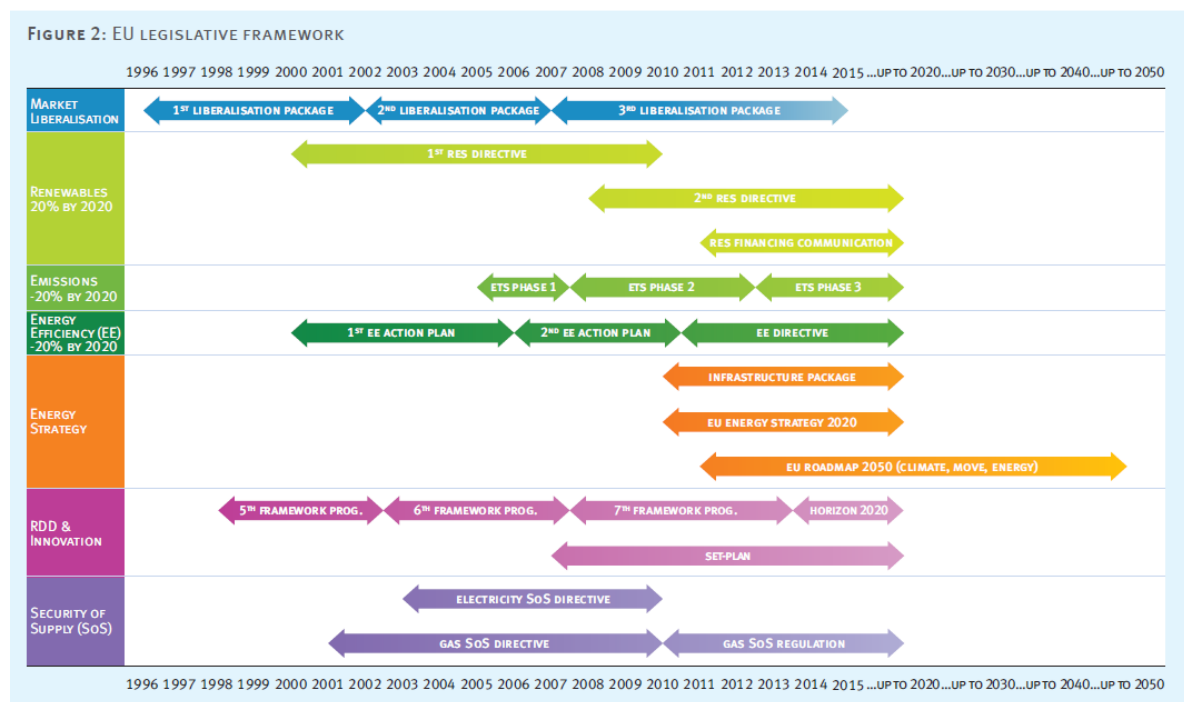
²⁶ Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market

being set for the first time, triggering action by the Member States. The Directive was amended to add targets for the ten new states that joined in 2004 and two in 2007.

In 2009, the EU27 set a binding target for 20% of final energy consumption to be generated from RES by 2020 (in the 'RES Directive'), as well as the related goals of increasing energy efficiency and reducing greenhouse gas emissions by 20%. These combined and interlinked 20/20/20 targets (the 'EU climate and energy package') also include initiatives such as the Energy Efficiency Directive (2012). Together, the 20/20/20 goals will contribute significantly to the aims of energy security, competitiveness and climate change mitigation, as will the goals of the 'Europe 2020' Strategy for Smart, Sustainable and Inclusive Growth. This strategy suggests that in the right conditions a 30% reduction of emissions should be targeted.²⁷

As we approach 2020, the European Renewable Energy Council advises that further RES-specific targets will be critical for keeping up momentum and providing investment security.²⁸ As a follow-up to the 2020 targets, the Commission published its Energy Roadmap 2050, which explored several different scenarios. Discussions on the next energy package have suggested a binding 40% greenhouse gas emissions cut, an obligatory 27% share for renewables in the energy mix, and a binding energy efficiency target for 2030. The European Commission will reveal its final proposals in September 2014, but it is already clear that an RES supportive framework will emerge.

RE is not only affected by RE-specific measures, however, as the Commission places RE legislation within a much broader context of its energy policy, which also involves market liberalisation and infrastructure. The overview below shows the sequencing and duration of different EU legislative acts relevant for RE development.²⁹



2.3.2. National Policy

EU Member States each have very different RES policies and current shares of use. The differences between national positions are rooted in their different geographical, economic, climatic, political and cultural conditions. In order to set achievable targets, the RES Directive established reference levels of RES use in 2005 for the EU27, ranging from 39.8% of final energy consumption in Sweden, to 0% in Malta. RES targets were set as a percentage of total energy, respecting 2005 reference levels and national conditions, resulting in widely different targets for each country.

²⁷ COM(2010)2020 – Communication from the Commission – Europe 2020: A strategy for smart, sustainable and inclusive growth

²⁸ European Renewable Energy Council – 45% by 2030: Towards a truly sustainable energy system in the EU

²⁹ Table reproduced with the kind permission of Eurelectric. Taken from *Power Statistics and Trends Synopsis* (2011), p. 7.

To meet these targets, the Directive required National Renewable Energy Action Plans (NREAPs) to be written, allowing Member States to decide what measures to implement to meet their targets.³⁰ The % of RES in final energy consumption (2011), Directive targets and NREAP forecasts are presented in the table below (Table 3).

Table 3 - RES Directive targets and forecasts for 2020 RES deployment ³¹

Member State	Share of energy from RES in final consumption of energy, 2011 (%)	RES Directive target for share of energy from renewable sources in final energy consumption, 2020 (%)	NREAP forecast – RES share in final energy consumption, 2020 (%)	RES Industry forecast – RES share in final energy consumption, 2020 (based on NREAPs) (%)
Austria	30.9	34.0	34.2	46.4
Belgium	4.1	13.0	13.0	14.5
Bulgaria	13.8	16.0	18.8	20.8
Croatia	15.7	20.0	-	-
Cyprus	5.4	13.0	13.0	14.5
Czech Republic	9.4	13.0	13.5	13.7
Denmark	23.1	30.0	30.5	30.5
Estonia	25.9	25.0	25.0	25.0
Finland	31.8	38.0	38.0	42.3
France	11.5	23.0	23.3	23.6
Germany	12.3	18.0	19.6	26.7
Greece	11.6	18.0	20.2	25.2
Hungary	9.1	13.0	14.7	18.3
Ireland	6.7	16.0	16.0	16.0
Italy	11.5	17.0	16.2	19.1
Latvia	33.1	40.0	40.0	46.4
Lithuania	20.3	23.0	24.2	31.7
Luxembourg	2.9	11.0	8.9	10.4
Malta	0.4	10.0	10.2	16.6
Netherlands	4.3	14.0	14.5	16.8
Poland	10.4	15.0	15.5	18.4
Portugal	24.9	31.0	31.0	35.3
Romania	21.4	24.0	24.0	24.0
Slovak Republic	9.7	14.0	15.3	26.0
Slovenia	18.8	25.0	25.3	34.1
Spain	15.1	20.0	22.7	28.3
Sweden	46.8	49.0	50.2	57.1
United Kingdom	3.8	15.0	15.0	17.0
EU28	13.0	20.0	20.7 (EU27)	24.4 (EU27)

According to the NREAPs, 20.7% of final energy consumption and 34.3% of electricity will come from renewable sources by 2020. This figure stems from various levels of ambition shown by Member States, with some aiming to exceed their binding targets. Bulgaria, for example, has written an NREAP that aims for 18.8% of final energy consumption to come from RES, whilst its target is 16%

Whilst some states aim high, others have instead focused on gradually adjusting existing initiatives or have not produced comprehensive support packages. Government changes have also led to inconsistent policies. Overall, the RES industry believe that full enactment of the NREAPs could result in 24.4% RES in total energy consumption and 42% RES in electricity. With this said, recent cut backs in RE support schemes have been triggered by the financial crisis, which seriously threatens RE targets by undermining investor confidence. The EU 20/20/20 goals, and further goals beyond them, will succeed or fail based on whether implementation is fast and efficient at both national and lower levels of governance.

³⁰ Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable energy sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

³¹ Directive 2009/28/EC & European Renewable Energy Council – Mapping renewable energy pathways towards 2020 (2011), pp. 13-15. 2011 figures from: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety: Renewable Energy Sources in Figures: National and International Development (2013)

2.3.3. Energy Policy in the Regions

Regional RES can play a large role in the energy future of the EU. Unlike fossil fuel and nuclear energy, renewable energy can be generated in decentralised, smaller units, providing local energy to local users. This is much more efficient than the current distribution system. For example, it has been estimated that for 100 units of energy produced from fossil fuels at a centralised plant, only 22 units are used, with 62.5 units lost at generation, 3.5 in transmission and 13 through inefficient end use.³² Instead, decentralised renewable energy systems achieve higher efficiency and reduce transmission losses.

Further, local energy systems can be of greater economic and social benefit, stimulating regional development that fits the strengths and infrastructure of the area to provide jobs and secure, cheap energy. Biomass energy, for example, requires local fuel suppliers, thus promoting agricultural jobs and creating rural employment through co-ordination between farmers and the RES sector. One of the key trends in the development of RES support policy is the integration of measures into other policy areas and existing competencies, such as urban and rural (re)development.³³

The importance of the regional governance level can often be overlooked and many tend to forget that around three quarters of EU policy is enacted at the regional level.³⁴ Every region is different, with varied political, social and economic structures, strengths and RE sources (wind, sun, etc.), and it is essential that policies can be adapted and implemented at the regional level. However, RES support schemes often require finance and implementation at the national scale, depending on domestic political structures and level of regional autonomy. When budgetary control is situated at the national, not regional, level, the central government can control support policies, or allocate only small amounts to RES for regions to spend. For example, a region may adopt a target for RES deployment but be unable to make it legally binding without national support. In other cases, such as paying subsidies or rebates to adopters of RES, regions may be entirely incapable of implementing such policies, being completely reliant on the national level for funding.

To overcome this, regional agencies can implement and manage programmes and initiatives, and public and private partners can be established. If financing does not come from the national level, and if regional taxation is not possible, then a region can attempt to secure financial support from private or European level sources.

As Table 4 (below) shows, there are a variety of traditional policy tools available to regions wishing to increase their share of renewable energy use. Regulatory policies, fiscal incentives and public financing have all been successfully used at national level, and could be scaled down for regional use. However, it should be noted that there may be a narrower scope for implementation, and economies of scale (or lack thereof) may have an impact on effectiveness.

The type of policy instruments used in a region depends not only on political independence and structure – regions must also take account of their own development and how much experience they have with RES use. A region starting out in RES will need to implement very different policies to those being implemented by regions with thirty years of experience. Policies will also reflect differences in regional resources and know-how.

³² Greenpeace and EREC – Energy [R]evolution: A sustainable EU27 Energy Outlook (2012), p. 19.

³³ REN21, p. 64

³⁴ Committee of the Regions – Special Eurobarometer 307 on the role and impact of local and regional authorities within the European Union: Opinions on the different levels of public authorities and awareness of the Committee of the Regions (2009), p. 3.

Table 4 – Categories of RES support policy³⁵

Regulatory policies	<i>Feed-in tariff (including premium payment)</i>
	<i>Electricity utility quota obligation / Renewable Portfolio Standard (RPS)</i>
	<i>Net metering</i>
	<i>RES obligation/mandate</i>
	<i>Tradable Renewable Energy Certificate/Credit (REC)</i>
Fiscal incentives	<i>Capital subsidy, grant or rebate</i>
	<i>Investment or production tax credit</i>
	<i>Reductions in sales, energy, CO₂, VAT, or other taxes</i>
	<i>Energy production payment</i>
Public financing	<i>Public investment, loans, or grants</i>
	<i>Public competitive bidding</i>

2.3.4. EU Regional Policy and Programmes

The EU's cohesion policy, broadly speaking, aims to reduce disparity amongst regions' levels of development, to strengthen economic and social cohesion. However, it is also a tool for the EU to implement its priorities, and a key delivery mechanism of the Europe 2020 strategy at the regional level. Cohesion policy for 2007-2013 had three main objectives:

1. The Convergence objective – aiming to stimulate growth and employment in the least developed regions (with GDP less than 75 percent of EU average);
2. The Regional Competitiveness and Employment objective – aiming to reinforce the competitiveness and attractiveness of regions, as well as boosting employment;
3. The European Territorial Co-operation objective – aiming to reinforce cross-border, transnational and interregional co-operation by promoting common solutions for the regional authorities of different countries.³⁶

The importance of cohesion policy for boosting renewable energy uptake should not be understated. For all of these objectives, both 'Energy' and 'Environment and climate change' are amongst key funding priority areas, with particular emphasis on the use of clean energy technologies. For objective three (which includes programmes such as INTERREG IVC), the development of cross-border, transnational and interregional activities and joint strategies for sustainable development has been encouraged, with focuses on innovation, the environment, accessibility and sustainable urban development. Objective three also aimed to reinforce the effectiveness of regional policy by encouraging regional and local authorities to form networks and exchange experience. Such efforts play an important role in collecting and benchmarking knowledge to support renewable energies, helping to kick-start the policy cycle by supporting the regions to develop strategies, set targets and raise awareness. However, the EU also funds a variety of other programmes that can contribute to regional development and convergence towards the 20/20/20 goals.

Horizon 2020 – the new European Framework Programme for Research and Innovation for the period 2014-2020 – is a major European funding instrument for supporting basic research, strategic and applied research, demonstration projects and close-to-market activities such as piloting, prototyping and testing. The third pillar of Horizon 2020, 'Societal Challenges', is particularly relevant for Renewable Energy and will support the development of new, interdisciplinary and innovative solutions for 'Secure, clean and efficient energy', 'Smart, green and integrated transport' and 'Climate action, resource efficiency and raw materials'. Under Horizon 2020, €5.9 billion will be provided for research into secure, clean and efficient energy.

³⁵ Adapted from REN21 – p. 70

³⁶ European Commission, DG Regional Policy – *Cohesion Policy 2007-2013: Commentaries and official texts* (2007)

The former **Intelligent Energy Europe** (IEE) programme has supported public, private and non-governmental organisation capacity building, demo projects and promotion campaigns. The IEE Programme has been integrated into Horizon 2020's Societal Challenges and will continue to focus on the removal of non-technical barriers by providing awareness and information, capacity building, support to energy agencies, financing instruments for renewables and first market introduction projects.

At the regional level, the Sustainable Energy Action Plans (SEAPs) of the **Covenant of Mayors** are a major tool for sustainable energy implementation. The Covenant of Mayors is based on voluntary commitments to fight against climate change, where regional authorities pledge to meet the EU's 20% CO₂ reduction target. In SEAPs, signatories to the Covenant outline their CO₂ reduction targets and how they intend to reach them, defining activities to be undertaken in line with Covenant guidelines.

The financial instruments of regional policy provide funding directly to regions to allow them to implement sustainable energy measures. For the programming period 2014-2020, Cohesion Policy is seeking to have even greater impact on the uptake of sustainable energy policy and practices and will be directly linked to the Europe 2020 priorities of smart, sustainable and inclusive growth.³⁷ In order to achieve this, the Commission is introducing a **Common Strategic Framework**, setting out key actions to address EU priorities, providing guidance on programming, and promoting better co-ordination of EU structural instruments; and Partnership Contracts, which are agreed between the Commission and Member States and set out national contributions to the thematic objectives and commitments to concrete actions (measurable to pre-defined targets), making sure that Member States continue to contribute to Europe 2020 objectives (for more information, see Section 4.3).

The amount of money allocated for energy efficiency in the ERDF, Cohesion Fund and European Social Fund is expected to more than double from the last funding period, to around €17 billion. For the ERDF budget, extra emphasis will be placed on energy efficiency and renewable energies, taking up 20 percent of budget allocated for developed regions and 6 percent for less developed regions.

The link between the Cohesion Policy and **Smart Specialisation**, which is meant to ensure optimal impact of investments from the ERDF, is strong. **Research and Innovation Strategies for Smart Specialisation** (RIS3) encourages the design of national and regional research and innovation plans to deliver more targeted support from the Cohesion and Structural Funds, in synergy with research funding from Horizon 2020.³⁸ RIS3 will ensure that funding is focused on key priorities and on areas of strength that will have greatest impact. Such areas are to be drawn up by each region with the assistance of local businesses, research centres and universities.³⁹ In order to access Structural and Investment Funds under some priorities, a region will be required to have an RIS3 strategy as an ex-ante condition.⁴⁰

³⁷ European Commission, DG Regional Policy – *Cohesion Policy 2014-2020: Investing in growth and jobs* (2011)

³⁸ European Commission, DG Regional Policy – *Guide to Research and Innovation Strategies for Smart Specialisation (RIS3)* (2012)

³⁹ European Commission – *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Regional Policy contributing to smart growth in Europe 2020*. COM(2010)553final.

⁴⁰ European Commission, DG Regional Policy – *Connecting Smart and Sustainable Growth through Smart Specialisation: A practical guide for ERDF managing authorities* (2012), p. 24.

3. Methodology

This Thematic Capitalisation exercise collects, analyses and disseminates the knowledge gained by INTERREG IVC renewable energy projects, with a focus on good practices that encourage development and uptake of renewable energy technologies. For the purposes of this study, a 'good practice' has been defined as a policy initiative (methodology, instrument, programme, or pilot/demonstration project, etc.) in the thematic area of renewable energy that has proven successful and that has the potential to be transferred to a different geographic area. A 'Renewable Energy Technology' has been defined as a technical solution using energy resources that are naturally generated over a short timescale (see also Chapter 2, for more detail).

3.1. Data Gathering

Data was gathered from projects' application forms, websites, outputs (reports, newsletters, etc.) and from materials provided by the INTERREG IVC Joint Technical Secretariat. In order to collect further information, interviews were organised with the co-ordinators of each of the INTERREG IVC Renewable Energy projects. Some interviews were held over the telephone, whilst others took place face-to-face. These interviews sought to gather qualitative information on experience, and subjective opinions on project and programme performance, as well as on good practice relevance and transferability. One round of interviews was held with every co-ordinator in the first year of the Capitalisation exercise. A second round of interviews followed with the co-ordinators of the ongoing projects in the second year.

The Capitalisation exercise has also involved attendance at INTERREG IVC projects' events, and the organisation of two Thematic Workshops in Brussels (one in each Capitalisation year), for the purposes of collecting information. The Workshops allowed for contact with more partners of the INTERREG IVC projects than just the project co-ordinators, with particular focus on individuals responsible for content – rather than administrative tasks. Meetings have also been held with representatives from projects and programmes outside of INTERREG IVC, to create links and find potential synergies between initiatives working on similar renewable energy priorities.

In order to view the body of thematic knowledge as a whole, a database was developed, into which all of the Good Practices collected by the renewable energy projects were entered. The database collected the names and locations of the practices, each with a short description, classification by renewable energy type/technology, success factors, difficulties and results.

3.2. Analytical Framework

At the regional level, little has been published on the analysis of renewable energy support policies and frameworks. Studies, reports and statistics are widely available at the national, European and global levels, but the regional level remains neglected. This may reflect the fact that regions have very different competencies, dependent on country, thus making it difficult to benchmark tools and performance. However, an increasing number of regional case studies and good practices - mainly stemming from European projects - can be found, indicating that a lack of benchmarking and analysis may represent a misunderstanding of the importance of regional frameworks.

In order to build an effective methodology, an initial screening for literature on regional-level policies was performed. One of the few reports to shed light on RES policy was EurObserv'ER's 2011 report on the state of renewables in Europe, which introduced a regional analysis of RES development, investigating seven regions that demonstrated the development of renewables.⁴¹ The aim was to identify the rationale for regional policy initiatives, the prevalence and effectiveness of the tools used, and the underlying requirements for RES adoption. EurObserv'ER concluded that there is a 'regional policy value chain' in which regions become more mature over time, allowing for the development of more advanced policy tools at each phase. This chain showed examples of relevant policies and indicative developments found in beginner regions (e.g. less than ten years of RES experience) up to advanced regions (e.g. more than thirty years). As regions develop through these phases, renewables go from being subsidised and supported by regional authorities, to being market-driven, competitive

⁴¹ EurObserv'ER – The State of Renewable Energies in Europe 2011, Lyon, 2012

technologies. It is estimated that a region needs approximately 10 years to run through each of these development stages:

- The first phase of the value chain involves creating the right conditions for investment by signalling long-term commitment and targets, as well as starting to communicate the advantages of renewable energies, and involving regional stakeholders.
- In the second phase, regions instigate demonstration investments and begin to provide financial support for regional stakeholders who wish to begin to take-up renewable energies.
- Phase three is indicated by the emergence of dedicated RES clusters, support for innovation and technology development, commitment to research and development, and university-level training programmes for RES professionals.
- The final phase in the value chain is for regions heading towards 100% renewable energy use, though none have yet reached this stage.

Based on these findings, Greenovate! Europe developed a 'Development Cycle' for classifying practices by market maturity. The four phases of the cycle are 'Commitment and Planning', 'Emerging Markets', 'Mature Markets' and 'Saturated Markets'. The Cyclical form is preferred to the 'value-chain' explanation, to indicate that the cycle starts anew for each different RES technology type; different cycles may run in parallel, but a region with no experience in a particular technology type cannot jump ahead in stages.

Table 5, below, represents the typical types of practices and policies that can be observed in each region type. This table has been enriched using the 259 good practices collected by the INTERREG IVC projects, to present the most complete exploration of regional renewable energy policies and support tools possible. The Development Cycle has also been enriched with the knowledge gathered from interviews and from other project outputs.

Each good practice collected in our database could be assigned to one of the four development stages, by looking at the descriptions, success factors and difficulties assigned to each one. This has been used to shape our analysis, but also, in part, to develop a Support Cycle later in the report, which presents recommendations and also highlights the most promising, and widespread types of practices identified by INTERREG IVC projects. The Support Cycle is presented for each development phase, providing inspiration for suitable instruments for any region.



