

# CYPRUS LOCAL AUTHORITIES TOWARDS A LOW CARBON FUTURE

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## Abstract

After the adoption, in 2008, of the EU Climate and Energy Package, initiatives involving the active role of Local Authorities across Europe in the implementation of sustainable energy policies were established. The European Commission launched the Covenant of Mayors to endorse the efforts by local authorities towards the 2020 target. Also the Pact of Islands initiative, focusing on the European Island Authorities and their particularities on exceeding the EU sustainability targets of reducing CO<sub>2</sub> emissions by at least 20% by 2020, was established through the ISLEPACT project co-financed by European Commission.

Cyprus Municipalities and Communities, being at the same time European Local Authorities and European Island Authorities, joined either Covenant of Mayors or Pact of Islands or both, committed themselves to undertake measures towards the 2020 targets through the preparation of a Baseline Emission Inventory, to develop a Sustainable Energy Action Plan (SEAP) and to implement concrete measures by 2020.

This paper examines the energy and emissions review of the baseline year, the planned activities and measures by 22 local authorities in Cyprus, the potential impact, as well as the best practices identified since the beginning of the SEAPs implementation.

The successful implementation of the 22 local SEAPs it is expected to contribute by 2020 with

- 2 millions of MWh energy savings,
- 90 thousands of MWh energy produced by renewable energy,
- 0,6 millions of tonnes CO<sub>2</sub> emissions reduction.

## Keywords

Sustainable Energy Action Plans (SEAP), Local Authorities, Climate Change, Multilevel Governance, Cyprus

## 1 Introduction

Approximately 3.5% of the European citizens live in islands and this percentage increases significantly during the high tourism season, adding pressure to the islands' ecosystems, transport systems, energy systems and water requirements. Island local authorities have realised early the need to become important partners in the common global fight against climate change to reduce CO<sub>2</sub> emissions.

The introduction of sustainable energy and transport systems in island communities will serve three main objectives:

- to make a significant contribution in achieving EU sustainable energy and climate change targets, such as the reduction of CO<sub>2</sub> emissions by 20% or more and the improvement of energy efficiency by 20% or more by 2020,
- to help protect the islands ecosystems and increase their energy and water supply independence; and
- to help enhance local economic development, job creation and reverse the decline of the local population.

European island local authorities, including local authorities from Cyprus, have made the commitment to signing either the "Pact of Islands" or the "Covenant of Mayors", or both and working together with the

European Commission, energy experts and financial institutions, to identify bankable projects with the view to implementing sustainable energy actions in their territory.

Cyprus local authorities, in order to translate their political commitment into concrete measures and projects, notably undertake to prepare a Baseline Emission Inventory and develop a Sustainable Energy Action Plan outlining the key actions they plan to undertake until 2020 and the CO<sub>2</sub> emissions saved by each action. Beyond energy savings, the results of their actions are manifold: creation of skilled and stable jobs, healthier environment and quality of life; enhanced economic competitiveness and greater energy independence.

The cooperation between different levels of governance (i.e. National, regional, local) can have a key role to play towards reaching the 20-20-20 EU goals in the area of energy and climate change. Furthermore, capacity building is also an important aspect for local authorities to achieve their quantitative targets.

## **2 The Covenant of Mayors and the Pact of Islands**

### **2.1 The Covenant of Mayors**

The Covenant of Mayors is the mainstream European movement involving local and regional authorities, voluntarily committing to increasing energy efficiency and use of renewable energy sources in their territories. By their commitment, through energy efficiency measures and investment in renewable energy Covenant signatories aim to meet and exceed the European Union 20% CO<sub>2</sub> reduction objective by 2020.

