

Renewable Energy in the Mediterranean

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Introduction

- 1.1 The geographical proximity and the nexus of interests that bind Europe and North Africa together has long been recognised. More than fifteen years ago the Barcelona Declaration, adopted by the Euro-Mediterranean Conference in November 1995 stated: "Municipalities and regional authorities need to be closely involved in the operation of the Euro-Mediterranean Partnership. City and regional representatives will be encouraged to meet each year to take stock of their common challenges and exchange experiences".

There then followed a long hiatus. Political attention focused on the enlargement of the European Union across Central and Eastern Europe. Only when this was accomplished did some political attention return to the Mediterranean Basin. Momentum returned to the issue during 2008, especially during the French Presidency of the European Union.

The re-launch of the 'Barcelona Process: Union for the Mediterranean' (UfM) was agreed on 13 July 2008 and included a statement that "heads of state and government underscore the importance of active participation of local and regional authorities... in the implementation of the Barcelona process: Union for the Mediterranean."

In response to this and related developments, the Committee of the Regions was able to establish a **Euro-Mediterranean Regional and Local Assembly (ARLEM)** in January 2010. This is a consultative assembly which aims at bringing a regional and local dimension to the Euro-Mediterranean partnership. ARLEM is a joint project of the Committee of the Regions, regional and local authorities around the three shores of the Mediterranean, and European and international associations representing regional and local authorities working on the ground. The initiative is designed to facilitate the establishment of contacts, good practice sharing between cities and regions; the promotion of inter-municipal and inter-regional cooperation; and seeks to involve local and regional authorities more closely in the specific projects of the Union for the Mediterranean. The inaugural ARLEM meeting took place on 21 January 2010 at the Pedralbes Palace in Barcelona, Spain.

As part of the Barcelona Process the European Union has established both a financial instrument with the establishment of a European Neighbourhood policy and institutional structures, notably the Union for the Mediterranean and within it the Assembly of Regional and Local Authorities of the

Mediterranean (ARLEM.) With the current upheavals across the Middle East and North Africa, the big question in 2011 is whether these structures and instruments can adapt and respond to the new situation. For local and regional authorities the question posed is whether they are able to propose effective and practical solutions to the big issues facing the cities and public authorities in the countries of the southern and eastern Mediterranean.

- 1.2. No challenge is bigger than climate change. It has become a major security issue as the United Nations' top environment official has warned. From rising sea levels in the Indian Ocean to the increasing spread of desert in Africa's Sahel region, global warming will cause massive disruption across the world according to Achim Steiner, executive director of the UN Environment Programme (UNEP). "People are being pushed into other people's terrain by the changing climate and it is leading to conflict. Societies are not prepared for the scale and the speed with which they will have to decide what they will do with people."¹

If left unchallenged, runaway climate change across sub-Saharan Africa would have both a disastrous impact on North Africa and dramatic spill-over effects on all of Southern Europe. For instance, there would certainly be unprecedented population movements from North Africa across the Mediterranean into Europe. Already, during the preparations of this report this issue has flared up with the landings of migrants and refugees in Lampedusa and Malta and the request of the French and Italian governments to modify the Schengen processes.

While it is important to be aware of the downside, nevertheless Steiner and the UNEP are clear that this is an issue that can be tackled. Steiner believes that concerted government action on renewable energy, sustainable transport and agriculture and energy efficiency are the key. He gives a European example where local and regional authorities have been heavily involved. "How can an economy like Germany's have achieved a 15 percent renewable electricity supply in less than a decade if it was impossible to do so? It introduced a law which triggered a technology boom, an investment boom and a market for renewable energy which has given Germany this phenomenal increase in wind power".²

- 1.3. Climate change represents a huge challenge for all countries and citizens. But it is a challenge that cannot be met by national governments alone. It requires the active engagement and participation of all local and regional authorities.

¹ See report in The Independent. 21 June 2007.

² Interview in Newsweek 3 April 2009.

Europe has set ambitious targets for 20% greenhouse house reductions; 20% improvements in energy efficiency; and a 20% increase in the use of renewable energies: all to be achieved by 2020, with the promise of 80% reductions in greenhouse gases by 2050. There can be no doubting both the urgency and the immensity of this challenge.

There is no single magic bullet to achieve these targets. It requires a wide range of actions by a diverse range of players. But there can be no doubt that on all three fronts the role of cities and regions is absolutely crucial. It is here that actions can have immediate and demonstrable effects and show that the EU's 2020 short-term targets are achievable.