Table 5- Regional RES policy initiatives in a continuous Development Cycle ⁴² <i>For one technology or parallel development of several technologies</i>
Commitment and Planning <i>First time focus on one RES with highest growth potential</i> • Analysis of regional market and SWOT follow-up; • Organisation of debates with regional stakeholders; • Development of regional RES strategy and policy; • Setting of clear quantitative targets (if possible branding as “xx% RES region”); • Peer reviews and study visits; • On-going communication and co-operation with regional stakeholders; • Public information campaign.
Emerging Markets • Awareness raising through on-going information campaigns and educational programmes; • Demo investments in proven RES solutions also through green public procurement; • Capacity building through training programmes i.e. for farmers and installers, quality certification and support to leading sectoral players; • Public acceptance and local ownership i.e. through co-operative schemes; • Technology networking and cluster development; • Institutional support for investors (e.g. agency, business accelerators); • Regional financing instruments (e.g. subsidies, innovation vouchers, loans, bank guarantees, investment funds, etc.); • Facilitation of permitting processes and spatial planning.
Mature Markets • Continued development of RES targets and strategy, to ensure long-term goals • Communication to reinforce positive image and gain public acceptance; • Strong commitment to R&D; • Close co-operation in dedicated triple helix cluster; • University programmes (technical, socio-economic, project management...); • Support to innovation and start-ups; • Simplification of investment procedures and availability of seed and risk capital; • Regional business leadership ambition; • Community ownership of RES enabling infrastructure, i.e. grids, district heating and storage capacity.
Saturated Markets • Well-developed infrastructure for transport and logistics; • Export initiatives and incentive schemes, i.e. encouragement of internationalisation strategies and business plans; • EU/Global technology leadership ambition; • Demo investments in innovative RES solutions, also through pre-commercial procurement; • Dedicated international fairs and events; • Involvement of world leading companies; • EU leading R&D centres; • Cluster of international scope.

⁴² Greenovate! Europe Analytical Framework based on “EurObserv’ER – The State of Renewable Energies in Europe 2011” and the analysis and results of the INTERREG IVC Thematic Capitalisation Exercise

4. Analysis

4.1. Project overviews

This section provides an overview of the seven INTERREG IVC funded projects in the field of renewable energy. It explores the aims and findings of each project and discusses the good practices they have identified. The first part covers three technology-specific projects and the second part covers the remaining projects without a specific technology focus. Also presented is the EU2020 Going Local Project, which looked only partly at renewable energies. Table 6 summarises the key aims of each project.

Table 6 – Overview of the seven Renewable Energy projects

Projects with focus on specific RES type	
GEO.POWER	Focused on low enthalpy geothermal energy, particularly through ground-coupled heat pump technology. Aims to transfer good practices into structural funds mainstream by producing regional strategies.
BIO.EN.AREA	Focused on bioenergy (both biomass and biofuels). Aims to exchange and transfer experiences amongst partners to increase regional capacity and develop regional Biomass Action Plans.
4Power	Focused on Offshore Wind energy. Aims to exchange knowledge between experienced and learning regions to create a common understanding of challenges for implementation.
Projects without focus on specific RES type	
MORE4NRG	Aims to exchanging good practices on sustainable energy policy and jointly developing an integrated monitoring tool for measuring the effect of regional sustainable energy strategies.
Regions4GreenGrowth	Aims to equip regions with policy instruments, mechanisms and approaches to improve access to finance for RES, and speed up investments in sustainable energy projects in their territories.
Renewable Energy Regions Network (RENREN)	Aims to improve regional policies in RES to optimise existing frameworks, as well as to establish strategic co-operation between regions for new approaches, projects and solutions.
Renewable Energies Transfer System (RETS)	Aims to increase knowledge and competencies of local and regional policy makers (especially in small, rural regions) in renewable energy systems to facilitate a greater deployment of renewable energy policies.
EU2020 Going Local	Aims to share and transfer practices good practices between the partners in the fields of climate action, energy efficiency, renewable energies and sustainable transport to support the EU 20/20/20 goals.

In order to be confident of the applicability of results from the capitalisation of these projects, a thorough analysis of regional co-operation and regional performance has been undertaken. Seventy-one different regions from 23 Member States were involved in the eight projects. One member of the European Economic Area also took part.

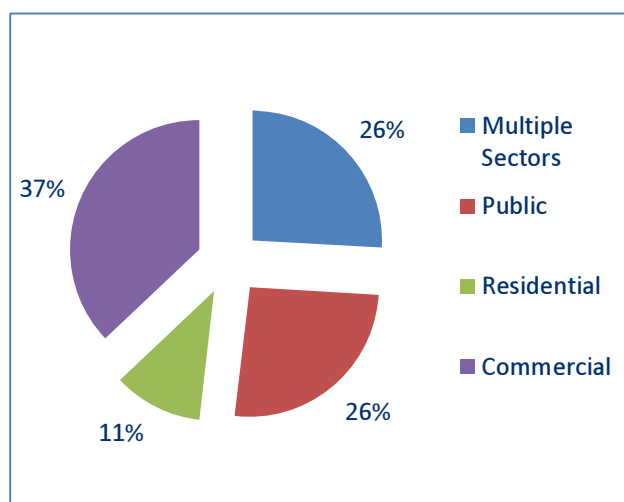
The projects included a good mixture of newer (2004/2007 enlargement) and older (EU15) members. Of the EU states from the last two enlargements, only the Slovak Republic does not have participant regions. All project leaders came from areas under the Regional Competitiveness and Employment objective, but there is a broad mixture of regions, reflecting different development aims. This variety of regional involvement suggests broad applicability of this capitalisation, as results will not be dominated by particular regional geographic or political trends.

4.1.1. GEO.POWER

 www.geopower-i4c.eu	Capitalisation Project
	ERDF funding: €1,612,258 Budget: €2,031,530 Start date: 1st January 2010 End date: 31st December 2012 Partners: 12 Countries: 9 Good practices: 28

GEO.POWER aimed to develop local policy strategies and instruments to boost the low enthalpy geothermal market – particularly for ground-coupled heat pumps (GCHPs) – by profiling an integrated package of incentives and technical measures under Regional Operation Programmes. Good practices on GCHP application were pooled and evaluated for reproducibility in each region to help produce regional action plans. These regional action plans contained technical guidelines, potential legislation and financing schemes with which to lobby the national Managing Authorities of Structural Funds.

GEO.POWER collected 28 good practices, and all but one of these practices (a Swedish R&D project exploring the design of borehole heat exchangers) were demonstration projects, showcasing technology applications rather than policy measures. The highest number of good practices (37%) collected concern geothermal applications in commercial buildings (offices, shops, hotels, etc.) followed by public buildings, such as schools and hospitals (26%), and multiple sectors which are mainly comprised of district heating solutions and businesses installing heat pumps (26%). Therefore, while the good practices collected are demonstrative, they also illustrate the importance of cross-sectoral co-operation and support policies.



The high potential of geothermal energy is demonstrated very well by the Swedish case study on **Arlanda airport**, the world's largest aquifer thermal energy storage unit. This practice was on an enormous scale, and took advantage of Sweden's highly developed geothermal experiences. However, due to the scale of the project and the sheer variety of success factors, the project partners considered it too difficult to be transferred. It was therefore felt to be more realistic to focus on smaller practices that could collectively build to a critical mass for a learning region. The most transferable practice, selected by eight GEO.POWER partners, was the **TELENOR headquarters** in Hungary. As a new construction, it was designed from the outset to include renewables and energy efficiency measures.

Although not selected for the final GEO.POWER brochure, the capitalisation experts identified the **market success of GCHPs in Sweden** as being of interest for other regions. Here, development of the geo-energy market was driven through public procurement by the Swedish National Board for Technological Development (NUTEK). Improved technology and better awareness amongst the population led to an increase in GCHP sales of 400% between 1995 and 2002. Green Public Procurement plays a key role in breaking market monopolies and encourages industries to invest in green technologies, thus increasing supply and driving down costs.

With the focus of the project on GCHPs, geothermal electricity production was left out of the good practice collection, with preference shown for spatial heating & cooling and water heating. Partners have the intention of performing 20-24 transfers in the regional action plans that have been drawn up.

As a Capitalisation project, the project's aim was to transfer good practices by defining potential actions in regional strategies. The following recommendations were produced for policy makers:

- Financial incentives are important to encourage the uptake of GCHPs in the property market and need to be substantial enough to stimulate investment;
- Regulations for the new build market which require a set level of energy efficiency and RES use should be implemented;
- Quality schemes should be put in place for the construction industry to bring together diverse qualification requirements and build customer confidence in registered installers;
- Training is needed to enable installers to switch from oil and gas boilers to geothermal systems;
- Efforts need to be made to increase public awareness and engage consumers to make the choice to use RES, in particular through awareness raising campaigns and demonstration projects; a current lack of knowledge leads to market distortion, leaving low-enthalpy geothermal markets underdeveloped, which in turn leads to slow technology development.

The regional action plans that were produced included measures such as adopting (or increasing) financial incentives; introducing supports (e.g. tax rebates) for large and innovative systems; showing economic feasibility and technical performance with demonstration projects; improving system efficiency and life-cycle of installations; creating clear regulatory frameworks for installation, and; accelerating administrative processes.

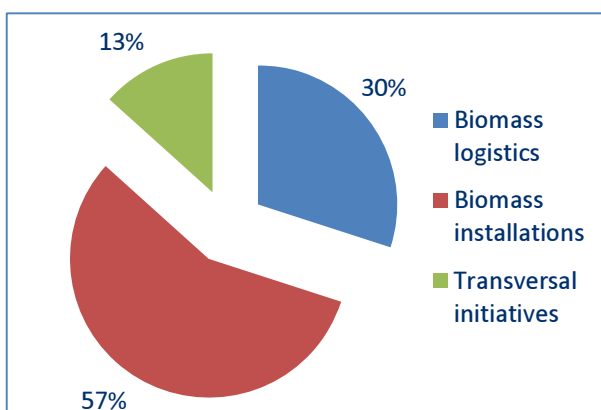
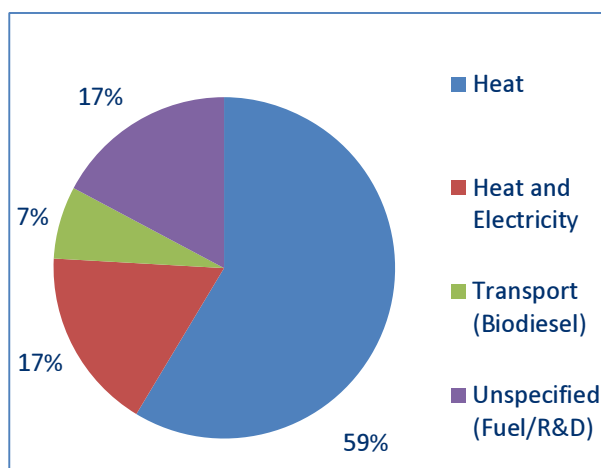
One area not covered in the project recommendations, but included in the regional action plans of Västra Götalandsregionen in Sweden and of Slovenia, was that of cleantech innovation and technology development — however, such policy practices may have been outside the scope of a capitalisation project.

4.1.2. BIO.EN.AREA

 bioenarea improve regional policies for bio-energy and territorial development www.bioenarea.eu	Regional Initiative Project ERDF funding: €2,444,370 Budget: €3,125,000 Start date: 1st January 2010 End date: 30th June 2013 Partners: 6 Countries: 6 Good practices: 30
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BIO.EN.AREA aimed to produce four regional Biomass Action Plans (BAPs) to encourage uptake of sustainable bioenergy use by four 'learning regions' and a set of regional BAP guidelines, drafted by the more experienced partners. This was assisted by exchanging experiences and good practices on different types of bioenergy. In order to tackle all sources of bioenergy, BIO-EN-AREA defined three areas of focus: 'forest & wood biomass'; 'energy crops, agricultural by-products & livestock waste biomass'; and 'urban waste biomass'. BIO-EN-AREA also organised an open-tender competition for sub-projects aiming to produce transferable results for regional BAPs. Seven sub-projects were approved, covering biogas, energy crops, biomass sustainability and certification, regional economic and social infrastructure, organic waste potential, local policy support and, biomass enterprises and value chains.

A total of 30 good practices were collected and disseminated between the project partners (See chart right, top). Seventeen of these were demonstration practices (called 'biomass installations' by the project), and 13 practices were more policy or R&D-oriented, classified into nine biomass logistics (access to fuel or value-chain monitoring) and four transversal (cross-cutting) initiatives, without specific focus on a fuel type or use.



Regarding the breakdown by sector (right, bottom), seventeen good practices were related to bioenergy as a heat source, five explored combined generation of heat and electricity, two explored biofuels (both looking at biodiesel production), and the remaining six did not specify an area of use.

The intentions for practice transfer are demonstrated in the BAPs that have been produced, and regions with particular strengths have been working closely with others to pass on their experiences. For example, there has been close cooperation between Sweden and Estonia on forest biomass exploitation, and Spanish and Italian regions have followed Irish examples of biogas use.

In terms of biomass logistics, the **Sandviksverket biomass combined heat and power plant (Växjö, Sweden)** is particularly impressive for its fuel logistics, using 90% fuel wood, all of which is found within 70-100km of the city. The impressive **Greek pilot cardoon plantation for co-firing with lignite** was intended to test conditions for co-firing, finding that up to 10% cardoon could be mixed into the fuel supply for lignite fuelled power plants, leading to reductions in CO₂ emissions.

From the identified demonstration practices, the **power station in Tartu, Estonia** which co-produces heat and power using local biomass, highlights the regional benefits that biomass can have.

By using biomass, the region is reducing its dependence on natural gas imported from Russia and improving its economic performance. Initially, the station had to overcome strong opposition but now provides a variety of advantages for the region. The use of **anaerobic digestion for biogas production at Camphill Community** in Ireland shows RES self-sufficiency. The independent system provides the community of ninety people with all of their required heat and power. The biogas used is produced on-site from local agricultural waste.

Advanced regions have implemented transversal research programmes to continue to improve regional performance. One such example is the **Italian Edmund Mach Foundation**, which performs R&D activities on bioenergy, produces studies on local agriculture and land use and takes part in international co-operative research projects. Having a pool of experts gives the province a strong basis for the use of bioenergy, supported by links with the local population and territories.

One of the key outcomes from BIO.EN.AREA is the set of **Guidelines for drafting regional Bio-energy Action Plans**, which provide a hands-on template for regional authorities that want to boost their bio-energy sector. The guidelines cover the different concepts related to bio-energy: a) resources (forestry, agricultural and related industries, urban biomass and energy crops), b) biofuel production (solids, liquids and gas) and c) energy applications (heat, electricity and transport) as well as regional aspects to be analysed, covering technical, environmental, social, business, financial and economic aspects as well as legal and regulatory frameworks, the current energy mix, technology and R&D. The guidelines also make suggestions for target setting, qualitative and quantitative objectives and lay out the measures to be enacted for reaching these targets.

Based on these Guidelines, the Spanish region Castilla y León drafted a regional BAP covering policy measures for under the following 8 programmes: Regulatory framework; Planning; Support to business and industrial initiatives; Traceability and standardisation (of fuel); Sector development; Training and employment; Research, development, innovation and demonstration; Communication and awareness. The Greek region of Western Macedonia also created an impressive BAP. Western Macedonia produces over 50% of Greece's energy, currently using large regional lignite deposits. The BAP process was appreciated for allowing the region to involve stakeholders, to understand its bioenergy potential and develop a concept for a bioenergy cluster, amongst other measures intended to allow the region to diversify so as to use more bioenergy.

4.1.3. 4Power

 www.4-power.eu	Regional Initiative Project ERDF funding: €1,228,472 Budget: €1,570,879 Start date: 1st January 2012 End date: 31st December 2014 Partners: 11 Countries: 9 Good practices: 27
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The Offshore Wind (OSW) market is still developing, but it has been recognised that if Europe's potential in OSW were fully exploited, it could generate more electricity than is currently used. At present, OSW faces a variety of barriers, particularly in finance, a low level of political commitment and inadequate policy instruments. 4Power looks to collect successful approaches to development and regulation of OSW amongst coastal regional governments and create action plans through dialogue with the wind-energy industry, knowledge institutes and other stakeholders deemed essential for the development of successful policy frameworks.

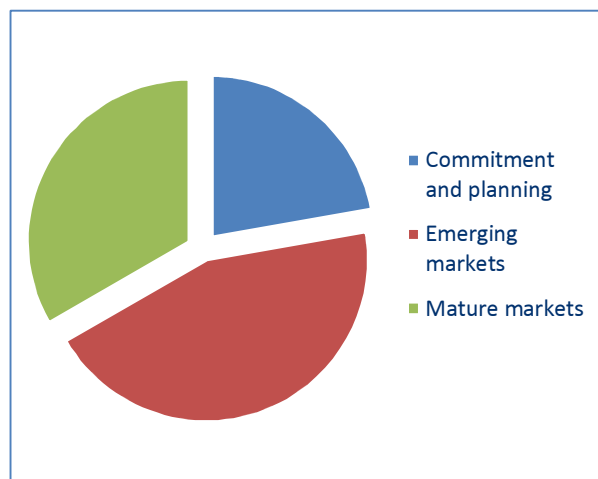
4Power has two themes which are mutually reinforcing – creating an efficient policy framework and promoting a favourable business and innovation environment. The former is the main aim of the project, whilst the latter is a positive by-product of the process. By including experienced and learning regions, there are advantageous opportunities for businesses and an increased chance of practice and technology transfer and improvement.

Regions have very limited competence in offshore wind development – which tends to be governed from the national level and requires large investments. However, all wind farms must be installed from land, and their installation affects coastal regions. Regions can lobby their national governments to create offshore wind parks to attract investments, and can maximise their profits from offshore wind by implementing training programmes and preparing the necessary infrastructure for offshore installation.

4Power has collected 27 good practices to cover pre-defined issues of grid connection, financial support systems, permitting, environmental impact, lobbying, education, infrastructure, awareness raising, and value chain construction. These practices can partly be used to lobby national governments, and also to change regional frameworks. The largest group of the practices identified were in the Emerging Markets stage, reflecting the development stage of the industry as a whole. Fewer regions, or countries, have reached a Mature or Saturated Market development stage, owing to the complexity of the development of OSW technology. The main Mature Market policies that were collected involved R&D, clustering and networking activities.

A key good practice is to provide **support for the education and training of technical staff for Offshore Wind** in Scotland. Scotland's aim is to become a 100% renewable energy region by 2020, and to achieve this, skills will be needed, as any shortage in skills could prevent the maximum development of renewables by making them costly and reliant on external expertise. Given Scotland's climate, wind energy forms a strong part of their strategy. In order to ensure that its people are well placed to benefit from the emergence of renewable energy jobs, key stakeholders have come together to identify training needs, and the Scottish government has been working to create appropriate training programmes to answer future skills needs.

Whilst offshore wind does not face the same level of resistance and NIMBY challenges as onshore wind does, there is still some societal resistance to their installation and use. Resistance, broadly speaking, comes from those who do not support public investments in renewables in general,



some environmental groups who are concerned about marine wildlife, and sectors of the public who worry about the visual impact and impact upon tourism. The German Offshore Wind Energy Foundation conducted a **study on the impact of offshore wind on tourism** and looked at how existing wind plants have been integrated into regional tourism strategies. With integrated planning and zoning, they found no negative impact on tourism and, in fact, found that, there is even a chance to boost tourism with, for example, offshore restaurants, and visiting platforms.

As offshore wind farms must be installed from a harbour, regions can make themselves attractive as a base from which wind farms can be installed. Every part of an offshore wind turbine is delivered to its installation point by boat, so a region hoping to boost its economy through offshore wind must have adequate port and logistics infrastructure. The city of Emden in Germany has become a key base for German wind farms installed in the North Sea through development of essential infrastructure for wind turbine installation. Learning from Emden, who had already implemented such installations, the port of Eemshaven (Groningen, Netherlands) will build a test site for wind turbine parts and a helipad to improve its attractiveness as a hub of wind turbine installation. Proper port planning means that value chains can be optimised, with different ports along a coastline performing different functions for offshore wind installation. Furthermore, a local authority can make efforts to improve the attractiveness of a port to businesses.

In Italy, there has been some resistance to offshore wind, despite its high potential. The Italian partner, the Province of Rimini, has used 4Power results to lobby the national government to improve overall opinion of the sector. Due to the monopoly that national governments have over planning and funding offshore wind, it is absolutely essential that national governments be on board if offshore wind energy use is to grow.

4.1.4. MORE4NRG

 www.more4nrg.eu	Regional Initiative Project ERDF funding: €1,030,689 Budget: €1,324,559 Start date: 1st September 2008 End date: 30th September 2011 Partners: 12 Countries: 7 Good practices: 24
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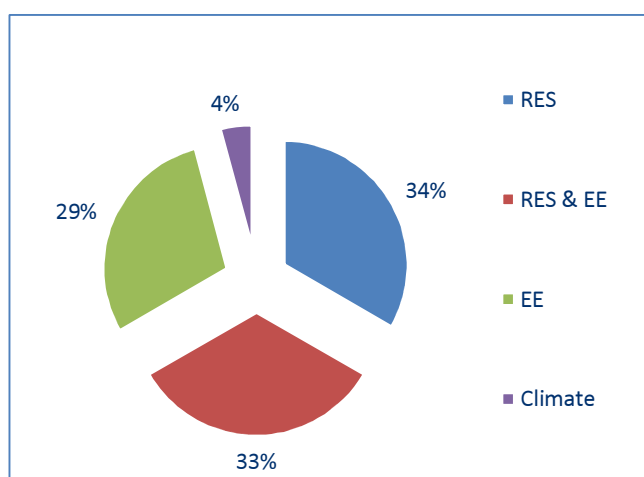
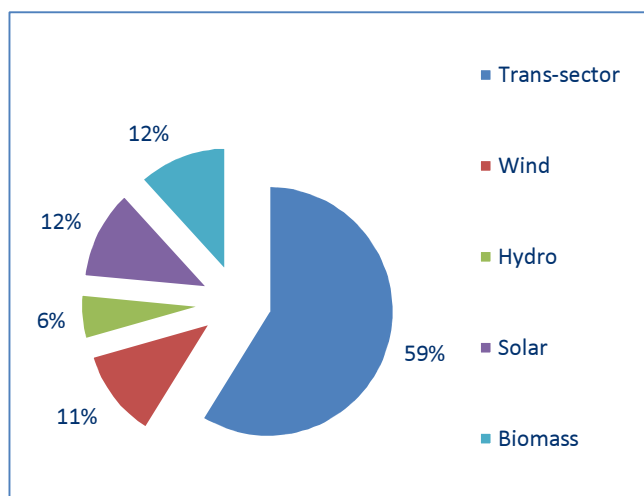
More4NRG did not limit the RES types that could be explored by its partners, but instead focused on monitoring and improving regional strategies for all RES. The project also aimed to improve energy use through a variety of energy efficiency measures. The key tools for the project were the exchange of good practices and the use of peer reviews, whereby more experienced partners visited less experienced regions to analyse energy strategies and suggest solutions to identified problems.