In February 2014 the number of signatories was about 5,500 in Europe, 21 in Cyprus and the number is constantly increasing. [1]

### **2.1 The Pact of Islands**

The ISLE-PACT project is committed to developing Island Sustainable Energy Action Plans and a pipeline of bankable projects with the aim of meeting or exceeding the EU sustainability target of reducing CO<sub>2</sub> emissions by at least 20% by the year 2020. The project's duration was 34 months, 1 February 2010 – 30 November 2012. The recognition of the role of island communities in the mobilisation against global warming by the European Parliament which in its Declaration 37/2011, recognised the Pact of Islands as an EU initiative parallel to the Covenant of Mayors.

Currently there are 12 participating groups of European Islands (over 50 islands) involved. Cooperation with more islands is welcome as the ISLE-PACT process has been conceived to include all European Islands.

The ISLE-PACT partner island authorities have made the commitment to signing the Pact of Islands and working together with the European Commission, energy experts and financial institutions, to identify bankable projects with the view to implementing sustainable energy actions in their island regions. [2]

## **3 Development of Sustainable Energy Action Plans (SEAP)**

### **3.1 Political commitment and creation of adequate administrative structure**

To go beyond the EU objectives in local level in terms of CO<sub>2</sub> emissions reduction, energy efficiency and the share of renewable energy sources, is an ambitious commitment. Following the Political Commitment, the most important action is to establish an internal administrative structure within the local authority. Specific departments with appropriate competences should be assigned as well as sufficient financial and human resources dedicated to the elaboration and the implementation of the SEAP.

Devising a sustainable energy policy is a challenging and time-consuming process that has to be systematically planned and continuously managed, it requires collaboration and coordination between various departments, and it must be ensured that it becomes part of the overall planning of the local authority.

### 3.2 Baseline Emission Inventory (BEI) and Sustainable Energy Action Plan (SEAP) development

A Sustainable Energy Action Plan is the key document in which the Local Authority outlines how it intends to reach its CO<sub>2</sub> reduction target by 2020. It defines the activities and measures set up to achieve the targets, together with time frames and assigned responsibilities.

Baseline Emission Inventory (BEI) is a quantification of the amount of CO<sub>2</sub> emitted due to energy consumption in the territory of a Local Authority within a given period of time. It allows identifying the principal sources of CO<sub>2</sub> emissions and their respective reduction potentials. The BEI and subsequent inventories are essential instruments that allow the local authority to have a clear vision of the priorities for action, to evaluate the impact of the measures and determine the progress towards the objective. It allows maintaining the motivation of all parties involved, as they can see the result of their efforts.

The development of a Baseline Emission Inventory or Sustainable Energy Action Plan (SEAP) requires substantial resources. Municipalities, especially small ones, might lack the human/financial capacities and technical expertise to reach its ambitions. Thus why is necessary to build collaboration with energy agencies, energy stakeholders, governmental departments and citizens. The Table 1 and Figure 1 below summarize the Baseline Emissions Inventory for 2009 for one of the biggest Municipalities in Cyprus, the Strovolos Municipality.

Table 1: Baseline emission inventory in Strovolos Municipality

BASELINE INVENTORY 2009								
Residential MWh	Primary MWh	Secondary MWh	Tertiary MWh	Public lighting MWh	Transports MWh	TOTAL (MWh) MWh	RES electricity MWh	Emission Inventory 2009 tonnes CO <sub>2</sub>
337,881	1,358	26,542	231,008	6,809	635,212	<b>1,238,810</b>	<b>171</b>	507,409