There are plenty of examples in cities and regions across Europe of important progress being made on addressing these targets. A glance at the programme of the annual Committee of the Regions Open Days event quickly gives a sense of the enormous range and diversity of actions currently being undertaken on this topic by cities and regions across Europe and the enormous innovative effort that authorities are putting into this issue.³

Much of this work is taking place around the Mediterranean basin. Tackling climate change offers all parts of the Mediterranean region major economic development opportunities, as well as the potential for many new jobs in both skilled and manual work. How can ARLEM and its Sustainable Development Commission (SUDEV) contribute to develop a renewable energy strategy for the Mediterranean?

³ http://ec.europa.eu/regional_policy/conferences/od2010/doc/pdf/pgr_glance.pdf.

1. The Potential of the Southern and Eastern Mediterranean

Only a few southern and eastern Mediterranean countries are hydrocarbon-exporting countries but most are energy-dependent. In addition, they are all facing rapid demographic growth, swift urbanisation and significant socio-economic development. Together this translates into new and growing needs for energy. At the same time, all of them have a high potential for utilising renewable energy resources, especially wind and solar, as well as improving their energy use and efficiency. Indeed, the CoR has noted the importance of solar energy as the main renewable resource in the Mediterranean area, and in its Outlook Opinion on the EU Energy Action Plan for 2011-2020 emphasised its potential as one of the world's greatest resources⁴. These opportunities need to be assessed and policies developed to maximise their contribution to social and economic development.

Over the last few years a range of collaborative and detailed research work on this topic has already been undertaken. One example is the EU Framework 6 research and development project, Renewable Energy in the Mediterranean (REMAP) which worked with key stakeholders to:

- Compile a solar and wind-energy resource atlas for the Southern and Eastern Mediterranean area
- Identify and prioritise potential demonstration sites for wind and concentrated solar projects in Algeria, Tunisia, Jordan and Turkey
- Recommend proposals for major stakeholders to develop several wind and concentrated solar energy projects
- Propose a credible financing scheme for priority renewable demonstration projects

Thus REMAP provided better knowledge of the wind- and solar-energy resources available in the Mediterranean region and highlighted investment opportunities.⁵

⁴ CdR 244/2010 fin.

⁵ See REMAP Report on commitments towards wind and energy concentrated solar thermal energy integration in Algeria, Jordan, Tunisia and Turkey. 6th February 2009.

There is no doubt about the potential for a huge increase in the use of renewable energy across the whole of the Euro-Mediterranean region. A report by the Global Energy Network Institute⁶ stresses in particular the huge untapped potential of solar energy in its varied forms. Yet currently, solar power capacity across the southern and eastern Mediterranean remains negligible.

1.1 Wind Power

Indeed, the picture is little better for wind power, the other main potential source of renewable energy in the Euro-Mediterranean region. The Table below gives the latest data available.⁷

Table 1. Wind Power Capacity and Number of Wind Farms by Country 2010

Country	Number of farms	Capacity in Megawatts
Morocco	15	286
Algeria	1	14
Tunisia	3	20
Libya	1	20
Egypt	8	550
Jordan	3	2
Israel	1	6
Turkey	54	1329
Greece	102	1208
Italy	266	5797
Spain	881	20676
Portugal	245	3702

This shows the vast discrepancy that presently exists in wind power capacity between the countries of the northern, eastern and southern Mediterranean. Obviously, climatic conditions vary considerably yet the data does illustrate the current vast discrepancy in the use of this renewable energy between the different parts of the Euro-Mediterranean region. To give just one example, both Morocco and Portugal are countries with long coastlines along the Atlantic Ocean which offers significant potential for the utilisation of wind energy.

⁶ Renewable Energy Potential of the Middle East, North Africa vs. The Nuclear Development Option
 Peter Meisen, President, Global Energy Network Institute (GENI) and Lesley Hunter, Research Associate,
 Global Energy Network Institute (GENI)

<http://www.geni.org/globalenergy/research/middle-east-energy-alternatives/MENA-renewable-vs-nuclear.pdf>.

⁷Table compiled from information contained from the Windpower, wind turbines and wind farms database.
http://www.thewindpower.net/countries_europe_africa.php.