Twenty-four good practices were identified by the project partners. The project collected practices that were specifically focused on RES implementation, but also a variety of practices that were focused on energy efficiency (EE) only, and RES and EE combined (See chart, top right). One practice identified was on international involvement in assisting with adaptation to climate change in developing countries.

With regard to the good practices with a RES aspect, a breakdown of their categories shows that most of them were trans-sectoral, that is, not focused on any one particular technology type (See chart, bottom right).

Despite this, the project was one of the few to present good practices in Hydropower. One such example is the **Ecological construction of small hydroelectric power plants** in Maramures, Romania, a promising practice which demonstrates how to integrate hydropower in an ecologically sustainable manner. The small hydroelectric dams built in Maramures do not use reservoirs, thus preventing negative impacts in water flow. They also use fish ladders for the safe passage of fish through the installations. The practice highlights the importance of balancing human needs with protection of the environment, and can help overcome opposition to small hydro dams. The practice was transferred to Norrbotten, Sweden, in a rare case of a learning region transferring to a more advanced region.

Flevoland (Netherlands) is a leading region in the use of wind energy, and its process of **transferring from first to second generation wind energy** represents a good practice for updating renewable energy installations. Second generation wind turbines produce more energy than the first generation, meaning that fewer of them are needed. This is a positive for the region, which is known for its flat, open landscapes. The process of upgrade, through legislation and spatial planning, involved



local stakeholders and created opportunities for agricultural entrepreneurs to invest in wind energy. The practice highlights that public opinion must be kept in mind, not just at the planning stage, but throughout the operation of RES plants, as well as showing that continued technological upgrading is important.

For renewable energies, many people have a gut reaction of either support or suspicion, which has developed over their lifetime. Ensuring that attitudes are positive is a major challenge for boosting renewable energy use. The **Energiochi** contest is financed by the Abruzzo region (Italy) with the aim of teaching school children about the importance of energy efficiency and RETs. Many habits and ways of thinking are formed in childhood, so this project is a strong communication and education tool for preventing later development of 'NIMBY-ism', and promoting future ethical, sustainable consumers. The project was transferred from the Abruzzo region to Maramures (Romania).

Perhaps the good practice from the project was the **process of peer review**. An energy peer review is a mentoring visit, undertaken by a group of experts to a region that is interested in RES. The visitors review the generation and use of energy in the region, focusing on areas defined by the hosts, to help local authorities to make improvements to their regional energy system. The reviewers make site visits, and meet with important stakeholders in the region such as legislators, market operators, local development agencies, business leaders and consumer associations. The peer review has a pre-defined methodology, based on a checklist derived from global good practice, which describes what an 'ideal' regional authority would do. Including politicians in the process was found to be a good strategy, as politicians are often happier to take recommendations from outside experts than from local civil servants. The comprehensive peer review methodology should be made available to, and used by, other projects.

The Gabrovo (Bulgaria) region's energy strategy is a particularly good outcome of the project. The region previously did not have a comprehensive energy strategy, but following a peer review process, a strategy was drawn up with long-term priorities and in line with national priorities and law. The peer review process allowed for the creation of the strategy, with a clear focus on specific regional challenges and context. The input of external experts in the peer review was hugely beneficial to the creation of the strategy.

In order to implement energy strategies, a study by the project recommends the creation of triple-helix **Regional Energy Research and Innovation Clusters** (RERICs) to bring together government, industry and regional transmission organisations (RTOs), and gain the necessary critical mass of trained and educated people needed to manage and consolidate regional knowledge and expertise.⁴³ RERICs are able to develop regional energy action plans and assign funds from operating programmes, create a one-stop shop for investors, monitor supply, demand and cost of energy, act as an expert think-tank and conduct research.

⁴³ Patras Science and Business Park & Euro Perspectives Foundation – MORE4NRG Study on framework conditions necessary for generating development of, and investment in, regional renewable energy infrastructures

4.1.5. Regions4GreenGrowth

 Regions 4 GreenGrowth www.regions4greengrowth.eu	Regional Initiative Project ERDF funding: €1,707,203 Budget: €2,200,607 Start date: 1st January 2012 End date: 31st December 2014 Partners: 15 Countries: 10 Good practices: 21
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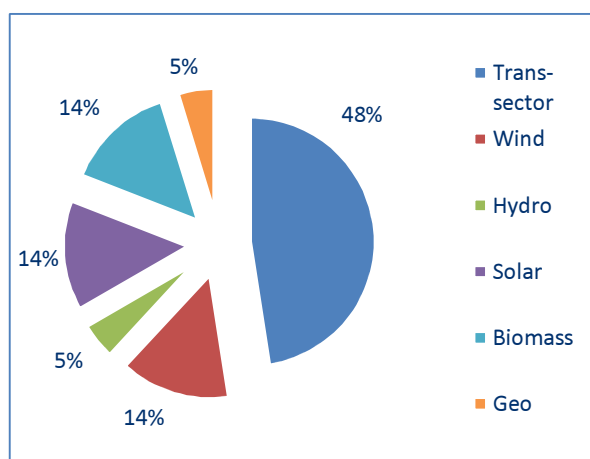
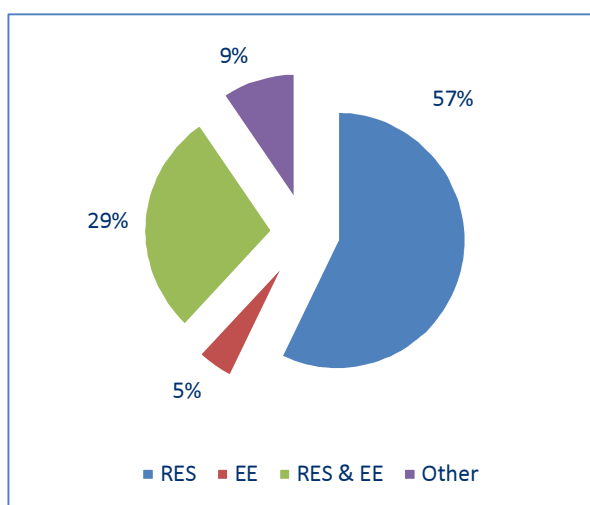
The Regions4GreenGrowth project focused on the issues of access to finance and how to speed up investment. Like More4NRG, which had the same project leader, Regions4GreenGrowth also uses peer reviews, but unlike its predecessor, all regions acted as hosts, producing fifteen peer reviews to analyse specific challenges related to financing and present tailored packages of instruments and actions to help achieve regional targets.

Twenty-one good practices were identified by the project. As the chart (right, top) shows, the project practices also had some relevance to the topic of energy efficiency. The 'Other' category includes a general scheme to attract Foreign Direct Investment (FDI) into a Swedish region and a system of Cycle Paths in Romania which aims to decrease CO₂ emissions in the region. The largest group was not focused on one particular technology type (right, bottom) suggesting broad transferability of conclusions from good practice analysis.

One of the good practices identified was that of the **Greater Manchester Low-Carbon Investment Pipeline** (UK), a scheme for achieving a 48% reduction in CO₂ emissions by 2020 through a Low-Carbon Economic Area (LCEA) plan. The LCEA Sustainability Board recognised that a common approach was needed to optimise the use of resources and create large scale projects that could attract investors. A part of this strategy was to create investment portfolios that included both large and small projects. Small-scale green investments can often have low returns, and it can be difficult to attract investment. In the Manchester scheme, the private sector is invited to invest in an Investment Fund, which is used to fund project portfolios in a 'pipeline' of prioritised investments, rather than having to seek investment for individual projects.

The project identified that it is often very difficult to establish who is to take leadership in steering sustainable growth, with regions often having high ambition but suffering from organisational weaknesses. The Manchester Sustainability Board was identified as a good way to achieve this. A Sustainability Board brings together regional stakeholders and elected government officials from regional and national levels, to form an effective body for making sustainability choices. The Province of Flevoland (Netherlands) is now in the process of creating a Sustainability Board.

The project held several Master Classes on how to create a Development and Investment Organisation (DIO). A DIO is a public-private co-operative structure for investment in sustainable energy. DIOs have been established in Manchester (UK), Flevoland (Netherlands) and Noord Brabant



(Netherlands), with pilot projects now being held in Prahova (Romania) and Lazio (Italy). Regions4GreenGrowth has created a set of guidelines for creating a DIO, which is available through the project website.⁴⁴

Another important practice identified was the **technological environment innovation subsidy** of Flevoland (Netherlands), which directly supports leading stakeholders and innovative SMEs, to encourage them to innovate and work sustainably. Companies can apply for the subsidy to assist with the financing of environmental, and innovative technological projects. Sustainability relies on local synergies, so having sustainable local businesses and entrepreneurs to drive market growth is an essential pre-requisite for future renewable development. Funding accounts for 30% of total costs, with the SMEs expected to provide the rest to show credible commitment. The subsidy has been awarded to twenty companies, creating fifty new jobs.

The city of Baia Sprie (Romania) established a **Public-Private Partnership (PPP) for a photovoltaic energy park** to provide sustainable energy for its citizens. The project was initially approved for financing from the structural funds, but was then put on a waiting list. Therefore, other financing possibilities were sought. The city provided land for the installation, as well as planning permission, in exchange for 5% of shares in the project company, with the possibility to buy up to 15%. The private partner made all other investments for 85% of the project company. Profits will be shared in relation to share ownership.

The main outcomes of the project are the peer reviews and their resulting recommendations and implementation plans. The peer review exercise, as also used in More4NRG, is again proving itself to be a very useful methodology for RES promotion. Its success in the previous project has meant that in Regions4GreenGrowth, all partners are hosting peer reviews to improve their regional strategies.

Recommendations in the reviews include the use of Energy Service Company (ESCO) business models and the creation of loans with public money, rather than grants. An ESCo can provide the investment for energy efficiency and RES installations and then make a return based on the final energy savings made. Therefore it is funded by energy savings made by the customer. For public financial support, reliance on grants can have a negative outcome as the public makes investments and then sees no tangible return. Using the money to create loans is an alternative financing model whereby returns are made (perhaps with a small percentage of interest) to be used for future investment. As with co-financing, a loan scheme would require credible commitment from an entrepreneur.

Several practices, beyond just the DIOs and Sustainability Boards are in the process of being transferred. These include the adoption of an energy efficiency fund, transferred to Sofia (Bulgaria), Abruzzo (Italy) and Valencia (Spain), and the potential establishment of ESCos in Maramures and Lazio (Italy).

⁴⁴ http://www.regions4greengrowth.eu/userfiles/documents/Public/6.-%20Others/published/R4GG_Guidelines_how_to_develop_a_DIO_pdf.PDF

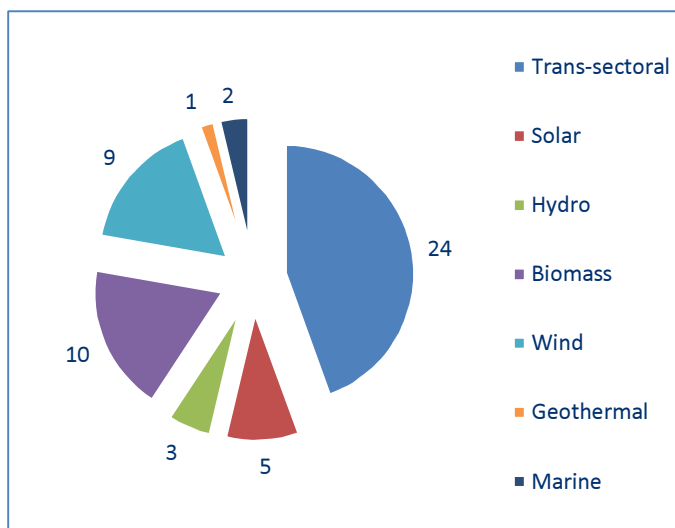
4.1.6. RENREN

 RENREN Renewable Energy Regions Network www.renren-project.eu	Regional Initiative Project ERDF funding: €1,646,507 Budget: €2,095,360 Start date: 1st January 2010 End date: 31st December 2012 Partners: 14 Countries: 12 Good practices: 54
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RENREN (the Renewable Energy Regions Network) aimed to improve regional policies in RES to optimise policy frameworks, as well as establish strategic co-operation between regions for new approaches, projects and solutions. This was achieved through the exchange of good practices and experiences. The project included regions with expertise in wind, hydropower, solar-thermal, photovoltaic, biomass, geothermal and ocean energy, as well as learning regions.

RENREN selected case studies and made recommendations for both 'learning' and 'experienced' regions. However, it was understood that every region was a learning region in at least one type of RES. The RENREN partners identified 54 policy practices. All practices are policy instruments, and the majority of practices are trans-sectoral (including energy efficiency practices) followed by sector-related practices from biomass and wind.

RENREN was the only project to identify marine/ocean energy practices, both of which were in Wales (UK). The practices were strategic initiatives (preparatory actions and spatial planning) designed to allow for capitalisation on future opportunities, once the technology had developed further.



Zoning for onshore wind was identified as a good practice by both Wales (UK) and Schleswig-Holstein (Germany), the aim of which was to concentrate wind power into controlled areas and ease people's concerns about visual impact. The NIMBY syndrome is a big issue for wind farm development, and planning is a politically sensitive issue. By concentrating installation into one area, local people can be assured that wind farms will not emerge all over the countryside. Zoning designates land usage based on an analysis of electricity production potential, local acceptability, environmental impact, and other such categories of concern, giving a higher chance of acceptance of the technology.

To further mitigate the NIMBY concern, Schleswig-Holstein (Germany) has promoted the emergence of **Community-owned wind farms**. Such wind farms can be entirely community initiated and funded or have some government involvement, and have been developing in Schleswig-Holstein (Germany) for some years. The first community-owned off-shore wind farm is currently being planned. All local citizens are able to join the co-operative, even with only a small investment. The farms are funded by the community, requiring an equity position of 20%, with the remaining finance provided by local institutions and authorities. Community wind farms bring a variety of benefits to a region, especially in terms of construction and operational jobs.

Small hydropower plants had been widely used in Andalucía (Spain) until the 1960s, when many were abandoned. **Restoring abandoned small hydropower** (Andalusia, Spain) was identified as a good way to meet RES targets at a minimal cost, and with limited legal difficulty. With much of the infrastructure in place, investment costs were not as high as building new plants and permitting processes were less complex. Small hydropower, despite mitigation practices, is often, inaccurately, considered environmentally damaging and can face public opposition. Restoring existing plants can

lessen such resistance. The restoration process occurred following a comprehensive survey of the region. Once identified, the regional energy agency promoted their restoration to investors, who could recoup investment through an existing feed-in-tariff.

The project partners produced a comparative analysis monitoring tool to establish what counted as a good practice and what factors were acting as bottlenecks. It was found that bottlenecks were almost identical in every region: storage, grids and infrastructure. Similarly, most regions had similar support frameworks: local climate plans, permitting, local networks and incentives.

Apart from the publication of good practices, a booklet of policy recommendations, “to accelerate the implementation of RES across the regions,” has been produced.⁴⁵ The recommendations present a wide range of policy instruments, procedures, processes and structures that are useful for policy making with regard to renewables. In addition to RES specific recommendations (biomass & geothermal, wind, ocean hydro and solar-thermal, PV and CSP), policy recommendations have been made that apply to both learning and experienced regions. The main headings under which these recommendations can be summarised are as follows:

1. **Institutionalise renewable energy** (committing to RES by setting goals and objectives; providing a guiding framework; establishing regional RES management and communication structures)
2. **Increase the success rate at the project development phase** (using spatial planning as a strategic tool for RES development; providing information & guidance for developers; reducing the complexity of the permitting process; increasing transparency of the permitting process)
3. **Use RES as motor for jobs & driving innovation** (qualifications & skills - key to attracting jobs in a region; creating and using co-operation opportunities within and beyond your region; fostering innovation by integrating existing and/or new research facilities in your regional strategy)
4. **Incentivise the use of renewable energy in your region** (supply & demand standards for the use of RES; providing incentives to use RES by demonstrating its benefit and added value; reviewing specific RES use for transport & mobility; awarding forerunners)
5. **Facilitate access to finance** (mobilising EU funds & programmes for regional RES projects; creating demand - using Public Procurement as a (strategic) tool; leveraging private money)

Another key output of the project is the RENREN declaration in which the partners link the major challenges facing regional RE deployment with the achievements of the project. The aim is to continue to develop solutions in these areas and further develop RENREN to enable key regional governmental bodies to exchange experiences and establish co-operation.

⁴⁵ http://www.renren-project.eu/images/stories/dokument/documents/policy_recommendations/new_9oct/1006_policy_recommendations-print-12pt%20update.pdf

4.1.7. RETS

 RETS Renewable Energy Transfer System www.rets-project.eu	Regional Initiative Project
	ERDF funding: €1,484,054 Budget: €1,908,715 Start date: 1st January 2010 End date: 31st June 2012 Partners: 12 Countries: 9 Good practices: 55

The Renewable Energy Transfer System (RETS) aimed to improve the knowledge and competences of local and regional policy makers (especially in regions with a population of fewer than 25,000) in renewable energy systems to facilitate a greater deployment of renewable energy policies at regional level. Partners work in association with the expertise of existing competence centres that produce research and provide services on renewable energies.

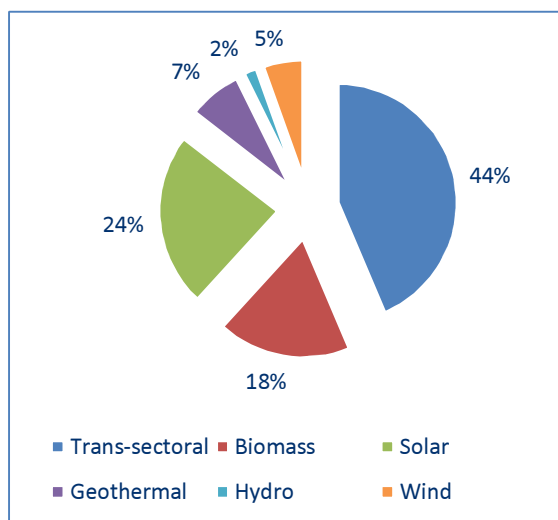
Small regional authorities have specific difficulties related to RES uptake, in terms of territorial competitiveness and project management skills for implementing complex RES practices. The core of the project was to create simple, usable tools for local authorities to help them make informed choices for implementing projects for an efficient and effective energy mix.

Fifty-five good practices were identified by the project partners – fifty-two were specifically focused on RES implementation, and three looked at energy efficiency measures. For RES technology, the majority of practices were trans-sectoral, however, sector-specific good practices for solar energy, biomass, geo-thermal energy, wind and one hydro practice were also described.

RETS identified several very good practices that can provide inspiration to other regions. Examples include the **Derbi Pole of Competitiveness (France)**, which was created in 2005 and is a network of 71 clusters. It is made up of companies, laboratories universities and local authorities in a triple-helix structure, with many of its members being small organisations that can co-operate on projects (around 80% are SMEs.) Its objectives are to boost the creation of green goods and services and develop the regional renewable energy industry by connecting research with SMEs. The Pole shows that small companies can make a profit from RES and green development, which is essential for achieving critical mass.

The **Cwmni Gwynt Teg (Fair Wind Company)** operates a strong example of a community wind farm in Moel Maelogan, Wales. The company is a co-operative set up by three farming families with the intention of overcoming decline in the rural economy and providing future income for their families by diversifying their income. The local community was involved in the development of the project, with the installation of three wind turbines. After this, nine more turbines were planned in a second phase expansion, with the local community able to invest through a bond scheme. Some local opposition was encountered, especially in the second phase of the project, but by sharing the benefits of the development, much was overcome.

Sitaard-Geleen Biomass central (Netherlands) is a private initiative by a local entrepreneur that uses biomass waste in the co-generation of heat and electricity. A deal was struck with the local electricity company to secure grid access, and the price of electricity and heating from the system is the same for the residents as before, so they do not pay extra for the implementation of the system. The municipality did make a small investment in the installation, but in return, it gets a way to treat its biomass waste. In order to secure the supply of fuel, a green waste collection service was established, representing a useful and profitable synergy.



A RETS community wiki was developed to manage communications between partners. The RENREN project was given access to the database, which was a good way to get the projects to work together, but interaction could have been more in-depth. The platform acted as a gateway between activities, and became a way to link good practice databases.

Along with identifying good practices, the RETS partners also took part in 37 events (site visits and seminars) with the intention of sharing experiences. The collective knowledge gained led to the creation of several policy recommendations in the project's final brochure, many reflecting the RETS-specific focus on energy management, particularly for small and rural local authorities.

Recommendations included that local authorities develop green loan systems, and put in place local tax incentives for green growth and sustainable entrepreneurship. In order to overcome the 'owner-tenant' dilemma for rented buildings, (also experienced in GEO.POWER), it was recommended that partnerships of local authorities, social landlords and housing associations be created, with financial incentives developed for retrofitting the existing housing stock.

One particular area of strength for the RETS project was its focus on educational issues. The RETS partners recommend that local authorities work in close partnership with colleges and universities to identify and develop appropriate training packages and courses for professional developers. It was also recommended that individuals be trained in 'energy bookkeeping', to provide a house-to-house service for reviewing energy use.

Further in line with this educational and awareness-raising push, it was recommended that local authorities create regional agencies to provide free, unbiased local energy advice services to advise people on energy efficiency and RES.

4.1.8. EU2020 Going Local

 www.eu2020goinglocal.eu	Regional Initiative Project ERDF funding: €1,203,457 Budget: €1,546,193 Start date: 1 st October 2010 End date: 31 st December 2012 Partners: 14 Countries: 9 Good Practices: 20
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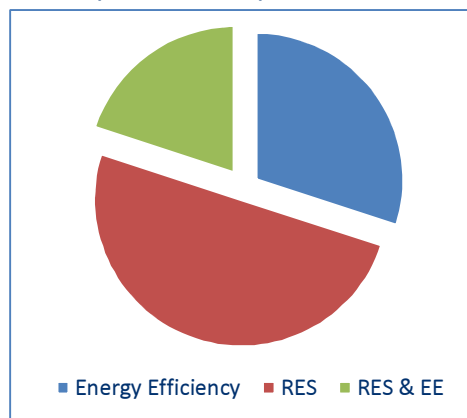
EU2020 Going Local (From detached Lisbon and Gothenburg Strategies to a regionalised indigenous EU 2020), focused on collecting good practices in renewable energies, energy efficiency and climate action. The project identified 20 good practices (from an initial shortlist of 55), which were used to elaborate Local Action Plans (LAPs). The LAPs provided regional implementation plans to achieve the aims of national and EU strategies, tailored to regional circumstances, and engaging politicians, local authorities, development agencies and the local population.