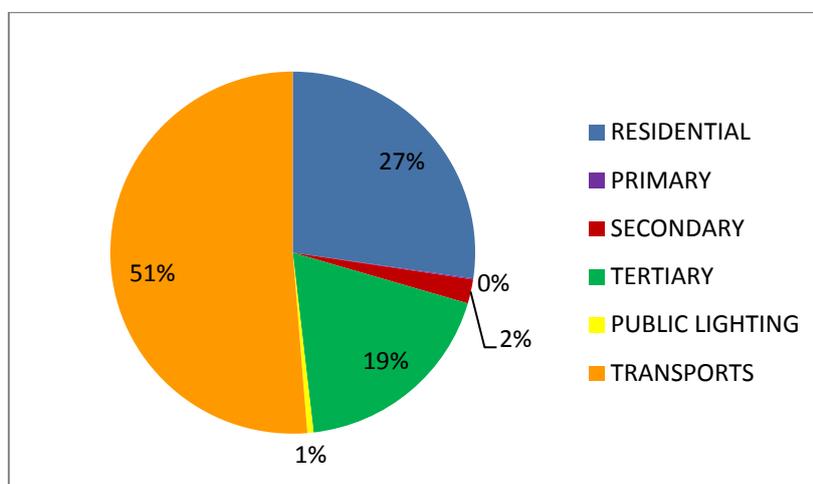


Figure 1: Share of final energy consumption by sector for the year 2009 in Strovolos Municipality

From the Figure 1 above it is clear that in the transport sector the highest amount of energy is consumed and therefore has the highest share on CO<sub>2</sub> emissions in the territory of Strovolos Municipality. A picture that is similar to almost all the 22 Local Authorities in Cyprus have developed a BEI and SEAP.

The energy agencies could provide a wide-range of technical advice on all aspects of energy, as well as useful technical assistance in the development of the SEAP. Citizens' involvement is also a key for stimulating the behavior changes.

### 3.3 Sustainable energy actions implementation and monitoring

A Local Sustainable Energy Action Plan must be approved by the Municipal (or Communal) Council ensuring the strong political commitment and a wider acceptance and support by the political representatives of the Local Authority.

Implementing the Sustainable Energy Action Plan (SEAP) will surely take the longest time, efforts and financial means. However, the implementation of sustainable energy projects will result savings in terms of energy and money. During the implementation phase, it will be essential to ensure both good internal communication as well as external communication.

The organisation of “Local Energy Days” can be a good opportunity to inform and involve the citizens in the process via exhibitions, guided tours, dedicated campaigns, etc. This ensures wide support for the whole process of SEAP implementation and also contributes to the awareness-raising and behaviour change.

During the implementation phase, the measures set out in the Energy Action Plan, it is important to define a detailed work schedule with the goals to be reached. It is important to document all the activities that are implemented in relation to the different areas of the action plan because they will be taken into consideration for the monitoring process.

Monitoring is a very important part of the Sustainable Energy Action Plan. Local Authorities are free to choose the format of their SEAP. Regular evaluation followed by adequate adaptation of the action plan Action plan allows initiating a continuous improvement of the process [1].

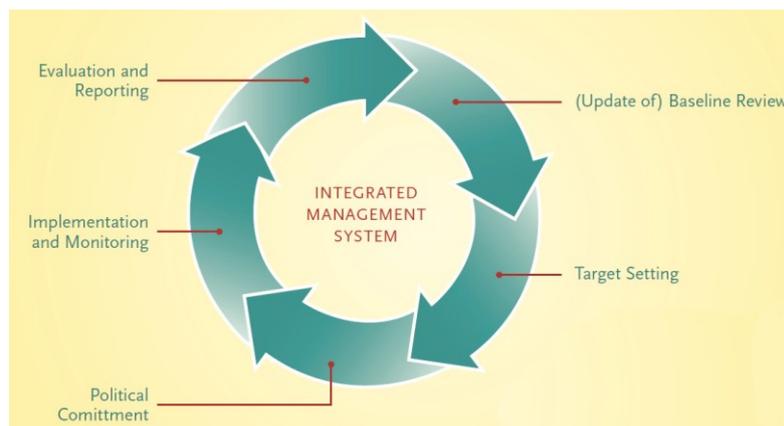


Figure 2: The Sustainable Energy Action Plans process [4]