1.2 The Potential for Solar Energy

Given its geographical location, by far the most important potential source of renewable energy for the Euro-Mediterranean region is the sun. Solar energy is being developed in a variety of ways around the world. Within the Euro-Mediterranean region, its potential is being explored most actively by the DESERTEC initiative.⁸

1.2.1 The DESERTEC Project

The DESERTEC Foundation was established on 20 January 2009 as a non-profit foundation with the aim of promoting the implementation of the global DESERTEC Concept "Clean Power from Deserts" all over the world. Founding members of DESERTEC Foundation are the German Association of the Club of Rome, members of an international network of scientists as well as committed private individuals who had been supporting the DESERTEC idea for a long time.

In October 2009, the non-profit DESERTEC Foundation founded the industrial initiative Dii GmbH together with partners from the industrial and finance sector. The task of the Dii is to accelerate the implementation of the DESERTEC Concept in the Euro-Mediterranean, what they term EU-MENA. – Europe, Middle East, North Africa.

The DESERTEC vision points at the enormous amounts of energy that is being delivered every day by the sun to the deserts of our earth. They receive in six hours as much energy from the sun as mankind consumes in one year. In addition, some deserts have very good wind sites. The deserts would enable a secure, sufficient and affordable energy delivery for the future world population from clean and inexhaustible sources. Plenty of electric energy can be generated from these sources, and existing technologies would be able to deliver this energy to the different energy markets day and night.

The DESERTEC vision would include emerging applications such as energy for seawater desalination and power for electric mobility.

In the long term, power from deserts could in a controllable way complement all the other available sources of renewable energies as necessary for a secure and sustainable energy future. DESERTEC seeks an expanding energy cooperation between Europe (EU), the Middle East and North Africa (MENA) based on partnership and which will contribute to their joint prosperity.

⁸ For more information see <http://www.desertec.org/en/organization/>.

The most important technologies for the use of the energy potential of the world's sunny desert areas have already been successfully in use for several years. Wind energy and photovoltaics are widely known. However, within the DESERTEC Concept concentrating solar thermal power (CSP) plants and high-voltage direct current (HVDC) transmission lines are of particular significance.

Concentrating solar thermal power (CSP) plants

In CSP plants, solar energy is concentrated by means of mirrors to heat water. The resulting steam is used for driving turbines for power generation. CSP stations are capable of supplying energy on demand - even after sunset. This is due to the fact that, in contrast to electricity, large quantities of thermal energy can be stored not only easily but also with low losses.

In this manner, CSP plants are capable of both reliably producing large quantities of power and, if they are part of a network together with other renewable energies, compensating for the inevitable fluctuations of wind and photovoltaic energy. Thus they also contribute towards stabilizing the electricity grid. As a result, CSP plants allow greater use of such fluctuating renewable energy sources within the electricity mix.

At sites near the coast, sea water may be used for cooling the steam power cycle. In this way, drinking water can be produced simultaneously. For desert locations farther away from the coast, water-saving air cooling can be used. In this manner, it is possible to harness the best sunny locations, independent of water sources.

High-voltage direct current (HVDC) transmission

By using HVDC transmission lines, it is possible to transport clean power from the deserts over long distances to the world's centres of consumption. With around three percent per 1,000 kilometres, the transmission losses are fairly low. The manageable power transmission costs of 1-2 cents per kilowatt-hour are more than offset by the significantly higher efficiency of the solar power plants located on desert sites. In contrast to conventional alternating-current transmission lines, HVDC long-distance transmission lines can be installed underground, even over long distances, which increases their acceptance among the public.

Mass production, technological developments and increasing competition will contribute to a further reduction of costs. With determined political action, renewable power from deserts may already compete with fossil fuels in less than 10 years.

1.2.2 The DESERTEC University Network, Dun

DUN is a scientific cooperation platform within Desert Tec which brings together twenty university and research institutions from Egypt, Algeria, Jordan, Libya, Morocco, Tunisia as well as those from Germany, Italy, France and Switzerland. Those leading the DESERTEC University Network such as executive director Mouldi Miled see present developments within North Africa and the Middle East as a positive rather than a negative factor. “I am confident that the post-revolutionary situation will be more favourable than before: we shall have more transparency, a better environment for business. This will be good for investors.” Furthermore he believes that. “What we are offering with DESERTEC are jobs and economic opportunities for the people by the rapid growth of North Africa and the Middle East. And that is precisely what the people are calling for”⁹.