Of the 20 practices which were selected for inclusion on the project website, 14 are related to Renewable Energies and 6 to Energy Efficiency. All practices were in Phase 1 or 2 of the Support Cycle. The renewable energy practices covered geothermal, solar and bioenergy, though the most interesting practices were those that focused on support.

One of the most promising practices identified was the **collection of organic waste and conversion into biogas**, which was identified as a good practice in both Sörmland (Sweden) and in Luxembourg. Households and businesses produce a large amount of organic waste which can be turned into fuel. The disposal of organic waste can be problematic, with methane – a potent greenhouse gas – being produced during decomposition in landfills. Therefore, this is a good practice for both renewable energy use and also for waste management. Organic waste can be treated in such a way so as to produce heat and power, or can undergo anaerobic digestion to produce biogas, as in this case. The project established a strong political network in Sörmland (Sweden), which is still working to increase biogas use in the region, particularly for transport, and the region will soon be buying a biogas-powered bus. Many other partners expressed interest in the biogas practice, and it was mentioned in several of the action plans.

The **RE:think Energy** programme aims to establish Staffordshire and Shropshire (UK) as leaders in renewable technologies. The programme established a grant scheme for SMEs, to provide energy efficiency audits for businesses, and to perform renewable energy feasibility studies. The programme was guided by a business-based organisers group, ensuring that the programme responded to business needs. The practice is a key example of a successfully operating partnership between public and private sectors.

The EU2020 Going Local project implemented a system of political boards, involving policy makers in the project from the outset, so as to ensure political commitment. Giving policy makers a degree of ownership of project results can increase the chances of action plans being implemented. The established plans of the project were all adopted by the local politicians and stakeholders. The plans set out how to transfer and implement good practices using Structural Funds, outlining the good practices selected and the main stakeholders to be involved in implementation.



4.2. Synergies with other experiences

INTERREG IVC provides a wide variety of practices and experiences that can be used to elaborate regional renewable energy support systems. However, the breadth and depth of the programme mean that not all renewable energy technologies and issues are covered equally, leaving room for knowledge from outside of the programme to be brought in. Informational synergies can thus be found with other experiences that can provide additional knowledge and recommendations. Presented below is a benchmarking of some of the EU programmes, projects and initiatives that have information and content that is relevant to the INTERREG IVC Programme, and whose findings will be used to support and enhance the conclusions of this Capitalisation.

4.2.1. Other INTERREG IVC Capitalisation Reports

The INTERREG IVC Capitalisation exercise is being performed for different thematic areas of the programme, and several of these other topics are relevant to the topic of Renewable Energy.⁴⁶ **Energy Efficiency** is often described as the 'other side of the coin' to renewable energy, as using energy more efficiently results in greater cost effectiveness of renewable energy use. Like renewable energy, there are financial, administrative and awareness barriers that block the uptake of energy efficiency measures. The Capitalisation report recommends public outreach and stakeholder involvement as vital activities, but also that Green Public Procurement and Energy Service Companies (ESCOs) are effective tools. A recommendation that chimes with the renewable energy topic is that arguments in favour of energy efficiency should be made on the issue of saving money, coupled with efforts to remove or ameliorate high initial investment costs. All of these recommendations are similar to the findings of the renewable energy projects, and synergies should be sought between tools for renewable energy and energy efficiency. For example, ESCOs should not tackle energy efficiency or renewable energy separately, but both together. Energy tools need to take an integrated approach to ensure the fastest possible pay-back on investments, so as to encourage individuals and companies to make the initial investment.

Eco-innovation also has a large role to play in ensuring maximum benefits from renewable energies. Whilst a region can rely on importing technologies from other regions to increase its energy independence and create jobs in installation and servicing, maximum impact can be had from front-runner regions which manufacture and export new technologies, thus creating new jobs and bringing money into the region. The eco-innovation report advises that regions should place eco-innovation at the core of Smart Specialisation Strategies and should begin their attempts with a benchmarking of regional state-of-the-art, identifying key stakeholders, priority sectors and policy targets. This benchmarking can be performed in synergy with a benchmarking of regional energy performance and resource availability, to allow for the identification of eco-innovation potentials that can support renewable energy growth.

Alongside eco-innovation, **entrepreneurship** is also essential for leadership in renewable energies. Regions must set the right frameworks for entrepreneurs to create business opportunities. This can drive down the cost and increase uptake of existing technologies by allowing for scaling-up, and by finding new ways of providing goods and services in competition with other providers. The report advises that an entrepreneurial culture needs to be supported with long-term entrepreneurship education, communication and support tools. Ideally, a region can take advantage of the expertise gathered in the INTERREG IVC Capitalisation series to produce integrated regional development plans and approaches for regional development, which can be matched with funding from the ERDF to ensure progress towards the EU 2020 goals.

4.2.2. Transnational Co-operation

The transnational programmes of EU Regional Policy can also provide interesting lessons. Transnational co-operation programmes lead to co-ordinated strategic responses between regions in bordering EU member states, as well as tool development and the implementation of pilot projects. One example of a transnational programme, the **CENTRAL EUROPE Programme** has funded a variety of projects which seek to increase the use of renewable energies in Central Europe. The programme's Thematic Report on Energy Efficiency and Renewable Energies outlines examples of tools and strategies developed, which could be studied by other regions to develop regional support policies.⁴⁷

⁴⁶ Information on all of the Capitalisation reports can be found at: <http://www.interreg4c.eu/capitalisation/>

⁴⁷ Greenovate! Europe – *CENTRAL EUROPE Programme: Thematic Study on Energy Efficiency and Renewable Energies* (2014)

One of the main recommendations made in the thematic study is that renewable heating and cooling technologies are underused, and that good policy practices found by CENTRAL EUROPE projects – such as the Czech Republic's heat incentive – should be promoted. Renewable heating and cooling can be provided from geothermal energy and from biomass, which have strong potentials throughout Europe. Renewable heating and cooling was scarcely mentioned by INTERREG IVC projects, with GEO.POWER as the key exception. The GEO.POWER Green Public Procurement practice by the Swedish National Board for Technological Development (NUTEK) was particularly outstanding in this regard.

Two of the most interesting tools to come out of the CENTRAL EUROPE Programme were the **TRANSENERGY** web-based decision supporting tool, and the **RUBIRES** geographic information system, which, respectively, mapped geothermal and biomass availability in central Europe. Both tools can be used for building awareness of resource availability, which can stimulate investment, by providing evidence of potential returns. Both tools could prove useful for stimulating renewable heating and cooling investment.

The programme's projects have also developed coaching and knowledge networks which can be accessed by regional authorities and provide advice and knowledge for inexperienced regions. These include the **Coach BioEnergy** (CBE) Network and the SEBE Competence Knowledge Centre Network. Some projects have also drawn up handbooks, which can be of use to regional authorities looking to increase renewable energy use. A good example is the **MANERGY** project, which has created a handbook on how to create a Regional Energy Concept (REC). A REC is a tool for mid-term planning and for making recommendations on policy frameworks, taking account of regional strengths and energy consumption. The methodology has specifically been designed to require a minimum of expertise and cost, and regional authorities are strongly encouraged to look to the handbook, which will shortly be available through the MANERGY website.⁴⁸

4.2.3. European Territorial Cohesion

Studies, capitalisation reports and projects within other European Territorial Cohesion Programmes have been examined as a starting point for further elaboration of the conclusions to the first year's Capitalisation exercise. The **URBACT** programme promotes integrated sustainable urban development by enabling cities to work together to develop solutions to major urban changes. URBACT projects have not covered the topic of renewable energy use in cities, but have focused on energy efficiency. The policies explored for retrofitting old buildings with energy efficient technologies can also be used as inspiration for supporting renewable energies.

The URBACT capitalisation recommends that the potential benefits and gains of energy efficiency should be clearly made visible, that energy efficiency consideration should be integrated into policy-making, that measures need to be made more affordable through new business models, financing and incentives, and that greater investment is needed at all levels of governance.⁴⁹ Given how closely linked energy efficiency and renewable energy are – both being essential for a sustainable energy policy – we should be looking to the two together, rather than separately, with policies thus supporting both supply and usage of energy. By supporting energy efficiency, more utility can be gained from generated renewable energies, leading to faster pay-back for investors.

The **ESPON** Programme (the European Observation Network for Territorial Development and Cohesion) supports policy development by supplying information, evidence and analysis on territorial dynamics and reveals territorial potentials for development of regions. The programme funds research projects by transnational research teams to provide data that can be used to assess regional strengths and weaknesses. One such project, **ReRisk** (Regions at Risk of Energy Poverty), focuses on how to support competitive clean energy supplies and delivers evidence on the impact of rising energy prices on competitiveness, which can be used to argue for renewable support policies. Responsibilities for energy policy are divided between the regional and national level, but security of supply is often a national competence. However, awareness raising at the regional level can play a large role in preventing energy poverty.

Other projects include **GREECO** (Regional Potential for a Greener Economy), which examines the contributions that regions could make towards a greener economy and the role that territorial policies can make towards sustainability goals. Regions, the final report notes, are the holders of territorial capital

⁴⁸ <http://www.manergyproject.eu/project>

⁴⁹ URBACT II Capitalisation – *Building Energy Efficiency in European Cities* (2013)

– the assets for developing a green economy – which varies by geography.⁵⁰ It also notes that a key challenge is a lack of regional data, which is an essential prerequisite, as 'greening' is directly related to existing performance. Beyond this, the report recommends that stakeholder involvement and public awareness-raising are essential activities. Further, they argue that individual projects are insufficient for long-term change, but need to be part of a holistic approach to a region's future development. The ESPON programme has also created a set of tools for policy makers, including a database of regional data, a 'HyperAtlas' for comparing regional performances, and an online map finder, detailing the maps created by ESPON projects. Such information can help policy makers to understand the situation in their region and can be used for long-term planning. The tools are available on the ESPON website.⁵¹

The **INTERACT** network provides support, training and advice to ETC programmes on management, finance, policy frameworks, communication, strategic orientation and policy development. In order to help to communicate the results of INTERREG and Intelligent Energy Europe projects, the INTERACT programme has performed a capitalisation exercise of energy projects.⁵² This capitalisation gives further insight into a few of the key issues discussed later in this report, including spatial planning, financing instruments and multi-level governance. Its conclusions have been examined and used to strengthen the conclusions of this present Capitalisation. Although all of the renewable energy projects reviewed for this study have been very well managed by their respective co-ordinators, future project co-ordinators should bear in mind that guidance and support can be sought from the INTERACT platform.

4.2.4. Intelligent Energy Europe

The Intelligent Energy Europe Programme, which was run by the EU's Executive Agency for Competitiveness and Innovation (EACI) is very relevant to the thematic topic of Renewable Energies, and can be used to fill in the further gaps that remain for completing a full support framework for renewables.⁵³

A particular weakness identified within the INTERREG IVC projects was a lack of practices on Small Hydropower. In fact, of all of the good practices identified, only five covered SHP. Small Hydropower has a lot of potential at the regional level, however, it does require substantial planning and consideration of environmental issues, with tight permitting in many regions. Such permitting processes may be one of the explanations for the lack of good practices collected, with regions unsure of how to proceed in supporting the technology. The **RESTOR Hydro project** looks to collect the 'low-hanging fruit' that is available by bringing abandoned hydropower back online, thus avoiding the permitting challenges that face new plants.⁵⁴ Hydropower has been widely used throughout Europe, but many of the previously operating plants have since been shut down. RESTOR Hydro has looked at how to create co-operatives for renovating and operating abandoned hydro plants, and for adapting water mills into hydro-electric plants. As an outcome of this, the project has created guidelines on the establishment of co-operatives, and has also produced a map which collects together abandoned SHPs throughout the continent that could be used for electricity generation.

The **RESCoop** project aims to promote the renewable energy co-operatives model, for local citizen engagement in renewable energies.⁵⁵ To achieve this, the project collects information from existing co-operatives to learn from their experiences and share good practices. RESCoop has prepared a report on good practices for co-operatives, presenting guideline principles for organisation, finance, stakeholder relations and grid connection.⁵⁶ A report on business models and an Action Guide have also been produced, which can provide valuable advice for individuals and businesses looking to create co-operatives.⁵⁷

⁵⁰ GREECO - *Territorial Potentials for a Greener Economy: Applied Research 2013/1/20 (Draft) Final Report, Vol. 5, Policy Options and Recommendations* (2014)

⁵¹ Available at: http://www.espon.eu/main/Menu_ToolsandMaps/

⁵² INTERACT – *Accelerating Change - Delivering Sustainable Energy Solutions: Good practices from Intelligent Energy Europe and European Territorial Co-operation projects* (2013)

⁵³ From 2014, the actions supported by the IEE will be supported, instead, by the Horizon 2020 Framework Programme.

⁵⁴ <http://www.restor-hydro.eu/en/>

⁵⁵ <http://www.RESCoop.eu>

⁵⁶ RESCoop – *Best Practices Report* (2013)

http://rescoop.eu/sites/default/files/best_practices_report_low_resolution.pdf

⁵⁷ RESCoop – Report on RESCoop Business Models: http://rescoop.eu/sites/default/files/project-resources/report_on_existing_business_models_deliverable_3.2.pdf

The **Keep on Track** project aims to monitor the development of renewable energy use in the EU, and offers market, legal and political advice to the Member States on how to meet their renewable energy targets. The project plans to make recommendations for all EU Member States and provides a platform for discussion amongst stakeholders connected with renewable energy. The recommendations to be made by the project will be useful for better overcoming barriers to renewable energy use, as barriers are often unique to a specific country. The project's website hosts a legal helpdesk which can assist local, regional, national and European policy makers as well as national renewable energy associations with integrating the RES Directive into national law.

The **ManagEnergy** project is a support initiative for helping public authorities to improve energy efficiency and renewable energy use at the regional level.⁵⁸ The ManagEnergy website presents a database of energy contacts that can be searched by expertise, working area and audience. The website also has guides for financing energy projects and targeted information for SMEs. Further, the site provides information on case studies, training and videos. In particular, the information provided on Energy Performance Contracting (EPC) and ESCos is very useful, providing articles and case studies on this innovative funding model.

Geothermal energy has huge potential for regional application, as realised by the GEO.POWER project, but, as mentioned, a main weakness identified in INTERREG IVC projects was a lack of renewable heating and cooling practices. The Intelligent Energy Europe programme has funded a variety of projects which can be of use, looking at different applications of geothermal technologies. The **ReGeo Cities** project looks at how to better integrate shallow (low enthalpy) geothermal energy at the local and regional level. The project has prepared reports on legislative frameworks in 11 EU countries, as well as preparing a report on EU level legislation.⁵⁹ The reports can be used by regional authorities to give a primer on national policy, if they are unfamiliar with the technology.

The **GeoDH** project seeks to increase the use of geothermal district heating in Europe. Although there is large potential for the technology, it is little used in Europe, as the technology is underdeveloped and legislative barriers remain high.⁶⁰ The project aims to develop innovative financial models, train technicians and provide policy recommendations for boosting the uptake of the technology. The project has created a geographic information system (GIS) on geothermal potential and installations, and has also prepared documents on European regulatory frameworks.

The **Geo.Elec** project sought to convince decision makers of the potential of geothermal electricity and produce an action plan on how to use more geothermal energy in Europe.⁶¹ The project's final publication estimates geo-electric potential of 174TWh in 2030, but notes that greater support is needed to cover high initial costs and risks, compared to other renewable energy technologies.⁶² Geothermal energy, however, can be used to provide a base load, unlike some other renewable technologies. Regions can assist the growth of the market by supporting resource assessment and mapping.

A key issue, which was not addressed in the INTERREG IVC renewable energy projects, was that of energy storage. Large energy storage will be an essential development if we are to replace conventional fuels with renewable resources. As the sun does not always shine, and wind does not always blow, we must be able to store enough energy to meet demand even when generation is limited. The **StoRE** project looks into creating the right regulatory market conditions required for energy storage infrastructure, involving all key sectoral players at the European level.⁶³ The project aims to build consensus on the necessary adaptations to the European energy framework and develop concrete recommendations to be executed at the EU level, as well as in the partner countries of Spain, Germany, Denmark, Greece, Austria and Ireland, producing action lists for each. Storage needs to be developed alongside other infrastructure issues, including grid reinforcement and demand management, in order to provide stable, quality power. Usually, such issues are outside of the remit of regional authorities, though they will be involved in the process of modernising infrastructure, and regions looking to boost their use of renewable resources can lobby for national action.

RESCoop – RESCoop Action Guide: http://rescoop.eu/sites/default/files/project-resources/action_guide_deliverable_3.3.pdf

⁵⁸ For more see: <http://www.keepontrack.eu/>

⁵⁹ Reports are available for Belgium, Denmark, France, Germany, Greece, Ireland, Italy, the Netherlands, Romania, Spain and Sweden.

⁶⁰ For more see: <http://geodh.eu/>

⁶¹ For more see: <http://www.geoelec.eu/>

⁶² <http://www.geoelec.eu/wp-content/uploads/2014/01/GEOELEC-report-web.pdf>

⁶³ For more, see: <http://www.store-project.eu/>

4.2.5. Framework Programmes

Both the **Framework Programme for Research and Technological Innovation** (commonly known for the period 2007-2013 as FP7) and the **Competitiveness and Innovation Framework Programme** (CIP) have funded projects that can provide useful insight for regional policy-makers looking to improve framework conditions for renewable energy use.⁶⁴ The **EcoCluP** (Eco-Innovation Cluster Partnership for Internationalisation and Growth) project, which was funded by the CIP through its Europe INNOVA initiative, adapted, tested and implemented a number of sector-specific tools and services to catalyse growth and the internationalisation of its member eco-innovation clusters. The project showed how networking and other support tools can boost the development of eco-innovative businesses (including renewable energy developers and installers), for regional economic growth.⁶⁵ The project's findings, that clusters and networking can boost development, give extra insight for the development of policies in Mature Market regions.

EcoPol (Accelerating eco-innovative policies) identifies and tests policy instruments in Green Public Procurement (GPP), waste and recycling and the internationalisation of SMEs, across Europe. In particular, GPP has large potential for boosting local renewable energy industries, and the project website makes a selection of good practices on GPP available for inspiration.⁶⁶ The annual purchasing power of public authorities in the EU is around 16% of EU GDP, and although regional authorities may only be responsible for a fraction of this, all public authorities should be aware that who they choose to buy from can have a large impact on green growth, and should make their purchasing decisions with this in mind.

Regional authorities can also provide financial support policies, such as the voucher schemes explored by the **KIS-PIMS** and **GreenConServe** projects, on renewable energy and sustainable construction services, respectively. These two projects set up Innovation Voucher schemes as ways of delivering small grants to boost uptake of clean technologies. Innovation vouchers can be implemented by regional public agencies (particularly energy agencies) and are aimed at SMEs and individual consumers. The vouchers operate in two stages: the first provides an initial investment for resource assessment or acquisition of expertise, whilst the second supports actions recommended by the first stage. For example, for renewable energies, the first stage of the voucher could fund the acquisition of a consultant to assess resource potential, with the second stage providing a percentage of the costs of installing the technology most recommended by the consultant. Both projects were successful in their application of innovation vouchers, and have produced final publications on their experiences.⁶⁷

⁶⁴ The Framework Programme for Research and Technological Innovation continues as 'Horizon 2020' for the period 2014-2020, which also absorbs the innovation activities of the CIP.

⁶⁵ EcoCluP – *Eco-Clusters for a green economy : Outcomes of a European partnership for internationalisation and growth* (2012): http://www.greenovate-europe.eu/sites/default/files/downloads/Ecoclup_booklet_v08_FINAL.pdf

⁶⁶ <http://www.ecopol-project.eu/en>

⁶⁷ Publications are available at: <http://www.greenovate-europe.eu/publications>

4.3. Thematic analysis

Building upon the individual project analysis, this section of the report introduces the thematic analysis of this capitalisation report in order to draw out broader conclusions on transferring RES good practices.

4.3.1. Common features and successes

Interviews with representatives of the projects highlighted that it is often difficult to see the results of good practice transfer, which can be a long and slow process. However, many of the partners indicated that they had found a variety of interesting practices that they wish to transfer. Further, the collection of a substantial number of good practices can be considered a success in itself. Collecting good practices, although not necessarily leading to direct transfer, was identified by interviewees as a valuable experience that can raise awareness of RES potential. The projects have used the practices collected for the development of policy recommendations and as inspiration for RES policy development in their regions. One evident feature was that most practices collected were representative of the Emerging Markets phase of the development cycle. Of the 259 practices collected, 180 were from this stage. The Commitment and Planning and Mature Market phases were represented, though neither to such a substantial degree. The Saturated Market phase was represented by only six good practices.

“The four pillars that need to be in place for a successful transfer are the “basics” (infrastructure, functioning legal and financial systems), technology (whether imported or produced locally), people (political will and regional education) and business (investors, finance, tech skills and specialisation).”

*Hans Hoogma
RETS*

The sector-specific projects emphasised the collection of good practices that demonstrate the application of different RES technologies and technical displays, whilst those projects taking all renewables into account focused more on the collection of policy practices and support instruments. Generally speaking, considering the complexity of the topic, RES projects have undergone a very impressive and successful learning process regarding different technologies and how they work, as well as understanding a wide range of policy instruments used for the introduction and promotion of RES in the regional context.

The learning process reached out to project participants as well as local stakeholders by involving them in project activities such as study visits, peer reviews, workshops and seminars. This will raise the awareness of RES and their potential for the local economy. Moreover, INTERREG IVC achieved a broad geographic coverage involving 58 regions.

In addition, the finalised projects have drawn up policy recommendations and guidelines that can be used for designing future policy instruments not only at regional level, such as the development of smart specialisation strategies, but also at European level in developing thematic approaches, for example, for the Structural and Cohesion Funds. The policy recommendations (and RES plans) produced can be seen as the evidence of a very successful learning process.