## 4 Sustainable Energy Action Plans in Cyprus

### 4.1 Methodology adopted

#### 4.1.1 Data collection

The year 2009 was designated as the year of referencing/recording energy consumption and CO<sub>2</sub> emissions in Cyprus. At the beginning of the process, the involved local authorities were asked to provide energy data for their buildings, municipal fleet and for public/street lighting. Electricity Authority of Cyprus supports the development of SEAPs through the provision of electrical energy consumption data on annual basis per detailed electricity sector (sort according to the international coding NACE 2.2) for each Local Authority’s territory. The Figure 3 below shows the data collection system established by the Cyprus Energy Agency. Also, the Cyprus energy Agency created an online tool available to public, the “Local energy balances database”, which provides details for the energy profile of all the Local Authorities of Cyprus by simply selecting the area of interest from a dropdown list ([http://www.cea.org.cy/app/CEA\\_energy.html](http://www.cea.org.cy/app/CEA_energy.html)).

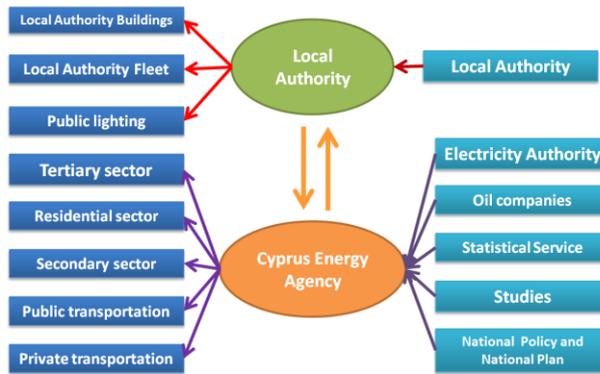


Figure 3: Cyprus Energy Agency’s model for the collection of energy data from local authorities to develop the BEIs

### 4.1.2 Energy Modeling

In order to forecast the CO<sub>2</sub> emissions for the period 2010 to 2020, the scenario of expected CO<sub>2</sub> emissions evolution was established where it is possible to estimate the future CO<sub>2</sub> emissions if no taking any measures for energy savings, energy efficiency, sustainable transport and renewables. The contribution of national energy policies and strategies are also taken into account in the scenario. The Figure 4 shows the example of Larnaca Municipality.

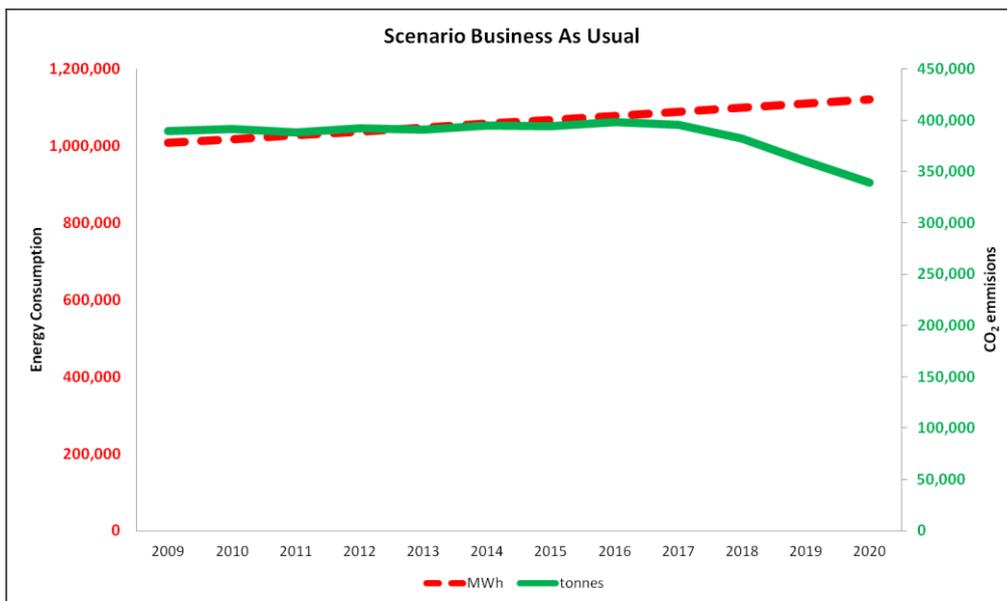


Figure 4: Expected evolution scenario for forecasting CO<sub>2</sub> emissions for the period 2009 to 2020 in Larnaca Municipality