In an interview with the European Energy Review Mr. Miled stressed that DESERTEC wishes to develop its projects in isolated and desert areas and not primarily on the coasts. This will give a boost to local growth and respond to one of the causes of the popular revolt, namely the present unbalanced development within Tunisia. He stresses that the first objective of DESERTEC is to stimulate the production of renewable energy in order to satisfy the growing domestic energy demands of the region and to help with the desalination of sea-water. The export of solar energy to Europe is a secondary objective.

Paul van Son, Executive Director of DESERTEC Dii GmbH echoes these sentiments. He stresses that the project is important for both North Africa and Europeans to meet both the demographic and energy challenges that both are facing. “The populations of North Africa and the Middle East are going to double by 2050 and reach 700 million. The young people in these countries are going to need jobs and prospects. Our energy projects will be an essential element of their future and of ours”.

The potential here for industrial scale renewable energy development is absolutely immense. At this moment of optimism there is much talk of the need for a new Marshall Plan for North Africa. At the heart of any such initiative would need to be major investments in solar and wind power and their accompanying infrastructure grids. An example of the type of development required is the Kuraymat project currently being constructed 100 kilometers south of Cairo in Egypt. This will be a hybrid power plant (natural gas and solar thermal), which will have a 150-megawatt capacity. Overall, the power plant

⁹ For this and following see European Energy Review 9 March 2011.

will have 2,000 solar collectors, whose mirrors will cover 130,000 square meters. The facility is being built by the Egyptian New and Renewable Energy Authority, and the solar technology is being provided by Flagsol, a company owned by Solar Millennium (ETR:S2M) and Ferrostaal. The total cost of the Kuraymat solar thermal facility is estimated to be €250 million, and the project is expected to be completed by the end of the year. The success of Kuraymat will be a major litmus test for DESERTEC¹⁰.

These initiatives will need to be replicated across the Southern and Eastern Mediterranean. Furthermore, they would need to be closely tied in to the new democratic structures which the countries of the Southern and Eastern Mediterranean will be developing in the coming period. This is where ARLEM could potentially make a major contribution.

¹⁰ <http://www.energyboom.com/solar/going-solar-egypts-first-solar-thermal-plant-under-construction>.

2. Relevant examples of good practice by local and regional authorities within Europe

The air, the sea, the sun, the earth, rainfall and vegetation, together provide an enormous range of potential sources of energy which are naturally available to humanity. Over the last two decades there has been a gradual realisation of the value and potential of these resources. All across Southern Europe urban and regional initiatives are being developed which seek to maximise the potential of these different renewable energies. The specific types of energy and the nature of their production varies from place to place but it is already clear that more and more cities and regions are recognising that renewable energies offer a new, sustainable way forward for meeting their energy needs.

It is recognised that local and regional authorities play a significant role in the implementation of EU policies and programmes in this field¹¹. The portraits below give some examples of the various initiatives that are being undertaken by local and regional authorities and which could be replicated in other parts of the Euro-Mediterranean area.

2.1 Canary Islands. Combining Wind with Hydro-Electricity¹²

El Hierro is a small volcanic island with a population of 10 700 people to the far South West of Gran Canaria. Currently the island, with the help of major loans from the Spanish government and other banks, is investing in a combined hydro-electric and wind turbine plant. Using the strength of the winds from the Atlantic Ocean, five major wind turbines will be able to generate up to 11.5 megawatts of power. This will be used for domestic electricity consumption.

However, the innovative element of this scheme is that the wind power will also be used to pump water 700 metres up the hillside from large reservoirs situated at low levels to newly-built reservoirs at the top of the volcanic mountain-side. When there is no wind on the island to generate electricity, the hydro scheme will come into operation, with the pumped water being released to drive six hydraulic turbines capable of generating up to 11.3 megawatts of electricity. Thus, this combined hydro-wind power station will overcome the problem of the

¹¹ Brussels Environment (IBGE) Study 2010 "The Regional Dimension in EU Environmental Regulations and Directives", <http://www.eapdebate.org/files/files/study-regionaldimension.pdf>.

¹² Le Monde 5 April 2011.

intermittency of wind by ensuring that an alternative source of power is available. The station will be able to supply power to the island for up to four days if there is no wind, far in excess of the norm for this area. The scheme is scheduled to start in 2012. It will make the island self-sufficient in energy and the expectation is that the island will no longer require its current fossil fuel based power station. This type of power generation by pumping water to drive turbines has already been undertaken in Morocco and elsewhere but this is the first time it has been undertaken using entirely renewable resources. The proposal is already attracting interest from local authorities in neighbouring Tenerife and also some islands in Greece.