4.3.2. Common challenges and difficulties

When it comes to common challenges for both experienced and less experienced regions, there is still an enormous lack of information and awareness about RES technologies as well as about legislation and policy instruments that can be used to establish and expand their use. Major efforts will have to be made to communicate the potential of renewable energies for the regional economy and to establish a common knowledge base on which to build and expand.

Long-term political commitment and a stable legal framework are vital for planning and investing in renewable energy. A lack of legal certainty will block implementation of RES projects and undermine investor confidence, be it for a venture capitalist or an individual house owner. In order to introduce new policies and to transfer policy instruments, the projects have to get involved in the formulation and development of political will and interest. This process is long and very much depends on the willingness and involvement of individual politicians. Obtaining political commitment and legal stability therefore remains a major, ongoing challenge for all RES projects. Each of the projects found that it was difficult

to transfer good practices but agreed that they are formidable tools for inspiring their own RES policy development and for promoting renewable energy generally. The difficulties in transferring good practices are linked to many factors:

- All projects confirmed that it is nearly impossible to transfer entire practices. Good practices have to be broken down into their core elements and then adapted to different regional frameworks. The transfer of good practices often requires the right political moment, in line with current political trends and aspirations. If the practice is proposed too early or too late it may be impossible to transfer. It is therefore of the utmost importance that the (permanent) regional administration is aware of the practice, finds it useful, adapts it to its specific circumstances and finds the right moment with the right (albeit temporary) politicians in order to actually complete the transfer. This process takes time and needs persistence and is often only successful because a local administrator is convinced by the practice and drives the transfer process.
- Good practices can often face the “not invented here” syndrome, and there is a need to evaluate all risks under local conditions in order to demonstrate that they function in a different regional context. A showcase or demonstration practice is therefore often an appropriate means to carry out this risk evaluation and promote the RES technology. Also, here it should be noted that some of the most impressive and complex good practices cannot be transferred. An example is ‘Arlanda Airport’ (GEO.POWER). The project partners showed a very high interest in this good practice, however, due to the complexity and the extremely high investment volume of the practice, it has been identified as being the least transferable.
- Another factor that can impede the transfer of good practices is time. The change from a well-established, centralised energy system based on fossil fuels to a decentralised renewable energy system is a major undertaking that encounters a lot of resistance, making the change process very complex and time intensive.
- Those projects that had been completed or nearly completed at the time of writing underlined that they were short of time for implementation. Whilst the project partners are committed to continue working on the implementation once the project is finished, the focus that is provided by a European project is often gone, and the people that worked on the project will have moved on to other tasks. It was explained that a longer project duration did not necessarily mean additional financing but rather that a project prolongation by one or two years would help – particularly in the political and legislative process – to complete the transfer of policy measures and instruments.

4.3.3. Pre-requisites for successful implementation

With regard to regional RES policy, the projects emphasise specialisation as a core pre-requisite. Each region should concentrate on existing regional strengths and conditions when building RES policy strategies and action plans. This is especially true for regions that have little or no experience with RES implementation, who should first focus on the RES with the highest growth potential.

Understanding the strengths, weaknesses, opportunities and threats (SWOT analysis) of a region can enable the optimal development of renewable energy tools. Feasibility and resource availability studies should be the first step for any region moving towards renewable energy implementation. Once resources are better understood, then the chances of integrating and transferring a technology or practice into the region can be determined. The GEO.POWER SWOT analysis provides a strong model on which to build such an assessment.

From this starting point, long-term strategies that outline goals and actions to be taken can be developed. Setting long-term strategies creates market confidence, and sets a framework for the development of clear, coherent and integrated policies. Such strategies should also take account of stakeholder engagement – with integrated communication actions and policies and initiatives that will engage businesses and households. Long-term political commitment and will are also essential, and therefore efforts need to be made to engage policy makers from the earliest stages of strategy development. An interesting and successful way of achieving this was demonstrated by the EU2020 Going Local project, which created a political board made up of regional politicians who played an active role in the project, thus securing political ownership and enactment of the action plans developed by the project.

Communication efforts should focus on job creation, local opportunities for economic development and energy security, rather than on the more abstract – though important – messages of environmental protection and climate change. Discussing income and jobs gives a more tangible and

immediate importance to renewable energies and grounds them in a more business-focused reality. In line with this, demonstrations of technologies are a vital aspect of proving economic viability and gaining local acceptance.

For many renewables, there is a strong overlap between public and private sectors, and wide expertise from and of both sectors is valuable for developing policies and initiatives that can drive RES take-up. In particular, initiatives need to be supported to train suppliers and service providers along the whole of the value chain.

To allow for private investments into renewables – whether by businesses or households – permitting processes must be streamlined, and support initiatives need to be developed. Support can come in the form of grants or subsidies, or through non-financial measures such as consultancy and information provision. Co-operatives and Public-Private Partnerships are strong tools for broadening investments in RES. Once a region has begun to develop its renewable energy use, continued success and economic gain can be supported by creating a science and innovation infrastructure and through grants, prizes and clustering.

“Best practices are a great way of raising the awareness about the potential of renewable energy technologies.”

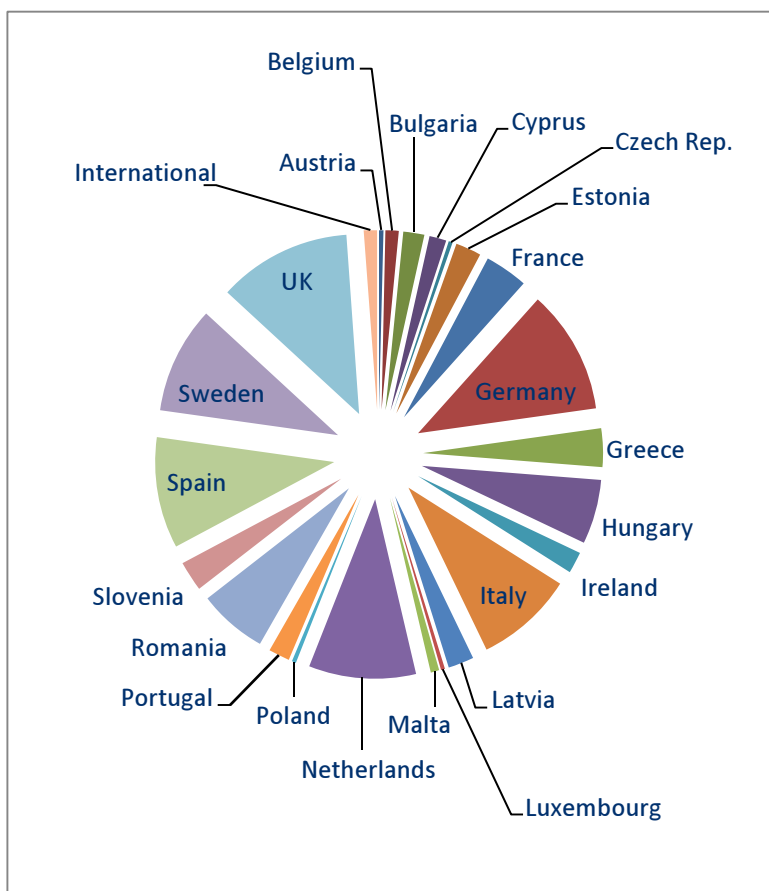
*Marco Meggiolaro
Co-ordinator GEO.POWER*

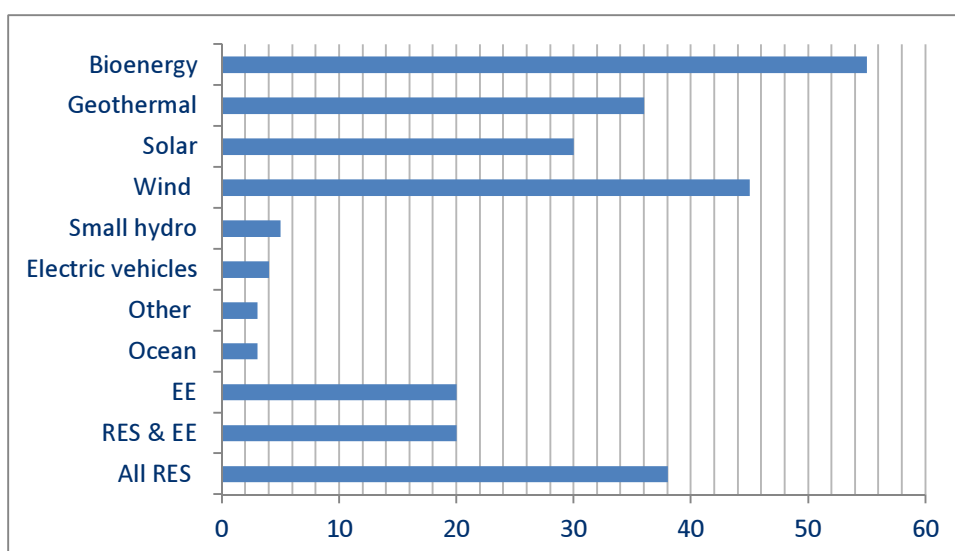
4.3.4. Good practices

In total, 259 renewables-related good practices were identified by the projects. These practices, classified and prepared for use can form an excellent basis for a learning platform. Full versions are available from the project websites. The chart, right, shows the distribution of the good practices that were identified by the Member State in which they were found.

The strong presence of certain countries – the UK (31), Germany (29), Spain (26), – is to be expected, as they are some of the larger Member States, but Sweden’s share (25) particularly stands out, supporting its reputation as a leading country in RES deployment. As a whole, newer Member States have had a weaker showing, although Romania (16) and Hungary (15) provided a substantial amount of practices.

The bar chart below shows the RES sub-sectors covered by identified good practices. Bio-energy was the most prevalent RE sector covered, followed by wind and geo-thermal energy. This is because bioenergy, wind and geo-thermal energy had dedicated projects (BIO.EN.AREA, 4Power and GEO.POWER). In the projects addressing all renewables, wind, solar and biomass are generally present. Practices fall into two types; those which are focused on an RES type, and those which are applicable to multiple RES types, such as investment support policies. As a very closely linked field, there were 20 practices that discussed energy efficiency (EE) measures and 20 that discussed RES and energy efficiency together.





Division of practices according to technology field

In terms of the development cycle/analytical tool, the bulk of collected good practices (70%) fall under the 'emerging markets' classification, and within this, 'Demo investment in proven RES solutions, is the most dominant, representing 112 of the 180 'emerging markets' practices, and 43% of all practices together. Table 8 below represents the identified good practices according to development stage.

Table 8 – Division of good practices by policy type and Support Cycle stage

Commitment and Planning	39	Mature Markets	34
Analysis of market and SWOT	8	More ambitious RES targets	4
Debates with key stakeholders	4	Communication	2
Regional RES strategy and policy	19	Commitment to R&D	15
Public information campaign	8	Triple helix clusters	7
Emerging Markets	180	University programmes	5
Awareness raising	8	Support to innovation and start-ups	1
Demo investments (w/GPP)	112	Saturated Markets	6
Capacity building	9	Innovative demo investment	4
Local ownership	4	Involvement of world leading companies	1
Cluster development	10	EU leading R&D centres	1
Support for investors	12		
Financing instruments	17		
Permits and planning	8		

4.3.5. Different solutions to the same issue

The projects have identified a large number of different practices, approaches and solutions to address policy challenges. By far the most prominent common policy measures were regional strategies, target setting, roadmaps and financing instruments, the latter category being split into a variety of measures, including loans, subsidies and tariffs. Regional strategies focused on either individual RES technologies or on broader RES targets, leaving scope for uptake of several technology types. Others were energy or climate packages; with RES being just a small part of the content.

Clusters were a popular measure, in both early and advanced stages. Mature markets had developed stronger clusters, identifiable by their triple-helix structure (public authorities, private enterprises and research organisations), whilst emerging markets showed regional authorities working with either research institutions or businesses (support for investors, financing instruments, cluster development). The triple-helix structure was particularly praised by the 4Power project, which gave extra focus to R&D issues because of the complexity of offshore wind installation. R&D in this area will focus on reducing the cost of offshore wind – a key development that will be needed if the 2020 targets are to be met. Regions that do invest in triple-helix structures can expect long-term advantage to emerge from industrial leadership.

Other widespread solutions were practices for communication and awareness-raising throughout the cycle. This does not only concern typical communication activities, such as events and publicity, but also the demonstrations that were used intensively to raise awareness.

There were very few practices provided that were indicative of saturated markets – a logical result – as these markets take a long time to develop and, once developed, are often only in one RES type, such as wind power in Flevoland (Netherlands) and bio-energy in South East Ireland.

“Peer Reviews as a way of engaging policy makers, by bringing them face to face with experts who can provide simple, clear and respected suggestions.”

Bob Pels,

4.3.6. Other interesting results

In addition to the impressive collection of policy good practices in the area of renewable energy, the projects have also achieved other interesting results. Several projects, for instance, have produced very interesting policy recommendations. In particular, those produced by RENREN and GEO.POWER provide good guidance for policy makers, as well as inspiration for new projects. The recommendations from RENREN provide a substantive overview of policy options.

The system of Peer Reviews established by MORE4NRG for engaging policy makers in an intensive review process with experts from academia and business is also promising. The process facilitates regional stakeholder involvement and provides a region with an ‘outside’ review of like-minded people. Peer reviews are continued in the Regions4GreenGrowth project and are certainly recommendable for other projects as well.

The Regional Action Plans drawn up by projects should be studied by other regions for models on how to produce regional strategy documents. BIO.EN.AREA has developed a template for the drawing up of regional biomass action plans that can be taken as a guide by regions interested in bio-energy. Although many of the projects highlighted the importance of regional action plans, the BIO.EN.AREA template particularly stands out as it can be adapted to any region, with instructions on what to include and how to analyse current and future bio-energy potential.

The RETS project has developed the RETS wiki, containing descriptions of the good practices that have been collected by the project. The project has invited RENREN to participate in the wiki and is willing to open the wiki to other interested partners.

4.4. Main thematic conclusions

4.4.1. Regional renewable energy

Renewable energy technologies and services can be formidable drivers for regional growth and job creation. To date, several European regions and municipalities have successfully shown how renewables can be used to stimulate development and investment. The decentralised nature of renewables also means that the benefits they bring are local, and that jobs and growth can be created locally through harvesting, transforming, transporting and storing renewables, provided that the right political framework conditions have been created.

“Success is due to dedicated management and the involvement of regional authorities.”

*Catherine Ledig
RETS Co-ordinator*

The change towards renewable energy is a true energy revolution. This total system change requires a strategic approach and long-term political commitment in order to trigger the necessary investments. Regions engaging in this change process need to keep in mind that it may take 30 years before they can be considered a saturated market.

The multitude of renewable energy sources has brought about a complex landscape of innovative technologies and services that require learning and better understanding for reasonable decisions to be made. This concerns policy makers, building owners, investors, businesses and citizens alike. To overcome this hurdle, professional communication and education as well as participatory projects will need to be deployed on a large scale. The large choice of technologies and services is also an opportunity for regions, allowing them to find their own market niche and thus provide a fertile ground for smart specialisation.

4.4.2. Participating regions

It is an encouraging sign that the 58 EU regions involved in INTERREG IVC RES projects recognise the large potential to be found in renewable energy, and that they are willing to learn and collaborate in this area. The involvement of both 'experienced' and 'learning' regions brought a good mixture of practices to the table, representing how renewables can be supported throughout the four different stages of market development.

In order to increase the uptake of renewables at the regional level, more effort should be made to provide regional statistics. Information is available at national, European and global level, but there is no systemic collection of data at the regional level. This is a blockage to the uptake of renewables as it complicates attempts to draw up action plans and to take stock of the existing energy situation. Inspiration for making such regional statistics available can be taken from the national 'Keep on Track' project, supported by Intelligent Energy Europe.

However, the intensive exchange in INTERREG IVC projects offers access to regional experience and the opportunity for policy instruments to spread and be taken up in a large number of European regions. The INTERREG IVC projects have done a great job of raising awareness on the challenges that face regional authorities. Additional experience and practices are available through the Intelligent Energy Europe programme, Europe INNOVA (for example, the KIS-PIMS project) and through EurObserv'ER regional case studies.

4.4.3. Good practices

An excellent collection of 259 good practices is now available thanks to the INTERREG IVC partners. The study has shown that the projects are beneficial for both regions experienced with renewables that seek inspiration for new and efficient policy schemes and learning regions that can get a head start using policy schemes and approaches that have already been tried and tested. The majority of practices concern the 'Commitment & Planning' (12%) and 'Emerging Markets' (73%) stages which appears to be the right concentration since most regions are at one of these development stages. Nevertheless, for regions with more experience in one or more renewables, more advanced policy practices have been collected ('Mature Markets' 12% and 'Saturated Markets' 3%). Within the 'Emerging Markets' segment, a high concentration of "technology demonstration" practices can be observed, mainly originating in the sector-specific projects. The focus on demonstrating and showcasing technologies underlines a strong need for information and awareness-raising on the technological and economic possibilities that renewables offer. They can be used to build the basis of a policy learning platform for renewables.

4.4.4. Systemic strengths and weaknesses in INTERREG IVC

With regard to renewables, INTERREG IVC is unique in its focus, target groups and outreach:

- It focuses on **tried and tested initiatives** that can be transferred into a different regional context;

- It targets **regional and local policy makers** and involves them pro-actively in a process of policy development and implementation;
- It reaches out to **large number of regions** that would otherwise be uninvolved in RES projects and policy initiatives.

Since it is at local and regional level where a comprehensive roll-out of sustainable energy policies needs to take place, this targeted outreach of INTERREG IVC towards a large number of European regions is of paramount importance for the success of Europe's 2020 strategy.

Co-operation between regions allows for the exchange of good practices, meaning that regions do not have to start from scratch in building a critical mass of successful policy initiatives, but can build on what has been successful before. This is especially important in the complex field of renewables. RES can boost competitiveness and create jobs, but only if fitted to the regional context, taking account of available resources and market development. Personal exchange with peers from other regions and study visits have been a key prerequisite to understanding practices, their opportunities and threats and which elements should be implemented in another region.

While EU funding instruments such as FP7 (to be continued in Horizon 2020) focus on excellence and innovation, (i.e. on the creation of new knowledge in form of technologies and business models); INTERREG IVC has a less stringent definition of innovation and a larger capacity to build and improve regional capacities, to share existing knowledge, enable mutual learning and to raise awareness at regional level. This has been confirmed by participants of the INTERREG IVC projects, who clearly see the main added value of interregional co-operation as the opportunities created for mutual learning and access to skills that are not available in their regions.

Whilst other EU funding instruments tend to go in-depth, involving a small number of participants, interregional projects create breadth, impacting a large number of regional organisations and citizens. For major societal challenges, such as renewable energy use, this larger roll-out at regional level is of paramount importance. The participants underlined that INTERREG IVC projects particularly supported the creation of political and social buy-in in the regions. However, as often mentioned as a weakness by our interviewees, the projects stop when they are finally starting to create real thematic impact. A common request was to extend project duration to 48 months, or to have greater focus on post-project implementation of action plans.

Most EU funding instruments are working at European or national level, and any regional or local impact remains at the level of a single participating organisation, such as a university or an SME. Interregional co-operation enables regional stakeholders and citizens to get involved and directly experience the impact of a measure in their regional context.

European programmes have a strong focus on academic institutions, multipliers such as chambers of commerce, companies (large and small) as well as international NGOs. INTERREG IVC reaches out to regional stakeholders and policy makers, allowing them to develop strategies and actions plans, to create regional policies and instruments specifically prepared for their regions. At the same time, policy makers are able to exchange approaches with their counterparts from other regions, find inspiration and see with their own eyes what works and what might not.

4.4.5. Types of impact

We need to distinguish between two types of impact: the impact in the thematic area, (i.e. new renewable energy support policies introduced or local feasibility demonstrated), and the impact in policy learning, international engagement and governance changes. While the first impact is probably the one programme designers mainly had in mind, the second is a less visible impact that comes along when regional policy makers engage, maybe for the first time, with their peers from other regions in a joint project. It is not uncommon for these projects to trigger regional governance changes, such as the establishment of local stakeholder groups, the inclusion of external expert knowledge into decision-making processes or cross-sectoral, cross-department and cross-institutional exchange and co-ordination. This less visible impact which is systemic and not specific to a given thematic area is usually perceived as being very beneficial by participants and must be stressed and fed back to programme designers.

4.4.6. Timing of impacts

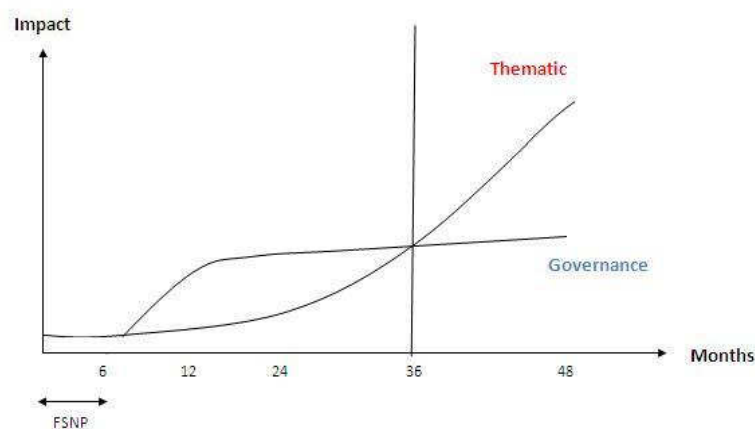
Just like any other project team, newly formed INTERREG IVC consortia require time to function as a unit and get the job done. The Forming – Storming – Norming – Performing (FSNP) model of group development describes these typical stages that make a team out of a group of individuals.⁶⁸ There is no magic potion to shorten this process, and programme design needs to take into account that, in each consortium, there is a rather non-productive starting phase while the team is developing. Tools such as the joint development of rules of group management and communication flows coupled with socialising to get to know each other can speed up the process. Short studies at the beginning of a project, using external expertise, can also help to identify the most relevant practices to be examined.

The impact on governance processes occurs right from the start of projects, once the consortia have become teams. In general, this policy process learning impact is reached after 12-18 months.

The tangible thematic impact in regions typically comes towards the end of INTERREG IVC projects, sometimes only after 30 months. By then, the teams are performing very well, have finished

all the exchange and analysis of good practice cases, identified the practice(s) each region wants to implement and have started implementation. At this point, the teams could easily create further impact: they have accumulated thematic knowledge, identified sources for expertise, engaged local stakeholders, and started off processes to make things happen. Hence the call from project participants for extension of project duration in order to reap the full benefit from the action.