### 4.1.3 Energy Actions

The SEAPs contains clear outline of the strategic actions that the local authority intends to take in order to reach its commitments in 2020. It contains:

- The long-term strategy and goals until 2020, including clear commitments in areas like buildings equipment and facilities, land-use planning, transport and mobility, public procurement, actions for new/renovated buildings, citizens involvement etc.
- Detailed measures for the next 3-5 years which translate the long-term strategy and goals into actions. For each measure/action, a description is provided, the department or person responsible, the timing (start-end, major milestones), the cost estimation and financing/source, the estimated energy saving/increased renewable energy production and the associated estimated CO<sub>2</sub> reduction.

#### 4.1.4 Funding SEAP

A plan cannot be implemented without financial resources. The plan identifies the key financing resources that can be used to finance the actions. The main funding sources for the implementation of the SEAPs are:

- Local Authorities own contribution
- Establishment of Local green tax
- Savings that occur due to energy savings measures in buildings, vehicles and street lighting in the Local Authority.
- Revenues originating from investments on Renewable Energy technologies.
- Funding of some action by the Grant Scheme of the Ministry of Energy, Commerce, Industry and Tourism for the promotion of Renewable Energy and Energy Conservation
- Potential funding from the structural funds.
- Potential funding from the Fund created for the Emissions Trading Scheme.
- Potential funding from European programs.
- Public-Private partnerships
- Projects implementation with the contribution of Energy Services Companies (ESCO)

#### 4.2 Elaboration and progress achieved

The Cyprus Energy Agency was appointed by the Cyprus Union of Municipalities and the Cyprus Union of Communities to be the Executive Agency for the promotion of the Covenant of Mayors in Cyprus. Also it was directly involved in the Pact of Island initiative as a partner to the ISLEPACT project and has implemented many EU funded project related with SEAPs development. Cyprus Energy Agency has already prepared and submitted the SEAPs for 16 Local Authorities in Cyprus (fourteen municipalities and two Communities). In addition, Six more SEAPs are now under preparation and it is estimated to be finalized by April 2014. Also, Cyprus Energy Agency cooperates with local authorities for SEAPs implementation and monitoring.

The Table 2 below shows the Local Authorities actively involved in Sustainable Energy Action Plans having been supported by the Cyprus Energy Agency [3].

Table 2: Local Authorities of Cyprus involved in Sustainable Energy Actions

	Local Authority	Covenant of Mayors	Pact of Islands	Population	Households
1	Strovolos	√	√	67904	25813
2	Larnaca	√	√	51468	19649
3	Lakatamia	√	√	38345	12519
4	Paralimni	√	√	14963	5324
5	Aradippou		√	19228	5665
6	Aglantzia	√	√	20783	8184
7	Agios Athanasios	√	√	14357	4789
8	Latsia	√	√	16774	6058
9	Dali		√	10466	3394
10	Yeri		√	8235	2683
11	Engomi	√	√	18010	6601
12	Polis Chrysochous	√	√	2018	757
13	Lefkara	√	√	762	275
14	Deryneia	√		5844	2013
15	Lefkosia	√		55014	22833
16	Platres	√		239	107
17	Agros	√		806	268
18	Kyperounta	√		1516	430

	Local Authority	Covenant of Mayors	Pact of Islands	Population	Households
19	Lythrodontas	√		3043	960
20	Episkopi	√		3681	1233
21	Ergates		√	1792	547
22	Psimolofou		√	1626	504

### 4.3 Results for the period 2009-2012

The overall CO<sub>2</sub> reduction target of the Local Authorities is at least 20 % by 2020 that can be achieved through the implementation of the SEAP for those areas of activity relevant to the Local Authority's mandate. The reduction target is defined in comparison to the baseline year which is set by the Local Authority. The baseline year for the Cyprus Local Authorities according to the availability and the accuracy of historical energy data, was set the 2009.