2.2 Languedoc-Roussillon Region: Spreading the Use of Solar Panels

This regional authority in Southern France bordering on the Mediterranean has recognised that sustainability and economic development are two sides of the same coin. Keen to both contribute to the battle against climate change while modernising their economic basis the region has been seeking to develop a range of local initiatives on the issue of climate change. Most recently, on 8 April 2011 the region signed a convention with the European Investment Bank, the French Savings Bank plus Credit Agricole and the Banque Populaire du Sud, a regionally-based bank. This convention forms a new public-private funding initiative to which the five parties will contribute a total of €400 million. This fund will enable the installation over the next four years from 2011-2014 of solar panels with a capacity of 200 million megawatts, equivalent to the electricity needs of 240 000 people. Furthermore, these works will require the creation of 1 100 new jobs.

The three French banks will make available funds worth up to €200 million, while the region will guarantee up to 25% of the loans agreed.¹³ Here we see a combination of public and private funds being drawn together to give a stimulus to new economic activity in the renewable energy sector. It is a model with the potential for lots of replication all across the Mediterranean region especially in the field of solar energy.

2.3 Valencia Region

The Valencia region in Eastern Spain is a good example of the comprehensive approach to climate change that is being taken by many municipalities and regions. It has adopted a comprehensive approach to the challenges of climate

¹³ <http://www.objectifgard.com/article-dossier-complet-lancement-du-fonds-photovoltaique-regional-en-languedoc-roussillon-71501703.html>.

change and in response has developed a stream of projects and initiatives which focus on energy efficiency, reductions in waste, promotion of public transport, use of new fuels, testing of electric vehicles combined with an extensive expansion of both solar energy and wind power.¹⁴ In this work the regional authority has worked closely with local authorities alongside university institutes, research organisations and private companies to develop jointly a range of projects which are enabling the region to emerge as a key player on the climate change agenda and promoter of renewable energies.

2.4 Rivas Vaciamadrid Municipality. Solar Panels on Public Buildings¹⁵

Rivas Vaciamadrid is an emerging town just 20 kilometres to the South of the Spanish capital. From being a village of just 500 people in 1980 it has experienced astounding growth so that today it is a town of 74 300 people. Over the last decade the municipal leadership has shown its commitment to tackling climate change by a concerted drive to introduce solar power and thereby transform the nature of electricity production in the town. The main method which the council has used has been to install on the roofs of all public establishments in the city – council buildings, swimming pools, libraries, schools, colleges and stadiums – photovoltaic solar panels. In 2010, these installations were producing a combined power of 271 900 kilowatts which represents just under 30% of the total electricity usage within the town. Obviously, in a town which has been growing so fast and therefore has had a significant number of new public buildings Rivas has been able to take advantage of this situation and embed solar panels in the architectural plans for its new buildings. But this experience shows what can be achieved in a relatively short space of time with a determined leadership.

2.5 The Covenant of Mayors initiative

The Covenant of Mayors initiative¹⁶, launched by the European Commission following the adoption in 2008 of the EU Climate and Energy Package, is an innovative scheme which allows local and regional authorities to voluntarily commit to increasing their own energy efficiency and making greater use of

¹⁴ For examples see the following.

http://www.r2sconference.eu/downloads/wednesday_14_EGCI_presentations/Antoio_Cejalvo_EGCI_The_vision_of_regions.pdf;

http://www.bp.com/liveassets/bp_internet/solar/bp_solar_global/STAGING/local_assets/downloads_pdfs/n/NP_alaplana23_marzoENGLISHV1.pdf;

<http://reregions.blogspot.com/2009/10/region-of-valencia.html>.

¹⁵ Le Monde 6 April 2011.

¹⁶ http://www.eumayors.eu/about/covenant-of-mayors_en.html.

renewable energy sources. It allows local and regional authorities collectively to work together towards meeting many of the global targets on carbon dioxide emissions. The Covenant of Mayors is shows how ambitious action can be undertaken at the local and regional level, in advance of action at the national level.

The Covenant is a significant example of collective action between local and regional actors which can have a major impact on meeting renewable energies targets. **SUDEV should consider the Covenant of Mayors as a possible model of collective action on renewable energies in the Euro-Med area.**

The Covenant of Mayors also represents a strong example of **active multi-level governance** in practice.