Graphical interpretation of impact timing



⁶⁸ A common model of group development first proposed by Bruce Tuckman in 1965: "Developmental sequence in small groups"

5. Key Policy Messages

In this section, the report will present the guiding principles by which regions should abide for successful renewable energy policies and presents a support cycle for an evolving renewable energies framework. It also makes links with other funding programmes and initiatives and provides targeted recommendations for different stakeholder groups.

5.1. Guiding Principles

Study of the eight renewable energy projects has revealed a set of guiding principles that every regional authority can follow for the successful development of renewable energies. There is potential in every region to use renewables as drivers for regional growth and jobs and to become less dependent on energy imports, and the experiences of the INTERREG IVC projects demonstrate that there is no reason why any region would not be able to benefit from renewable energy use.

- **Focus on regional strengths**

Every region is different, but each and every region has renewable potential. Focus on the renewable energy types that have the highest resource potential – whether wind, biomass, solar, geothermal or hydro – and specialise in the technologies that will have the fastest return-on-investment.

- **Take a long-term view**

A region will not become a ‘renewable energy region’ overnight. Focus on long-term actions and aims. A well-publicised regional target (“20% by 2020!”) shows commitment and allows for benchmarking and monitoring of regional performance to keep on track and ensure consistent development.

- **Secure regional buy-in**

The growth of renewable energy cannot be enforced in a top-down manner, but requires the involvement of all regional stakeholders. Involve stakeholders – and politicians in particular – in the drafting of regional plans to give them a sense of ownership and responsibility.

- **Raise awareness and make the business case for renewables**

Renewable energies are not just about being clean and carbon-neutral, but also about creating jobs and energy security. Make the business case for renewables with information campaigns and educational programmes. A cost-benefit analysis that shows how much money leaves your region to purchase fossil fuels, rather than funding the local economy, can be of great use.

- **Tailor policy tools and instruments**

Lots of different types of policy tools exist for boosting the use of renewable energies. However, they cannot just be directly transferred into a region. Develop and implement regional policies that are suitable for your region, using existing tools as inspiration. Seek advice from other regions to find out what has worked and what has not.

- **Integrate renewable energy into broader regional strategies**

Structural Funds have a renewed focus on energy and sustainability and can be used to fund the implementation of regional plans. Smart Specialisation Strategies present the perfect opportunity for regions to achieve smart and sustainable growth through renewable energies.

5.2. Support Cycle

The analysis of INTERREG IVC renewable energy projects has shown that the projects are beneficial for both regions experienced with renewable energy that seek inspiration and also for learning regions that can get a head start by adopting and adapting practices that have already been tried and tested. In this context, interregional co-operation plays a major role in accelerating the development of smart regional strategies and policies through the creation of synergies and economies of scale, the improvement of regional capacities and awareness and the demonstration of successful, local applications.

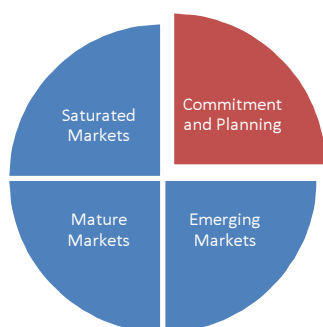
Working from the Development Cycle (see Methodology) – built from EurObserv'ER's value chain approach – INTERREG IVC policy practices have been analysed for success factors and transferability, and used to develop the Support Cycle, presented below. In it, the types of tools that a region should be developing and implementing are outlined, with indications of where they can look for examples and inspiration. In the RES Development Cycle, regions move from commitment and planning, to emerging and mature markets, before becoming saturated markets, which are export-focused.

The Development Cycle applies to one type of Renewable Energy Technology at a time. However, the stages of the Development Cycle are not exclusive, meaning regions can have policies in place from several stages of development cycles in parallel. For example, a region could have a saturated wind market, a mature market for geo-thermal energy and also aim to initiate bio-energy introducing policies, found in the first stage of 'Commitment and Planning'.

When a region first attempts RES development, it should focus on the type that has greatest growth potential. Ambitious regions can attempt to develop another technology in parallel, but each RES must be included in general policy tools, or have individual dedicated tools. For example, a region may adopt an RES Action Plan outlining a roadmap for several RES types, whilst others may adopt separate action plans for biomass and wind energy. Ideally, the first option is best, as synergies can be derived by implementing more than one renewable energy type at a time – such as common support policies and joined-up communication strategies.

This section of the report provides guidance on the main issues to be considered by regional authorities looking to increase their use of renewable energies. It presents the different stages of the policy cycle, presenting the main types of policies that need to be developed. The section also provides policy recommendations for each stage, linking with the experiences of the INTERREG IVC projects and the experiences gathered from other programmes. Each stage is illustrated by the best good practices gathered by the INTERREG IVC projects, which will provide inspiration for other regions.

5.2.1. Commitment and Planning



Commitment and Planning regions are those regions taking their first steps to using renewable energy. This phase involves securing political commitment, setting targets and making long-term plans on how to achieve these targets. This includes thinking about budgetary matters, how to overcome identified challenges and build a supportive regional environment.

Recommendations

- Any region in this phase should start with a **regional assessment** of its available resources. This will allow the region to identify the technology with the most potential and fastest return on investment. INTERREG IVC funds projects which can undertake regional assessments. For example, the CENTRAL EUROPE 'TRANSENERGY' and 'RUBIRES' projects have prepared tools that map, respectively, geothermal and biomass potential for regions in central Europe. Regions should make use of these tools, and also the RestorHydro map on abandoned small hydropower plants, as a first cost-free step to identifying potentials.

- Regions should **benchmark current energy performance** to show current levels of renewable use (usually from 'old renewables' such as biomass and hydro), and to illustrate the costs of imported energy.
- Once regional resources have been assessed, all regional stakeholders (politicians, businesses, and the public) should be informed of the findings to improve **stakeholder buy-in**. Communication messages should be based on regional assessment, making the economic case for renewables by focusing on potential returns and benefits and current costs.
- **Political buy-in** is particularly important, and can be secured with consistent communication and the development of political declarations and public policy events. See the EU2020 Going Local and Regions4GreenGrowth political boards and the RENREN declaration for good examples;
- With a sound assessment of regional potential, current energy use and political buy-in, you can look to other regions to choose suitable, realistic yet ambitious, **targets** for your region. Targets need to be accompanied with a **regional strategy** that sets out how they will be reached and by when. See BIO.EN.AREA, MORE4NRG, GEO.POWER and EU2020 Going Local for good examples of strategies and action plans. Where possible, RES strategies should be integrated into broader regional development strategies, to take advantage of synergies with energy efficiency, climate adaptation and sustainable transport planning, as well as with smart specialisation strategies. (See Section, Supporting Long Term Impacts).
- Remove 'red tape' and **streamline administrative processes** to encourage regional investments.
- Regions in the commitment and planning stage should strongly consider taking part in an **INTERREG EUROPE** project, integrating peer review and a political board as a way of securing political ownership and buy-in, as well as receiving advice in regional assistance and strategy development.

Good Practices

Regions4GreenGrowth Peer Reviews

The Regions4GreenGrowth project has been seeking to improve access to finance and investments to increase renewable energy uptake. A key tool of the project has been Peer Review. In a Peer Review, an external team of experts from other project partners visits the host region, meets local politicians, benchmarks the region and makes a series of recommendations for the hosts. The process represents a good practice in benchmarking and evaluation of regional strengths and weaknesses. Regions working outside of INTERREG IVC projects may not have the capacity to launch such actions themselves, but Peer Review lessons are applicable to all regions

A surprising outcome was that some key stakeholders had never even met each other. Regions which are starting out in renewable energies could therefore create a sustainability board, to ensure that all regional stakeholders are engaged. Regions could then use existing tools for monitoring their energy performance and choose actions that will have the largest and fastest impact. Where financially possible, regions should invest in using external expertise to make assessments and recommendations.

The Peer Review in Flevoland (Netherlands) – an RES advanced region – recommended energy diversification away from a focus on wind power, the creation of a portfolio of projects to mitigate risks and greater public-private co-operation. In Valencia (Spain), the Peer Review advocated the promoting of ESCOs), increasing business competitiveness through energy efficiency and increased RES use, and moving from grants to loans for energy-related projects, to better use public funds.

The Peer Review process may not be possible for all regions to implement, but it highlights the importance of benchmarking and stakeholder engagement. The Valencia region highlighted that often changes were already being considered in a region, but were not being acted upon. A full audit by an outside expert gave the impetus required to kick start action, and benchmarking provides the evidence required to successfully argue for implementing sustainable energy projects.

Bioenergy Action Plans

Western Macedonia is Greece's 'energy region'. It produces more than 50% of Greek energy needs and operates the only district heating networks of the country, providing heat for this mountainous area during the often-harsh winters. Since the current energy production is mostly based on the large regional lignite deposits, the region wants to diversify towards bioenergy stemming from forestry, agriculture and urban waste.

Western Macedonia had thus a strong interest to investigate its potential for bio-energy and to understand what methodologies and technologies could support its development towards renewables. The regional stakeholders had no statistics about the quantities of biomass available and no overview of potential suppliers or relevant players that might influence the bioenergy sector. There was also a knowledge gap regarding the potential routes of exploitation for local bioenergy sources and solutions for logistics issues related to biomass collection. In addition, the region wanted to capitalise on two other projects complementary to BIO.EN.AREA and used the BIO.EN.AREA methodology for drafting a comprehensive Biomass Action Plan (BAP) for Western Macedonia.

The region appreciated the guidelines and knowledge transfer, with the BAP process allowing the region to involve all relevant regional stakeholders, understand available quantities of biomass, seek available technical solutions, identify the main challenges in exploiting bioenergy resources, carry out a cost-benefit analysis for bioenergy, and develop a concept for a bioenergy cluster.

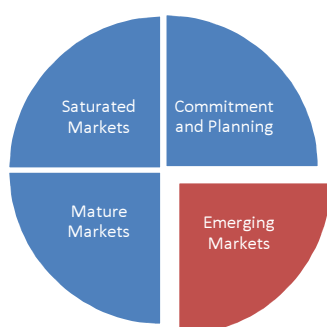
Moreover, the Western Macedonian Biomass Action Plan builds on the strength of the region, and the document has had a strong strategic influence in making bioenergy the main vehicle for the regional Smart Specialisation policy. The BAP also gave input to the actions that will be funded under the Operational Programme for 2014-2020.

Streamlined Small Hydro Power Applications and Planning

The RENREN project made available a practice from the Environment Agency of England and Wales, which has created a streamlined application process for small hydropower and provided transparent sources of data for developers to support applications. Hydropower installations need government consent on environmental issues such as water abstraction and impoundment, flood risk and fish passage. The Environment Agency has created maps that highlight opportunities and areas of environmental sensitivity for hydropower in an effort to support the development of sustainable hydropower. The open-access online resource can inform installers of the environmental conditions in an area, giving an indication of whether consent is likely to be given or not. The Environment Agency has also provided a simplified application with a pre-application phase, and provides guidance on planning and the application process.

A first step for regions should be to analyse their resources and map potentials, showing investors that investments can be returned by highlighting the high availability of renewable resources. A major issue, particularly for hydropower, is the lengthy planning process and the high cost of environmental assessments. Whilst such assessments are essential, red tape and bureaucracy should be reduced as much as possible to encourage individual, private investment. The provision of administrative guidance, support and advice, particularly for individual investors and SMEs, should be encouraged for all renewable energy types in a region.

5.2.2. Emerging Markets



Emerging Markets are those that have established some level of political and community support and are able to implement support policies and invest in technology demonstrations. Support policies at this stage typically involve grants, subsidies or the provision of institutional support, such as energy agencies and business accelerators.

Recommendations

- The evidence is that a proactive and continuous strategy of **awareness-raising** regarding the benefits of renewable energy does change perceptions. It is clearly the foundation on which policy can be built.
- **Demonstration projects**, particularly in public, municipality-owned buildings, can be of use for building awareness. Through INTERREG IVC, 112 demonstrations for all renewable energy types are available. Guides on how to conceive and implement a voucher system are available for renewables (KIS-PIMS), green construction (GreenConServe) and resource efficiency in manufacturing (REMake) on the Greenovate! Europe website.⁶⁹
- **Green Public Procurement** of innovative technologies can be a real boost for the market, as shown by in the case of NUTEK procurement of Ground-Couple Heat Pumps (GEO.POWER);
- In order to kick start regional RES development, regional authorities can provide **financial support** to overcome market failures. In order to do this, loans, rather than subsidies, have proved successful in many regions.
- Where **subsidies** are given, use two-stage systems, such as Innovation Vouchers. This allows for an initial feasibility study to confirm that investments have a real chance of success.
- **ESCos** and Energy Performance Contracting (EPC) represent good practices in issuing loans for renewable installation and building renovation. See Regions4GreenGrowth or the Intelligent Energy Europe MANERGY project for more information.
- **Prioritise investments** so that those with fastest return on investment and largest impact are funded first. See the Manchester Investment pipeline (UK) (Regions4GreenGrowth) for a good example of this.
- Institutional support for investors will be needed, year-round. **Energy agencies**, if they already exist in the region, should be tasked with energy strategy and monitoring, and be given responsibility for operating support policies, which can be funded via national or regional budgets, the ERDF and other sources. ERDF Managing Authorities can provide advice on how to create tools using European funds.
- **Community ownership** of large-scale renewable plants reduces (but does not remove) the need for subsidies and regional financial support. Regional authorities should not create co-operatives, but should instead provide the right frameworks to allow co-operatives to flourish. See the REScoop toolbox and the RESTORHydro co-operative guidelines for more.
- Put **training programmes** in place to build regional expertise for installing and servicing RES technologies. Focus first on training existing energy professionals. Maintenance of renewable energy installations creates many jobs that should be harnessed at the regional level.
- **Planning and zoning** for wind energy can concentrate installations in specific, dedicated zones, thus helping to overcome resistance to wind energy by easing concerns about visual impacts.

Good Practices

Community Wind Farms

Community Wind Farms are a strong tool for securing investment in onshore wind energy and for overcoming the NIMBY syndrome. Two examples, in particular, stood out from the INTERREG IVC project good practices – the Community Wind Farms of Schleswig-Holstein (Germany) (RENREN) and the Cwmni Gwynt Teg, Wales (RETS). Both practices highlight that renewable energies can play an important role in regional economies without public-sector leadership – Community wind farms bring a variety of benefits to a region, especially in terms of construction and operational jobs. The move towards decentralised ownership of energy generation equipment will boost uptake of RES by spreading financial gains around, thus grinding down regional resistance.

⁶⁹ www.greenovate-europe.eu

A community wind farm can be defined as a wind farm that is initiated, planned and owned by the community. To achieve this, citizens need to be engaged and supported by regional authorities. Community wind farms are supported precisely because they are own-initiative creations, and may not receive such support if forced, top-down, upon a region. In community schemes, all local citizens are able to join the co-operative, even with a small investment.

It is essential that regional authorities put in place the right frameworks to encourage investment. For wind energy, spatial planning and permitting are important, as are (often national-level) guaranteed feed-in tariffs and long-term targets for security. The NIMBY syndrome is a crucial issue for wind farm development, and planning is a politically sensitive issue. Zoning is therefore especially important as it involves designating areas for installations based on an analysis of electricity production potential, local acceptability, environmental impact, and other factors, ensuring a higher chance of acceptance of the technology. By concentrating installations in dedicated areas, zoning eases people's concerns about visual impact and the location of future development.

COPROTEC training

COPROTEC is a Public-Private partnership (company status, but linked to a public association), for the training of energy professionals in changes to renewable and traditional energy markets. COPROTEC has been designated as a National Innovation Centre by the French Minister for Trade. Instructors have backgrounds in energy and climate engineering, and tackle issues ranging from marketing clean energy to technical application. Over 800 training seminars are organised across France every year, and delivered through workshops.

Training is provided at the COPROTEC headquarters, or anywhere else in the region using specially adapted vehicles, fitted with materials needed for learning to use new energy sources. Training is also provided through an online platform. In order to secure wide impact, training is kept short and relatively inexpensive, with a course normally lasting 2-3 days, costing €200 per day. The success of the training can be seen in its 20 years of operation. In particular, COPROTEC is a model for tackling the lack of awareness amongst energy professionals in the installation and integration of renewable energies. Certification is provided for craftsmen and companies, as the RES market has a particular weakness in lacking qualified fitters and installers. COPROTEC also produced reports and studies to answer technical questions and provide consistently up-to-date knowledge.

Training of energy professionals is a key challenge for regions that wish to use renewable energy technologies, particularly for installers and maintenance companies. Having local expertise in these areas is essential for having a cost-efficient energy sector. COPROTEC alone has over 70 employees, and through training activities they maintain jobs in the energy sector, highlighting the importance of education and training for the emergence of a competitive and sustainable energy job market.

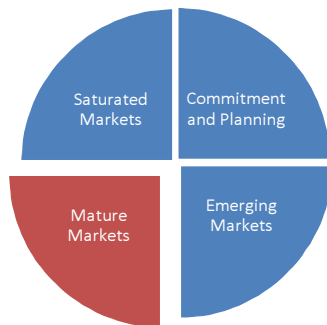
Greater Manchester Low Carbon Investment Pipeline

The Greater Manchester Low-Carbon Investment Pipeline (UK) aims to better deliver investments in renewable energies by creating a portfolio of investments for sustainable energy projects. It is hoped that the scheme will help Manchester to achieve a 48% reduction in CO₂ emissions by 2020, as part of a Low-Carbon Economic Area (LCEA) plan.

The LCEA programme board recognised that a common approach was needed to avoid duplication of effort, to optimise use of resources and create large-scale projects that could attract investors. A part of this strategy was to create investment portfolios including both large and small projects. Small-scale green investments often generate low returns, and it can be difficult to attract investment. The private sector is invited to invest in an Investment Fund, which can be used to fund projects in the pipeline, rather than having to seek investment for individual projects. Such a system allows for the prioritisation of investments by the region.

The practice has good potential for transfer, as long as regional governments are willing and able to implement such programmes. The scheme was supported by the UK Green Investment Bank and was constructed in two phases, within a five year timeline. In the first phase, a Joint Venture Agreement was established between Manchester and the Green Investment Bank, and experts and consultants were selected who identified potential projects for investments. Eighty projects were identified and twenty projects were given priority for more advanced planning development. In the second phase, through the Joint Venture Agreement, detailed task and cost planning were performed and funding was sought from businesses and investors for projects to begin in March 2014.

5.2.3. Mature Markets



Mature markets are those that have embraced a renewable energy technology (or several technologies) and are beginning the process of actively turning the use of renewable energy into a business opportunity. This involves supporting research & development, creating clusters and encouraging ambitious business leadership. This phase involves a reduction in the need for external expertise and reduced financial support for individual users from regional authorities.

Recommendations

- The development of **dedicated R&D centres** can help regions to create new economic opportunities by developing new and improved technologies that fit specific local requirements and resources. This is also the route to an export-led focus that brings money into the region.
- **Triple-helix clusters** (public-private-research) present another very strong way of boosting a regional economy by developing strong links between regional RES players. Clusters cannot just be created out of thin air, but require strong research centres, businesses and engaged public authorities, making them an advanced and effective tool. The Renewable Energy Research and Innovation Clusters (RERICs) explored by More4NRG are a good example.
- Encouraging the development of **university programmes and modules** for renewable energies builds up expertise for future growth and leadership. Programmes need to focus not only on technical issues, but also on project and budget management to ensure that individuals also have the expertise needed for supporting large-scale projects.
- **Preparing regional infrastructure** for large-scale installations of technologies such as offshore wind and large hydropower can help to encourage regional investment from national governments, as shown by 4Power and also by the RENREN strategic marine energy practices from Wales;
- This stage marks the development of a region where individuals are willing and able to take the initiative to implement large-scale renewable energy projects. In particular, **regional business leadership** and entrepreneurs who see the potential from RES installations are needed. Supporting long-term awareness and supporting growth in the early phases of renewable development leads to this phase, but it cannot be expected to emerge overnight;
- **Public-Private Partnerships (PPPs)** are a good way of gaining investment for renewable energy, harnessing the expertise and financial resources of the private sector to deliver a public service.

Good Practices

Oak Park Research Centre

The Teagasc Crops Research Centre in Oak Park, Carlow (Ireland) investigates the energy potential of crops. In Ireland, there is considerable potential for bioenergy, with the country having a significant agricultural sector. The centre is supported nationally, being the national bioenergy research centre, but has significant impacts local and rural, as its research directly affects farmers. As awareness of bioenergy has grown amongst the public and businesses, Farmers have become increasingly interested in growing energy crops and in using their agricultural waste as bioenergy resources. However, there is not a large return on bioenergy investments, as the market has remained under-developed.

The centre possesses laboratories and workshops, equipped with up-to-date technologies, intended to keep Ireland at the forefront of crop science, and thus, at the forefront of energy crops and

bioenergy. The centre supports the sustainable development of energy crop use, bearing in mind that there is competition with food resources and land use. Its primary activities include the improvement of pellet production and quality, increasing crop yields and providing tools to farmers to highlight bioenergy potential and to support the development of the industry.

Research at Oak Park is centred on growing bioenergy crops, together with efficient harvesting and logistics. The centre is funded 75% by the national exchequer, and besides research, it also provides advice and tools for farmers to use to better understand their potential profits. Specialised centres such as Teagasc play a vital role in allowing regions to capitalise upon their strengths and support the widespread up-take of particular technologies.

Sittard-Geleen Biomass Boiler PPP

The Sittard-Geleen (Netherlands) PPP on biomass boilers is a private initiative by a local entrepreneur that uses biomass waste in the co-generation of heat and electricity. A deal was struck with the local electricity company to secure grid access, and the price of electricity and heating from the system is the same for the residents as before, so they do not pay extra for the implementation of the system. The municipality made a small investment in the installation, but in return received a way to treat its biomass waste. In order to secure the supply of fuel, a green waste collection service was established, representing a useful and profitable synergy.

The PPP represents a good practice for regional sustainable energy production. The co-generation of electricity and heat is ideal for district heating, which has a huge growth potential. Renewable heating and cooling remains the sleeping giant of the RES world, as yet not fully explored or implemented. District heating will gain more prominence in relation to many upcoming Smart Cities initiatives and can be applied at a variety of scales. Although it was started by a private partner, the PPP shows how public authorities can support such infrastructure.

5.2.4. Saturated Markets



Saturated markets are those regions that can sell expertise and technologies to other markets and regions. They are export-focused, demonstrating the most innovative technologies and aiming to remain at the forefront of renewable technologies. Saturated markets may even have a 100% renewable energy target, or be looking to achieve total energy independence.

Recommendations

- Very few regions have reached the saturated market phase (with Schleswig-Holstein in Germany, being a contender), yet some practices were identified that reflect either demonstrations of very innovative technologies, clusters of international scope or leading R&D centres, suggesting industrial leadership, rather than central planning by the regional authority. The best recommendation for this phase is to commit to work through the above phases from planning to market saturation.
- Regions reach this stage by having long-term plans and commitment, which adapt to changing circumstances, but have continuous support from regional authorities. Regional ambition is vital.
- Even in this phase, regional authorities can have a role to play, ensuring that regulation is sufficient to protect consumers and the environment, but does not choke innovation.
- Organising innovation fairs and internationalisation events can allow a regional authority to promote its businesses and research centres, and help them to develop further.

- Encouraging businesses to think globally and devise internationalisation strategies. See the EcoCluP project for more information on international cluster co-operation and internationalisation strategies.

Good Practices

Noord-Brabant Solar Cluster

The region of Noord-Brabant (Netherlands) has an ambitious aim to be amongst the top five regions in the EU for innovation, and is hoping to achieve this by building links between clusters and societal challenges, including the need for sustainable and secure energy. The region has invested in knowledge infrastructure and innovation activities to create an internationally competitive solar industry. The province identified regional strengths in solar technology and then worked with stakeholders throughout the whole innovation value chain to support the industry. The region's efforts are led by the Noord-Brabant Development Agency (BOM), which provides support to businesses. What's more, BOM shares knowledge with municipalities and other organisations, as part of a joint effort to create fertile ground for establishing business and for investment.

A cluster working on thin film solar PV technology was created by combining four separate R&D institutes. A regional innovation scheme, operated by a regional development agency, helps to bring the research produced by the cluster to market through training and provision of financial assistance to start-ups. The cluster and business support services together contribute to the goals set out in Noord-Brabant's 2010-2020 roadmap, which encompasses a variety of energy themes. The region is also building public-private partnerships around other promising technologies, and provides financial instruments to support emerging companies, and operates a revolving cleantech fund of €12million for solar, electric vehicles and smart grid sectors.

FINO3 Research Platform

FINO3 is a research platform based in the North Sea that investigates how to minimise risks, improve performance and speed up construction of offshore wind turbines. The offshore wind sector has huge potential and is growing rapidly, being expected to provide 4% of total energy use by 2020 and 14% by 2030. However, current investment costs are high, there are technical risks and maintenance can be hazardous. As Germany has decided that offshore wind turbines may not be installed in shallow waters, there has been an impetus to find ways to make deep offshore wind turbines more economically and technically viable.

FINO 3 is located close to offshore wind farms which are under construction, in co-operation with Denmark. The platform is 80km from the coastline, at a depth of 20m, and investigates ways of installing turbines, connecting them to the grid and how turbines can deal with weather conditions at sea. The platform also measures noise disturbances during the construction of the monopole tower and tests 'bubble-veil' technology to significantly reduce noise emissions.

The platform is supported by finance from the EU, the German government and the government of Schleswig-Holstein (Germany). This support has been vital for the creation of the platform. The practice is not particularly transferable to other regions – though Spain, Japan, the US and Norway have shown an interest in establishing similar platforms – but it shows that regions can play a role beyond supporting existing technologies, and strive for technological leadership and technologies that can be exported to other markets, with significant economic potential.

5.3. Supporting long-term impact

The most important source of money for regions looking to implement renewable energy investments is the Structural Funds, where large amounts of money have been set aside specifically for renewable energies. In the last funding period, €9 billion was made available for renewable energy investments. However, large amounts of regional funding were not used, as regions had not planned adequately for using the funds. Regions can make the most of the Structural Funds with good planning and a regional investment pipeline that ensures there is always a good project waiting to be financed.

The Structural Funds for the period 2014-2020 will have a renewed focus on energy and sustainability issues, and can be used for the implementation of project plans and strategies or to fund the transfer of good practices. Whilst under previous programming periods Member States have had mixed priorities, under the new Cohesion Policy all regions will focus on four key priority areas that can boost economic growth and job creation. In developed regions (GDP per capita greater than 90% of the EU average), 80% of ERDF funding will be focused on the four priority areas. In transition (GDP 75%-90% of EU average) and less developed (less than 75% of average) regions, the figures are 60 and 50%, respectively. Cohesion Policy priority four – supporting the shift to a low-carbon economy – can be used to support renewable energy investments.

All regions are required to have some focus on sustainable energy, but some regions have chosen to focus on renewable energies in their Smart Specialisation Strategies. Most of these regions are moving towards Mature and Saturated markets, and will be well-placed to implement ambitious projects and develop technological expertise in connection with Horizon 2020. For research and development, regions can also make use of the knowledge developed in the Strategic Energy Technology (SET) Plan and the SET Information System to support deployment of cost-effective low-carbon technologies.

Alongside their Smart Specialisation Strategies, all regions should now begin planning a 'Regional Project Pipeline' to ensure that regional funds are used, and that there are always projects waiting to be funded. Whilst the Structural Funds remain the main route by which projects can ensure continued impact on regional development, other programmes and initiatives may also be used for funding and support.

There are a variety of other instruments and programmes available throughout the European Union for supporting renewable energy growth, specifically through co-operation in sustainable energy, including supporting experience exchange, research and pilot actions. For example:

- Cross-border, transnational and interregional co-operation strands for 2014-2020;
- Interregional networking programmes (URBACT II, ESPON, INTERACT II),
- Capacity building and demonstration projects for renewable energy, such as the Intelligent Energy Europe (IEE) programme. Activities formerly supported by the IEE are now supported under Horizon 2020. The first calls were issued on 11 December 2013;
- Horizon 2020 for developing state-of-the-art research – Project developers for cohesion policy funds should remain aware of Horizon 2020 projects in their regions, and build upon successful results.

EU co-operation programmes usually do not support large investments, and operate on a co-financing principle. In order to facilitate larger investments, partners will need to find their own resources, loans or make use of EU and national financial instruments.

In addition, national financial instruments vary by Member State, but lending at the EU level may be possible through the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD), which support regional development, climate action, innovation and energy as priority areas. The EIB's European Local Energy Assistance (ELENA) supports large-scale renewable energies projects by funding 90% of costs for the technical assistance needed to prepare and implement investments. For example, for feasibility and market studies, programme structuring, energy audits and tender preparation. The plans and studies drawn up can then be further used to leverage investment through the EIB or other sources. A similar scheme, Mobilising Local Energy Investments (MLEI) is available for smaller projects. The next call is expected to open in April 2014.

The Joint European Support for Sustainable Investment in City Areas (JESSICA) fund, which has been developed by the European Commission, EIB and the Council of Europe Development Bank (CEB), can also be accessed for purposes of urban regeneration – including issues of energy efficiency, waste and transport.⁷⁰ The initiative provides a loan which is repaid, post-project, from returns on the initial investments.

⁷⁰ http://ec.europa.eu/regional_policy/thefunds/instruments/jessica_en.cfm#1

5.4. Recommendations

5.4.1. Recommendations for Regional Authorities

The main recommendations for Regional Authorities can be found in the above Support Cycle. The following are only a few additional points:

- As illustrated above, there is a lot of finance available through the Structural Funds for renewable energy investments, but regions must take care to plan properly and prepare an investment pipeline, to ensure that funds are used, and that there are always good projects waiting to be funded;
- Use the gathered good practices to showcase the potential of renewable energies – a story can be much more convincing to people than abstract notions of environmental benefits. Make use of energy statistics and economic arguments.
- Renewable Heating and Cooling remains vastly underused. However, resources are available regionally (biomass and geothermal, in particular). Promote awareness of community schemes (such as district heating) to overcome the owner-tenant dilemma by lowering prices through economies of scale, and offering incentives to owners;
- Engage with the new INTERREG EUROPE programme as a way of funding development of regional plans, identifying good practices and securing political buy-in.

5.4.2. General recommendations for future projects

- Conceive and implement tailor made communication campaigns on project activities, making sure to target all key stakeholders and multipliers: media, city and regional planners, home owners and policy makers at regional, national and EU levels;
- Communicate your recommendations and good practices to regional stakeholders involved in managing Structural Funds in your region. Structural funding is now much more targeted towards sustainable energy concerns – use your experiences to argue for the investment ideas that have been identified;
- Plan a media strategy from the outset of the project. Strategies can include journalist visits and seminars to raise awareness and understanding of project aims;
- Avoid technical language and abbreviations where they are not needed – materials should be understandable to as many people as possible, including public and politicians with no prior background in energy managements;
- Political boards have proved to be a successful way of engaging policy-makers in the progress of regional projects. Ensuring the involvement of political stakeholders from the beginning of the project in this way is a good way to secure political ownership of the final results and recommendations of project activities.

5.4.3. Specific recommendations for INTERREG IVC projects

- All projects are encouraged to place their main outputs, clearly, on their websites. Main outputs include guides, handbooks and action plans, rather than newsletters, presentations and leaflets, for example. These main outputs should be clearly marked, to separate them from the multiple downloads that most projects have made available;

- GEO.POWER concerns over the 'owner-tenant' dilemma in retrofitting housing were also identified by the RETS project. The project partners are encouraged to discuss their practices and findings on the issue.
- More4NRG and Regions4GreenGrowth should continue to develop and promote the peer review methodology for use in other projects; it is a very strong methodology for the sharing of experience and good practices.
- As the result of an intervention by the Capitalisation team, the Andalusian Energy Agency (Spain) is now working with the RESTOR Hydro IEE project, to share its data on abandoned hydropower plants. The RESTOR Hydro project will integrate this data into its Europe-wide mapping of abandoned sites. The Andalusian Energy Agency – and RENREN as a whole – is encouraged to support the RESTOR Hydro project as it disseminates its guidelines on small hydropower co-operatives, which can be used to boost renovation of abandoned plants;
- Both RETS and GEO.POWER showed concerns over the 'owner-tenant' dilemma in retrofitting housing. The RETS project partners could contact the GEO.POWER partners and discuss their practices and findings on the issue;
- The RETS wiki provides a valuable source of knowledge and should be developed further, with access granted to others outside of the project.

5.4.4. Recommendations for the INTERREG IVC JTS

- **Complete and enrich the body of renewable energy thematic knowledge**
The total number of good practices that have been identified by the projects is already impressive with over 250 practices found, but this body of knowledge is not complete. On the one hand, the support cycle with its four market development stages of renewables are not equally represented. Funding decisions could privilege applications that allow the current gaps in knowledge to be filled and could expand on areas of particular interest highlighted by this report, such as strategy development and target setting, co-operative ownership, internationalisation strategies and innovative financing approaches. Renewable heating and cooling could also be prioritised over renewable electricity generation. On the other hand, the body of knowledge could be enriched with knowledge and good practices from other relevant projects and initiatives.
- **Manage and promote the body of renewable energy knowledge**
The proposed Policy Learning Platform can make use of the support cycle for renewables and rely on the substantial expertise stemming from the INTERREG IVC projects. Based on the Support Cycle, renewable energy good practices can be classified and easily accessed by regional stakeholders. In addition, they should be able to find all information relevant to a certain RES sector – such as wind, solar thermal, or small hydropower – or policy type, e.g., clusters, RES financing, stakeholder involvement. The knowledge should be proactively promoted towards the regions with targeted information and events.
- **Accelerate the implementation of available ready-to-adapt good practices**
To accelerate policy impact and the uptake of good practices, the focus should shift from the identification and collection of practices to the selection of relevant practices and implementation of the practices in a new policy context. To this end, four approaches could be considered:
 - 1) Policy Learning Platforms should pro-actively involve renewable energy experts and regional stakeholders that can support a region in adopting and implementing a new policy instrument. Databases can only be a tool enabling easy access to information. However, personal exchange is a major success factor for the transfer of policy approaches into a different context.

- 2) To accelerate policy impact, a new streamlined family of 'accelerator' projects could complement the current INTERREG IVC project types. These would maximise regional impact in a given, optimised, time-frame.⁷¹
- 3) The future INTERREG EUROPE approach of requiring all partners to produce action plans, coupled with post-project monitoring of implementation could play a similar role, if robustly enforced.
- 4) Project consortia could benefit greatly from external recommendations on the most relevant policy practices for the partners. Such an approach was taken by an eco-innovation project, which contracted Greenovate! Europe to produce an overview of regional eco-innovation and eco-management policy tools. Some tools were contributed by the project partners, and others were added to by the external experts. This has given the consortium a head start and helped them to focus on the selection and adaptation of policies for their regions. The feedback from the consortium on this approach was very positive.

- **Build the Policy Learning Platform using the practices collected by the projects and using the Policy Support Cycle**

This Capitalisation study has provided evidence on the achievements of INTERREG IVC projects and presented practices which could be made available to regions who want to improve their renewable energy use. The results can therefore be used as the basis of the proposed Policy Learning Platforms which aim to support the exchange of experience and sharing of practices between regional stakeholders and policy makers.

The Platform for the Low-Carbon Economy will be a 'knowledge resource centre' to support ongoing EU-wide regional policy learning and should help to improve capacities of individuals and organisations that use it. In order to have maximum impact, the Platform should also integrate the lessons of the energy efficiency topic, for example, on building renovation and sustainable buildings, which have very strong links with renewable energy. The Platform should include not only the results and practices found by INTERREG IVC, but also the results of other programmes and projects identified in this report.

6. Conclusion

The European Union has come a long way in the past ten years in supporting renewable energies. Compared to 2003, when 80% of new electrical capacity being installed was fossil-fuel based, in 2013, 72% of new capacity was renewable.⁷² In part, this reflects the emergence of more efficient and cost-effective technologies, but also, the trend has largely been driven by policy initiatives that have supported the development of the renewable energy industry. Despite this success, there is still much to be done. Europe's energy transformation remains incomplete, and regional stakeholders need to be engaged for the true potentials of decentralised energy generation to be realised. Regions that adopt renewable energies can benefit hugely from the creation of new jobs and energy independence.

The good practices identified by INTERREG IVC projects and the analysis in this report reveal that regions can – and must – play an active role in transforming energy usage. In doing so, they can boost their regional economies and also help Europe to achieve the goals of the Europe 2020 Strategy for Smart, Sustainable and Inclusive Growth. Good practices vary from the creation of regional targets and plans, to support for cutting-edge research, resulting in companies that are producing innovative energy technologies. Innovative financial and ownership structures have been identified, varying from subsidies, to loans, co-operatives and ESCOs.

This Capitalisation exercise makes clear the added value of the INTERREG IVC programme, which supports regions to plan actions to support renewable energy and gain the support of local stakeholders and politicians in transforming energy generation infrastructures. Project co-ordinators and partners expressed that INTERREG IVC has had a positive impact on their energy planning and that the transfer of practices and experience has been valuable and rewarding.

⁷¹ See the year 1 Capitalisation report for more on this proposed project type.

⁷² REN21 – Global Status Report 2014

The results of the Capitalisation have also shown that the INTERREG IVC programme can play an important role in achieving the goals of the Europe 2020 strategy for Smart, Sustainable and Inclusive Growth. INTERREG IVC, as a key part of the EU's regional policy, is clearly having a strong impact in helping EU regions to work towards these goals by strengthening regional policies.

An exploration of other relevant Capitalisation exercises and programmes has shown that many synergies exist that can be taken advantage of. The Capitalisation topics for INTERREG IVC – especially energy efficiency and eco-innovation – have significant synergies with renewable energy, and if examined together, can provide inspiration for an integrated regional strategy to support smart, sustainable and inclusive growth. INTERREG IVC does not stand alone in supporting regional renewable energy development, with other programmes and funding initiatives can also provide inspiration and help for ambitious regions.

Future interregional co-operation projects will require all partner regions to produce an action plan, and will include new emphasis on monitoring how these action plans are implemented. This should help INTERREG EUROPE to boost its impact and effectiveness even further than has so far been achieved. Coupled with INTERREG EUROPE's Policy Learning Platforms which will make practices and conclusions available to a wider audience, it can be expected that the new programme structure will continue to play a role in meeting sustainable development goals.

7. Annexes

Annexe 1: Renewable energy projects overview

Project acronym	Project name	Detailed topic
4 POWER	Policy and Public-Private Partnerships for Offshore Wind EneRgy	Preparing EU (coastal) regions for off shore wind developments
BIO-EN-AREA	Improve regional policies for bio-energy and territorial development	Enhancement of the use of bio energy (biomass)
GEO.POWER	Geothermal energy to address energy performance strategies in residential and industrial buildings	Strategies related to low enthalpy energy supply
MORE4NRG	MORE4RG	Renewable energy and energy efficiency policies
Regions4GreenGrowth	Regional policy instruments and approaches for improving access to finance and speeding up investments in sustainable energy.	Equipping Regions with policy instruments to improve access to finance and speed up investments in sustainable energy projects
RENREN	RENREN - Renewable Energy Regions Network	Strengthening of renewable energy sources
RETS	Renewable Energies Transfer System	Development of renewable energy (in municipalities with less than 25,000 inhabitants)

Project acronym	Number of partners ⁷³	Country of the LP ⁷⁴	ERDF funding (€)	Total budget (€)	Starting date	Ending date	Type of project
4 POWER	11	THE NETHERLANDS	1 228 472	1 570 880	01/01/2012	31/12/2014	RIP ⁷⁵
BIO-EN-AREA	6	SPAIN	2 444 370	3 125 000	01/01/2010	30/06/2013	RIP
GEO.POWER	12	ITALY	1 612 258	2 031 530	01/11/2010	31/12/2012	CAP ⁷⁶
MORE4NRG	12	THE NETHERLANDS	1 030 689	1 326 559	01/09/2008	30/09/2011	RIP
Regions4GreenGrowth	15	THE NETHERLANDS	1 621 843	2 090 577	01/01/2012	31/12/2014	RIP
RENREN	13	GERMANY	1 646 507	2 095 360	01/01/2010	31/03/2013	RIP
RETS	12	FRANCE	1 484 054	1 908 715	01/01/2010	31/12/2012	RIP
81			11 068 193	14 148 620			

⁷³ Representing 22 Member states + Norway

⁷⁴ LP: Lead Partner

⁷⁵ RIP: Regional Initiative Project

⁷⁶ CAP: Capitalisation Project

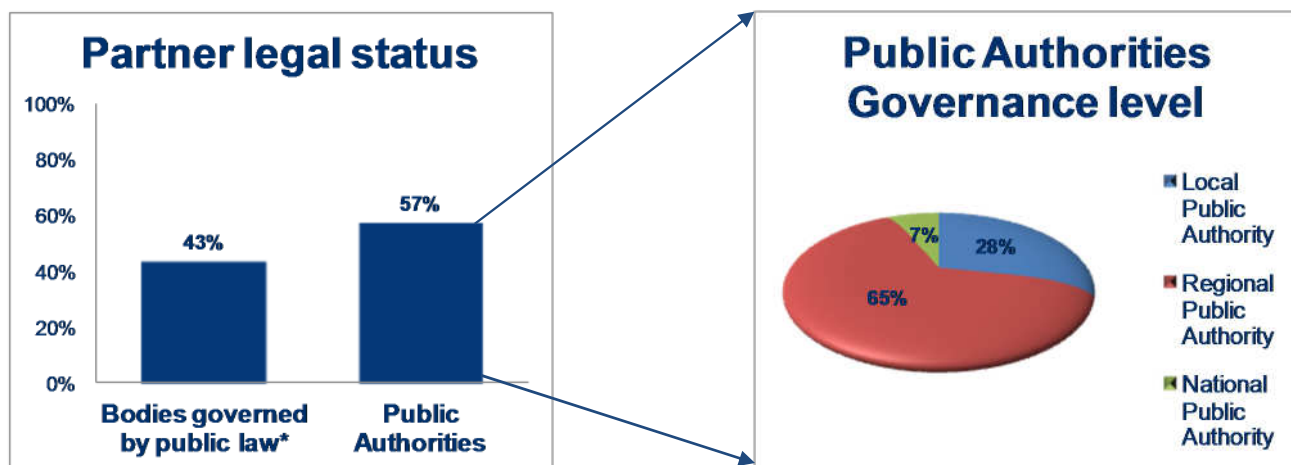
Indicators - as of end 2013

		Outputs		Results		
		No. of regional / local policies and instruments addressed	No. of good practices identified by Regional Initiative Projects	No. of regional / local policies and instruments improved or developed	No. of good practices successfully transferred within Regional Initiative Projects	No. of staff members with increased capacity (awareness / knowledge / skills) resulting from the exchange of experience at interregional events
Project acronym	End date					
4 POWER	31/12/2014	10	26	0	0	0
BIO-EN-AREA	30/06/2013	6	32	11	6	32
GEO.POWER	31/12/2012	11	25**	4	11***	60
MORE4NRG	30/09/2011	11	35	6	5	90
Regions4GreenGrowth	31/12/2014	13	19	8	0	18
RENREN	31/03/2013	14	54	3	9	40
RETS	31/12/2012	12	56	3	2	34