2.6 Education, Training and Knowledge Development in Renewable Energies Technology

Rapid global change results in the need for a changed workforce in Europe and North Africa. Addressing the challenges posed by climate change in particular means we need to equip a new generation not only with strong basic skills and specialist technical knowledge, but with a broader range of competences which recognise the breadth of the challenge. These include being able to challenge received wisdom; having the confidence and insight to generate a novel idea or new approach; the motivation and commitment to pursue a vision; networking skills to share and learn from others; and the resilience needed to navigate proposals from concept to implementation. Mouldi Miled knows that this is a real issue for the countries of North Africa. "We have hardly started. We have few skills, little training and few teachers. The young people of these countries need jobs and perspectives. Our energy projects will be an essential element of their future and of ours."¹⁷

This will entail the development of new **knowledge development programmes** to promote world-class learning about the dynamics and management of system innovation for the transition to a low-carbon economy across the Mediterranean area. Such programmes need to be designed to produce a new generation of specialists, entrepreneurs and policy-makers with high-level skills for the low-carbon transition. These skilled staff will need to be able to respond to the realities of climate change and shape the new models of economic development, systems, products and processes that a low-carbon economy requires. This will best be done through a **learning-by-doing** approach which will be accompanied by the development of inter-disciplinary social science knowledge about

¹⁷ Ibid. European Energy Review.

innovation. This requires focussing on the socio-technical challenges for the transition to a low carbon, sustainable economy and entails a cross-sector, multi-disciplinary approach which brings together people from a range of different backgrounds in a ‘learning by doing’ environment. Such knowledge development programmes would aim to address the breadth of the climate change challenge while avoiding an approach focused solely on specific technologies in order to fulfil the comprehensive policy approaches now being advanced by the EU.

In such a programme each region brings together its key regional development players – universities, research and technology organisations, industry, regional and local authorities and others – to provide a ‘test-bed’ of projects that are at the forefront of the transition to a low-carbon, sustainable economy. This variety of locations and the placement exchange will allow participants to understand the challenges of innovation application in very diverse contexts.

Such a programme is currently being piloted by six European regions including two from the Euro-Mediterranean area – Valencia and Emilia-Romagna – under the Climate Knowledge Innovation Community (KIC) programme, one of the first three projects of the new European Institute of Innovation and Technology (EIT)¹⁸. **Based on this thinking, ARLEM could promote the development of a low carbon knowledge development programme for the cities and regions of the Euro-Mediterranean.**

¹⁸ <http://www.climate-kic.org/entrepreneurs/knowledge-dissemination/pioneers-programme/>

For more information on the six regions involved in this initiative see <http://www.climate-kic.org/networks/nodes/#c428>.

3. European Financial Instruments

EU policy in the Euro-Mediterranean is shaped by the European Neighbourhood Policy. There is a variety of European funding programmes which can contribute to the development of renewable energy programmes in the Euro-Mediterranean. For example, the EU research and development programmes can contribute to new thinking and innovation being developed between partners across countries within the region. However, by far the most important is the European Neighbourhood Policy Instrument or ENPI, the function of which is governed by Regulation (EC) No. 1638/2006. ENPI monies are distributed between countries in Eastern Europe and the southern Mediterranean, generally with a two to one weighting in favour of the latter.

3.1 Maximise Use of ENPI

ENPI funds can be provided as budget support directly to the budget of the neighbourhood country. Budget support has been extremely widely used as it is seen as a very effective way of providing direct funding for key reform issues in the policy of the benefiting states. Budget support is popular largely because it provides an easy way of disbursing the EU's allocation for development assistance without the need to run programmes directly. It also satisfies demands that recipients of development assistance be given a stake in deciding how the money is spent.

ENPI funding is essentially managed by the Commission in partnership with the recipient countries. Often, due to low levels of administrative capacity it has been hard for recipients of development assistance to determine their priorities. There is an opportunity here for ARLEM and its members. **ARLEM and its members should aim to provide the necessary technical support to local and regional authorities in the ENP countries to identify what their renewable energy priorities are and how best these can be met using assistance from the ENPI.** These assessments should be based on empirical research.

3.2 The Mediterranean Solar Plan (MSP)

The **Mediterranean Solar Plan (MSP)** has been developed over the last few years. It aims to meet the major energy and climate challenges confronting the Mediterranean region and the European Union in the coming decades. It is one of six key initiatives of the Union for the Mediterranean (UfM), launched in Paris on 13 July, 2008.