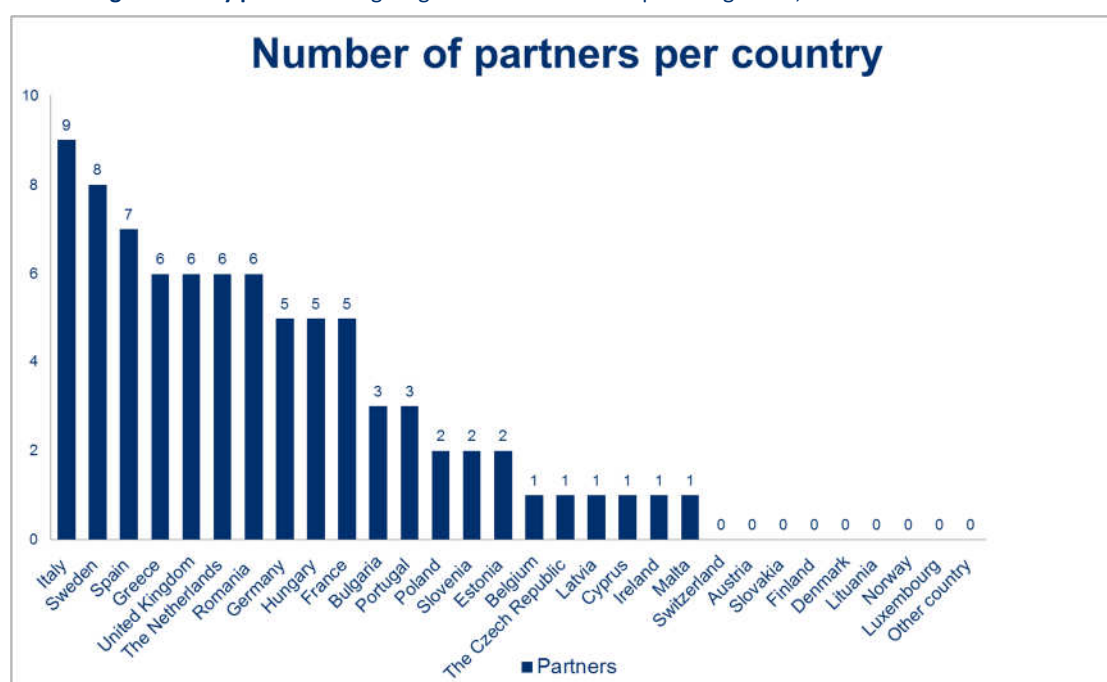
* Projects (RIP) do not always result in the transfer of good practices, but they always have to identify good practices with view to improving policies

** No. of good practices already identified and made available to regional and local actors involved in Capitalisation projects

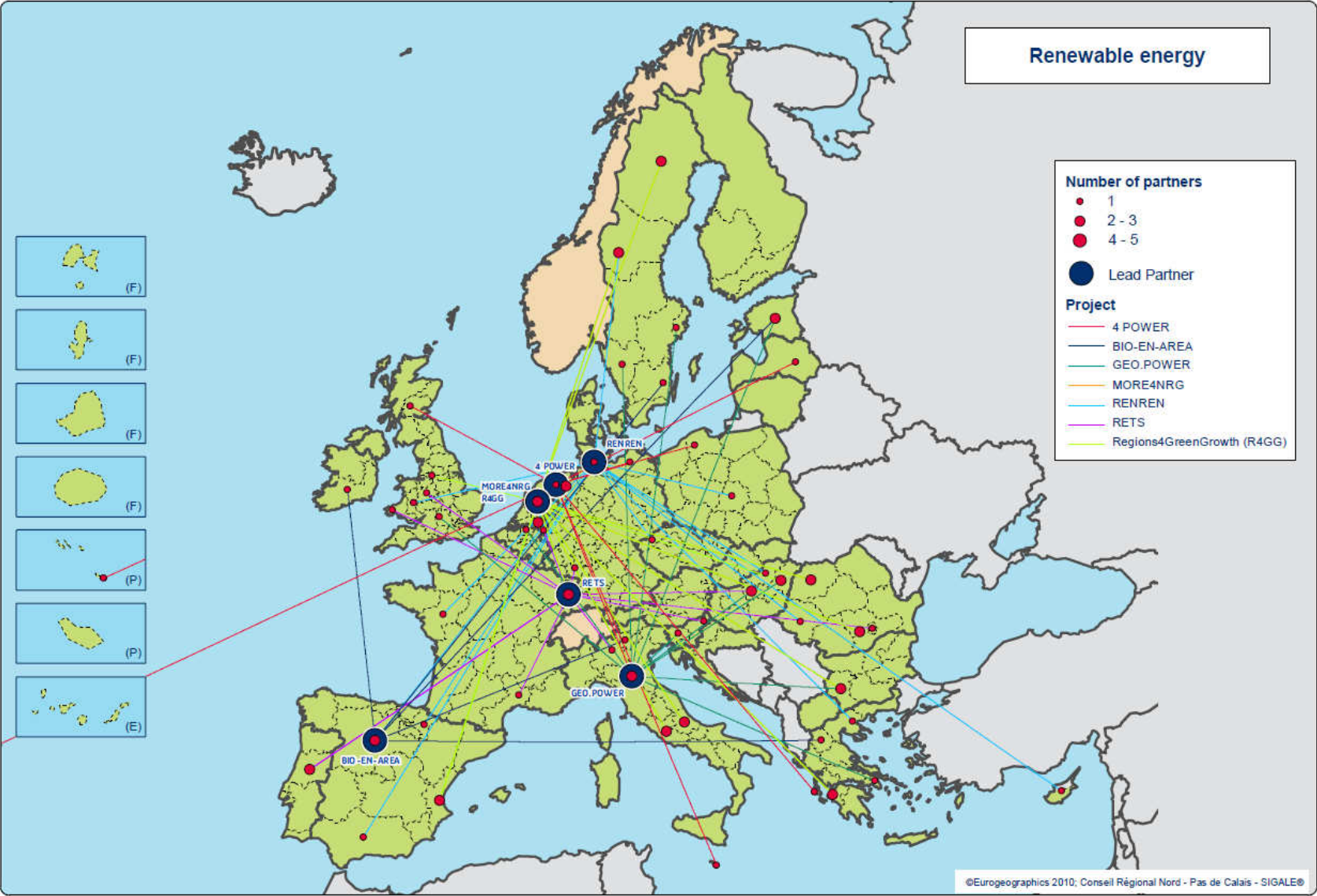
*** No. of action plans developed under Capitalisation projects



* Bodies governed by public law: e.g. Regional and local development agencies, Public universities etc.



Annexe 2: Renewable energy project partners Map



4 POWER

Policy and Public-Private Partnerships for Offshore Wind Energy

PROJECT DETAILS

Priority: Environment and risk prevention

Theme: Energy and sustainable transport

TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project

Duration: 01/01/2012 - 31/12/2014

Website: www.4-power.eu

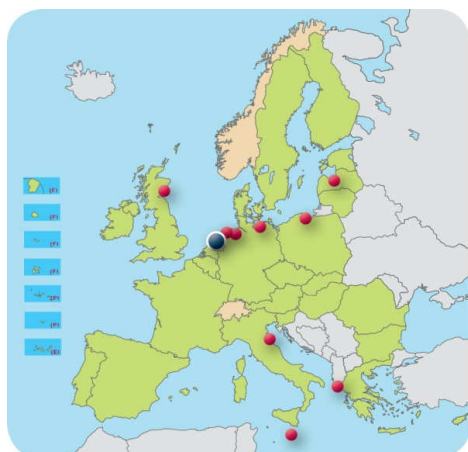


BUDGET

Total budget: EUR 1 570 881

ERDF contribution: EUR 1 228 472.22

PARTNERSHIP



Lead partner:

Province of Groningen
P.O. Box 610
9700 AP, Groningen
NETHERLANDS

	Country	Institution, Town
1	Netherlands	Province of Groningen, Groningen
2	Italy	Province of Rimini, Rimini
3	United Kingdom	Sustainable Industries Institute, Dundee College, Dundee
4	Latvia	Latvian Association of Local and Regional Governments, Riga
5	Germany	Rostock Business and Technology Development GmbH, Rostock
6	Poland	Maritime institute in Gdańsk, Gdansk
7	Portugal	AZORINA – Society for Environment Management and Nature Conservation, Horta
8	Greece	Municipality of Corfu, Corfu
9	Malta	Malta Intelligent Energy Management Agency, Paola
10	Germany	City of Emden, Emden
11	Germany	German Offshore Wind Energy Foundation, Varel

BIO-EN-AREA

Improve regional policies for bio-energy and territorial development

PROJECT DETAILS

Priority: Environment and risk prevention

Theme: Energy and sustainable transport

TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project

Mini-programme: Yes

Duration: 01/01/2010 - 30/06/2013

Website: www.bioenarea.eu

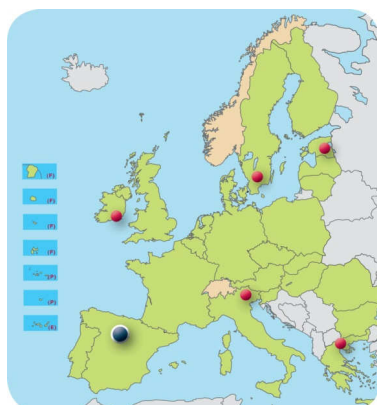


BUDGET

Total budget: EUR 3 125 000

ERDF contribution: EUR 2 444 370

PARTNERSHIP



	Country	Institution, Town
1	Spain	Regional Entity of Energy of Castilla y León, León
2	Greece	Region of Western Macedonia, Kozani
3	Italy	Autonomous Province of Trento, Division for Energy Planning and Incentives, Trento
4	Ireland	South-East Regional Authority (SERA), Clonmel, Co. Tipperary
5	Sweden	Energy Agency for Southeast Sweden, Växjö
6	Estonia	Tartu Regional Energy Agency (Region of Tartu), Tartu

Lead partner:

Regional Entity of Energy of Castilla y León
Edificio EREN, Avenida Reyes Leoneses

Nº 11
24008, León
SPAIN

GEO POWER

Geothermal energy to address energy performance strategies in residential and industrial buildings

PROJECT DETAILS

Priority: Environment and risk prevention

Theme: Energy and sustainable transport



TYPE OF INTERVENTION

Type of intervention: Capitalisation Project

Duration: 01/11/2010 - 31/12/2012

Website: www.geopower-i4c.eu/

BUDGET

Total budget: EUR 2 031 530

ERDF contribution: EUR 1 612 257.5

PARTNERSHIP



Lead partner:

Province of Ferrara
Castello Estense
44121, Ferrara
ITALY

	Country	Institution, Town
1	Italy	Province of Ferrara, Ferrara
2	Greece	Centre for Renewable Energy Sources and Saving, Pikermi Attikis
3	Bulgaria	Ministry of Regional Development and Public Works, Sofia
4	Hungary	ENEREA Észak-Alföld Regional Energy Agency Nonprofit LLC, Nyíregyháza
5	United Kingdom	Reading Borough Council, Reading
6	Sweden	SP Techincal Res. Institute, Borås
7	Hungary	NATIONAL ENVIRONMENTAL PROTECTION AND ENERGY CENTER NON-PROFIT LTD., Budapest
8	Sweden	Royal Institute of Technology, Stockholm
9	Italy	Emilia Romagna Region, Bologna
10	Estonia	Institute of Geology at Tallinn University of Technology, Tallinn
11	Belgium	VITO (Flemish Institute for Technological Research), Mol
12	Slovenia	Geological Survey of Slovenia (GeoZS), Ljubljana

MORE4NRG

PROJECT DETAILS

Priority: Environment and risk prevention
Theme: Energy and sustainable transport

TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project

Duration: 01/09/2008 - 30/09/2011

Website: www.more4nrg.eu



BUDGET

Total budget: EUR 1 326 559

ERDF contribution: EUR 1 030 688.95

PARTNERSHIP



Lead partner:

Province of Flevoland
P.O.Box 55
8200 AB, Lelystad
NETHERLANDS

	Country	Institution, Town
1	Netherlands	Province of Flevoland, Lelystad
2	Sweden	County Council of Norrbotten, Luleå
3	Romania	Maramures county council, Baia mare
4	Italy	Region Abruzzo, L'Aquila
5	Spain	Valencia Agency of Energy, Valencia
6	Italy	Lazio Region – Civil Protection Direction, Roma
7	Romania	Prahova County Council, Ploiesti
8	France	Assembly of European Regions, Strasbourg
9	Sweden	County Council of Västernorrland, Härnösand
10	Bulgaria	Euro Perspectives Foundation, Sofia
11	Netherlands	Province of Noord-Brabant, s-Hertogenbosch
12	Greece	Patras science park S.A., Rion, Patras

Regions4GreenGrowth

Regional policy instruments and approaches for improving access to finance and speeding up investments in sustainable energy

PROJECT DETAILS

Priority: Environment and risk prevention

Theme: Energy and sustainable transport



TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project

Duration: 01/01/2012 - 31/12/2014

Website: www.regions4greengrowth.eu

BUDGET

Total budget: EUR 2 090 574

ERDF contribution: EUR 1 621 843.26

PARTNERSHIP



Lead partner:

Province of Flevoland
Visarenddreef 1 / P.O. Box
55
8200 AB, Lelystad
NETHERLANDS

	Country	Institution, Town
1	Netherlands	Province of Flevoland, Lelystad
2	Sweden	County Council of Norrbotten, Luleå
3	Romania	Maramures County Council, Baia Mare
4	Italy	Region Abruzzo, Pescara
5	Spain	Valencia Energy Agency (AVEN), Valencia
6	Italia	Lazio Region, Roma
7	Romania	Energy Efficiency and Renewable Energy Agency "AE3R Ploiești-Prahova", Ploiești
8	Sweden	Västernorrland County Council, Härnösand
9	Greece	PATRAS SCIENCE PARK S.A., PATRAS
10	Netherlands	Province of Noord-Brabant, 's-Hertogenbosch
11	France	Assembly of European Regions (AER), Strasbourg
12	Hungary	Észak-Alföld Regional Development Agency Non-profit Limited Company, Debrecen
13	United Kingdom	Oldham Council, Oldham
14	Spain	Instituto Tecnológico de la Energía, Paterna (Valencia)
15	Bulgaria	Euro Perspectives Foundation, Sofia

RENREN

Renewable Energy Regions Network

PROJECT DETAILS

Priority: Environment and risk prevention

Theme: Energy and sustainable transport

TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project

Duration: 01/01/2010 - 31/03/2013

Website: www.renren-project.eu

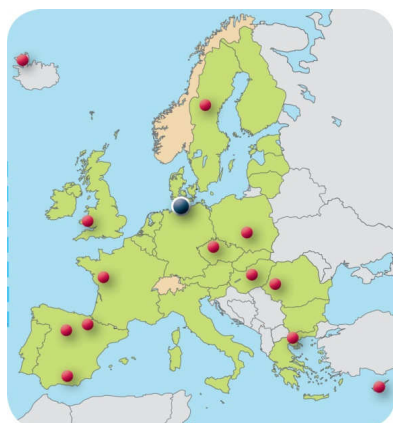


BUDGET

Total budget: EUR 2 095 361

ERDF contribution: EUR 1 646 507.2

PARTNERSHIP



Lead partner:

Federal State of Schleswig-Holstein
Düsternbrooker Weg 94
24105, Kiel
GERMANY

	Country	Institution, Town
1	Germany	Federal State of Schleswig-Holstein, Kiel
2	United Kingdom	Welsh Assembly Government, Cardiff
3	Sweden	Region of Jämtland (changed name to: Regionalförbundet Jämtlands län), Ås
4	Cyprus	Cyprus Institute of Energy, Nicosia
5	Spain	Navarra - Department of Economy, Finance, Industry and Employment, Pamplona
6	Spain	Regional energy agency of Castilla y León, León
7	France	Pays de la Loire region, Nantes
8	Romania	The Agency for Social and Economic Development of Timis County, Timișoara
9	Poland	Lodz Region, Łódź
10	Czech Republic	Ústí Region, Ústí nad Labem
11	Greece	Decentralised Administration of Macedonia-Thrace (DAMT), Thessaloniki
12	Spain	Andalusian Energy Agency, Sevilla- España
13	Hungary	Bay Zoltán Nonprofit Ltd., Miskolc

RETS

Renewable Energies Transfer System

PROJECT DETAILS

Priority: Environment and risk prevention

Theme: Energy and sustainable transport

TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project

Duration: 01/01/2010 - 31/12/2012

Website: www.rets-project.eu

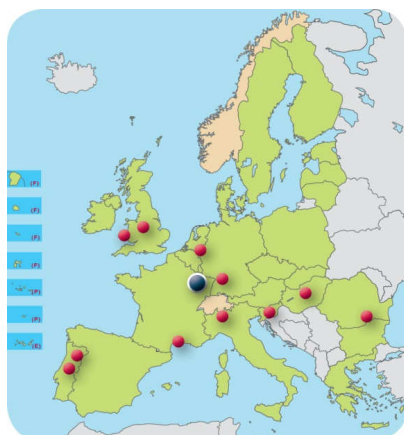
BUDGET

Total budget: EUR 1 908 715

ERDF contribution: EUR 1 484 054.25



PARTNERSHIP



Lead partner:

ADEC
37 rue d'Engwiller
67350, La Walck
FRANCE

	Country	Institution, Town
1	France	ADEC, La Walck
2	Portugal	Serta town council, Sertã
3	Portugal	Pinhel town council, Pinhel
4	United Kingdom	Institute for Environment, Sustainability and Regeneration, Staffordshire University, Stoke-on-Trent
5	United Kingdom	ECO CENTRE WALES, Newport, Pembrokeshire
6	Germany	IHK Zetis GmbH - center for technology- and innovation consulting South-West, Kaiserlautern
7	France	Pezenas city, Pezenas
8	Netherlands	City of Sittard-Geleen, Sittard
9	Slovenia	Energy agency of Podravje - institution for sustainable energy use, Maribor
10	Romania	Energy Research and Modernizing Institute Icemenerg Bucharest, Bucharest
11	Italy	Province of Varese, Varese
12	Hungary	Town of VECSÉS, VECSÉS

Annexe 4: Bibliography

EU documents

COM(97)599 - Communication from the Commission – Energy for the Future: Renewable Sources of Energy. White Paper for a Community Strategy and Action Plan

COM(2010)2020 – Communication from the Commission – Europe 2020: A strategy for smart, sustainable and inclusive growth

COM(2010)553final. – *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Regional Policy contributing to smart growth in Europe 2020.*

COM(2011)885/2 – Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Energy Roadmap 2050

COM(2012)271 – Communication from the Commission and the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Renewable energy: a major player in the European Energy Market

Committee of the Regions – *Special Eurobarometer 307 – The role and impact of local and regional authorities within the European Union: Opinions on the different levels of public authorities and awareness of the Committee of the Regions* (2009)

Consolidated version of the Treaty on European Union

Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market

Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

European Commission, DG Enterprise and Industry – *Innovation Union Scoreboard* (2011)

European Commission, DG Enterprise and Industry – *Regional Innovation Scoreboard* (2012)

European Commission, DG Regional Policy – *Cohesion Policy 2007-2013: Commentaries and official texts* (2007)

European Commission, DG Regional Policy – *Cohesion Policy 2014-2020: Investing in growth and jobs* (2011)

European Commission, DG Regional Policy – *Guide to Research and Innovation Strategies for Smart Specialisation (RIS3)* (2012)

European Commission, DG Regional Policy – *Connecting Smart and Sustainable Growth through Smart Specialisation: A practical guide for ERDF managing authorities* (2012)

European Commission, JRC Scientific and Policy Reports – *PV Status Report* (2012)

Eurostat – *Regional Yearbook* (2011)

Eurostat – *EU Energy in Figures: Statistical Pocketbook* (2012)

Eurovoc – *Multilingual Thesaurus of the European Union*

Other sources

Centre for European Reform – *How to Expand Renewable Energy after 2020* (2012)

EcoCluP – *Eco-Clusters for a green economy: Outcomes of a European partnership for internationalisation and growth* (2012)

Eurelectric – *Power Statistics and Trends Synopsis* (2011)

European Geothermal Energy Council – *Second Geothermal Market Report* (2012)

European Renewable Energy Council – *Renewable Energy in Europe: Building Markets and Capacity* (2004)

European Renewable Energy Council – *Renewable Energy in Europe: Markets, Trends and Technologies, Second Ed.* (2010)

European Renewable Energy Council – *Mapping Renewable Energy Pathways Towards 2020: EU Roadmap* (2011)

European Renewable Energy Council – *45% by 2030: Towards a Truly Sustainable Energy System in the EU* (2011)

European Small Hydropower Association – *Small Hydropower Situation in the new EU Member States and Candidate Countries* (2004)

European Small Hydropower Association – *Small Hydropower Roadmap: Condensed Research Data for EU-27* (2012)

European Technology Platform on Renewable Heating and Cooling – *Common Vision for the Renewable Heating and Cooling Sector in Europe* (2011)

Frankfurt School, UNEP Collaborating Centre for Climate & Sustainable Energy Finance – *Global Trends in Renewable Energy Investment* (2012)

German Federal Ministry for the Environment – *Nature Conservation and Nuclear Safety: Renewable Energy Sources in Figures: National and International Development* (2013)

GREECO - *Territorial Potentials for a Greener Economy: Applied Research 2013/1/20 (Draft) Final Report, Vol. 5, Policy Options and Recommendations* (2014)

Greenovate! Europe – *CENTRAL EUROPE Programme: Thematic Study on Energy Efficiency and Renewable Energies* (2014)

Greenpeace & European Renewable Energy Council – *Energy [R]evolution: A Sustainable EU 27 Energy Outlook* (2012)

INTERACT – *Accelerating Change - Delivering Sustainable Energy Solutions: Good practices from Intelligent Energy Europe and European Territorial Co-operation projects* (2013)

International Energy Agency (IEA) – *Tracking Clean Energy Progress: Energy Technology Perspectives 2012 Excerpt as IEA Input to the Clean Energy Ministerial* (2012)

International Energy Agency (IEA) – *Joint Public-Private Approaches for Energy Efficiency Finance* (2011)

L'Observatoire des Energies Renouvelables (EurObserv'ER) – *The State of Renewable Energies in Europe* (2012)

Kleißmann, C. – *Increasing the Effectiveness and Efficiency of Renewable Energy Support Policies in the European Union* (2012)

Patras Science and Business Park & Euro Perspectives Foundation – *MORE4NRG Study on framework conditions necessary for generating development of, and investment in, regional renewable energy infrastructures*

RE-Shaping - *Shaping an Effective and Efficient European Renewable Energy Market* (2012)

Renewable Energy Policy Network for the 21st Century (REN21) - *Renewables 2012: Global Status Report* (2012)

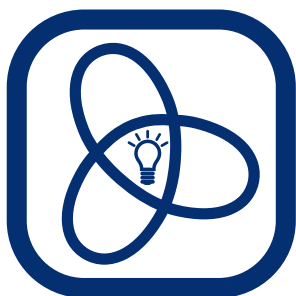
Renewable Energy Policy Network for the 21st Century (REN21) - *Renewables 2013: Global Status Report* (2013)

Renewable Energy Policy Network for the 21st Century (REN21) - *Renewables 2014: Global Status Report* (2014)

RESCoop – *Best Practices Report* (2013)

URBACT II Capitalisation – *Building Energy Efficiency in European Cities* (2013)

INTERREG IVC Thematic Capitalisation



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Innovation capacity of SMEs



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Creative industries



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