The Plan has **two complementary targets**: developing 20 GW of new renewable energy production capacities, and achieving significant energy savings around the Mediterranean by 2020, thus addressing both supply and demand.

The Mediterranean Solar Plan complements the work being done under a number of interconnecting Mediterranean energy projects, funded under the European Neighbourhood and Partnership Instrument (ENPI):

MED-REG II - Energy regulators: Supports the development of a modern and efficient energy regulatory framework in the Mediterranean Partner Countries and strengthens their cooperation with EU energy regulators. The budget is just €19 000.¹⁹

MED-EMIP - energy cooperation: A platform for energy policy dialogue and exchange of experiences, leading to enhanced Euro-Med cooperation, integration of the energy markets and improved security and sustainability. This programme had a budget of €4.1 million.

MED-ENEC II - Energy efficiency in construction: Encourages energy efficiency and the use of solar energy in the construction sector, through capacity building, fiscal and economic instruments and pilot projects. This programme runs from 2009-2013 and has a budget of €5 million.

Electricity market integration: Supports the development of an integrated electricity market between Algeria, Morocco and Tunisia and between these three Maghreb countries and the EU, through the harmonization of their legislative and regulatory framework.

3.3 Increase use of EIB, NIF and EBRD

The sums in the programmes above are relatively small. Much more significant have been the resources from the European Investment Bank²⁰. Since October 2002, the European Investment Bank's (EIB) Facility for Euro-Mediterranean Investment and partnership (FEMIP) has dedicated more than €3.6 billion to energy projects in the Mediterranean partner countries - almost 40% of its total financing over the period.

¹⁹ http://www.enpi-info.eu/mainmed.php?id=304&id_type=10.

²⁰ http://www.enpi-info.eu/mainmed.php?id=96&id_type=3&lang_id=450.

FEMIP's activity in this sector aims at improving the local population's access to energy; integrating the Euro-Mediterranean energy markets; and diversifying the sources of supply, particularly through the use of renewable sources of energy.

At the FEMIP Ministerial Meeting in October 2008, the EIB was asked to play a key role in the implementation of the Mediterranean Solar Plan. This assignment was subsequently confirmed by the Euro-Mediterranean Industry Ministers at their conference in Nice in November 2008, when they called on the EIB to draw up an investment plan for the development of solar energy in the Mediterranean region. In the most recent period, renewable energies have increased their share in the EIB pipeline of operations.

This has been reinforced by the use of the Neighbourhood Investment Facility. The Neighbourhood Investment Facility (NIF) has been designed to create a "partnership" bringing together grants from the European Commission and the EU Member States with loans from European public finance institutions as well as own contributions from the ENP partner countries.

The overarching objective of the NIF is to mobilise additional investments to support the establishment of an area of prosperity and good neighbourliness involving the EU and neighbouring countries. Its strategic objectives include establishing better energy infrastructure and addressing threats to the common environment including climate change. Thus the NIF strongly supports the objectives of the MSP and serves as a key financing mechanism for MSP projects.

Since its start in June 2008 the NIF has approved 12 projects in Southern Mediterranean countries representing a total investment of more than €5 billion. In addition to the four ongoing projects directly related to MSP and renewable energy, five new projects in these areas were in the 2010 NIF pipeline.

European Union leaders issued a statement in March 2011²¹ saying that they want to see rapid progress on raising the ceiling for European Investment Bank lending for Mediterranean countries undertaking political reform. They also have requested that the shareholders of the European Bank for Reconstruction and Development (EBRD) should consider the possible extension of the bank's activities to countries on Europe's southern flank.

"Work should be rapidly taken forward to develop a new partnership with the region. This partnership will be founded on deeper economic integration and

²¹ See <http://www.reuters.com/article/2011/03/25/eu-northafrica-lending-idUSLDE72O1XH20110325>.

closer political cooperation, and will follow a differentiated and performance-based approach," the leaders said.

There is potential here to explore the scope for major renewable energy investments. Undoubtedly, both the EBRD and the EIB could be significant sources of capital for the substantial infrastructure investments that are required. However, there would need to be clear political leadership which focused on this as a top priority if this potential is to be realised.

3.4 Post 2013 Agenda

For the post-2013 budget period a key part of the Commission's initial proposal is that more money should be spent on the ENP. On the face of it, this is a positive step but it is hard to see where this money will come from unless the whole budget can be reformed in the ambitious manner proposed by the Commission. The document goes on to suggest that ENP funding be concentrated on five key areas:

- Transport;
- Energy;
- Environment;
- Migration;
- Border controls.

The first three of these topics all relate to the renewable energy agenda.

It is further argued that the EU budget contribution made to assist ENP countries in these areas should be designed in such a way that funding can be leveraged through the private and banking sectors, through both the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD). The Commission and EIB have begun work on designing mechanisms to facilitate this but co-financing remains very complex and cumbersome. Herein lies the difficulty in combining different sources of funding for ENP-related projects: the opportunity to do so certainly exists but EU rules and reporting requirements, together with those of the international financial institutions, make co-funding exceptionally difficult. The Commission should strive to simplify these rules in future and ARLEM should encourage the Commission to do so.

Political developments in the ENP countries, particularly the southern neighbours, during the period of negotiations on the new Multi Annual Financial Framework provide an additional justification for increased funding for ENPI. This should be closely linked to the climate change agenda and the potential for

renewable energies. This will be a fraught political task and it remains hard to see where funding on a massive scale could come from. The issuing of investment bonds by the European Central Bank is one idea being mooted while it would be sensible for any new programmes or initiatives to be managed by existing lenders such as the EIB, EBRD or World Bank or donors with a strong track record and a reputation for efficiency.

4. Recommendations

Climate change and the issue of renewable energies is an absolutely strategic issue on which local and regional authorities and ARLEM should focus. It addresses one of the great issues of our age; there are potentially enormous economic opportunities available; significant private companies are interested; substantial investment would bring significant jobs to the region; projects can be geared to the specific needs of different localities; while developments can occur in a balanced way across the whole area, thereby avoiding further urban sprawl or purely coastal developments.

This report indicates some of that potential and the crucial role that local and regional authorities can and should play in the process. On climate change, there is capacity, skill and knowledge evident in cities and regions across many different parts of Europe. And there is also a real willingness to respond positively to the new openings offered by the events in the first few months of 2011.

The Union for the Mediterranean Secretariat is mandated to increase, promote and ensure the co-ordination of regional, sub-regional and transnational UfM projects. At the second plenary session of ARLEM held in Agadir, Zeynep Kaleli, on behalf of the UfM Secretariat, stated that the UfM Secretariat was "ready to receive suggestions and project proposals from ARLEM members" and further that the UfM had "a facilitating role for project funding."²² In the report on renewable energy to its Sustainable Development Commission ARLEM can respond to this opportunity. In particular it can explore the following five recommendations.

- i. The potential for industrial scale renewable energy development is absolutely immense. At the heart of any such initiative would need to be major investments in solar and wind power and their accompanying infrastructure grids. However these should not just be national projects. **ARLEM could make a major contribution here. It should hold discussions with Desertec with a view to developing joint initiatives so that cities and public authorities are fully engaged with Desertec projects.**
- ii. There is the opportunity to undertake project development proposals on renewable energy, for submission to the UfM Secretariat. Following on

²² Minutes of the second plenary session of the Euro-Mediterranean Regional and Local Assembly, held in Agadir, Morocco on 29 January 2011.

from the report to SUDEV **ARLEM** members should agree to prepare a number of proposals for submission to the UfM.

- iii. On funding, ARLEM members should make the case that renewable energies should be a top priority of existing EU funded programmes. To maximise the potential of renewable energies in the Euro-Mediterranean other funding sources should be explored as a matter of urgency. **ARLEM should hold discussions with the EIB, EBRD and other financing institutions on this issue.**
- iv. Cities and regions need to train and develop a new generation of skilled practitioners in order to implement effective renewable energy, energy conservation and low-carbon development programmes across the Euro-Mediterranean. To contribute to this objective ARLEM should consider the establishment of **a Mediterranean knowledge development programme modelled on the Pioneers into Practice initiative being piloted within the European Institute for Innovation and Technology's (EIT) Climate Knowledge Innovation Community programme.**
- v. There is currently a major opportunity for local and regional authorities to contribute both to the development of 'deep democracy' within the Middle East/North Africa and to the promotion of cheap, accessible and non-harmful renewable energy. The co-presidents of ARLEM should request a meeting with the Office of the EU High Representative for Foreign Affairs to indicate how local and regional authorities could contribute through proposals such as these to the sustainable democratic development of the Euro-Mediterranean region.