This is the purpose of baseline review: establish a clear picture of 'where we are', a description of the Local Authority's current situation in terms of energy.

A baseline review is the starting point for the SEAP process from which it is possible to move to relevant objective-setting, elaboration of adequate Action Plan and monitoring. The Figure 5 below shows the baseline energy inventories for 22 Cyprus Local Authorities which are based on existing energy data for the year 2009. From the figure is easily understandable that the priorities of the action plans in general should firstly focus on transport sector and then the residential and tertiary sectors. However, the energy profile of the local authorities varies from one to another, and the special needs must be identified [3].

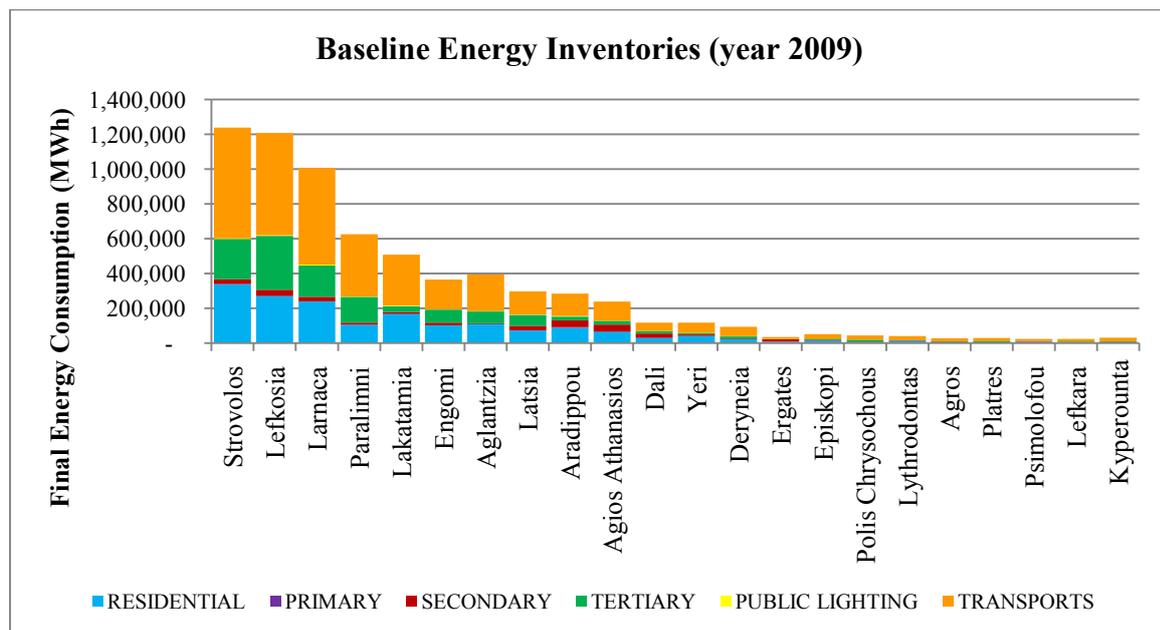


Figure 5: Baseline energy inventories for Cyprus Local Authorities (year 2009)

The per capita indicators could also provide useful information for the energy profile of the Local Authorities. For example, from the Figure 6 below, the Local Authorities of Platres, Paralimni, Agros and Lefkara shows the highest per capita energy consumption. The reasons might be that Paralimni for instance is an area with increased seasonality of energy consumptions as a result from the huge number of tourists visiting the area and the large number of non-permanent stay buildings (holiday houses). Platres, Agros, and Lefkara are smaller communities with low number of population but with high energy consumptions for accommodation and food service activities. Also, in Platres it is identified that there is a waste water treatment plant with significant energy consumption in comparison with the population of the village.

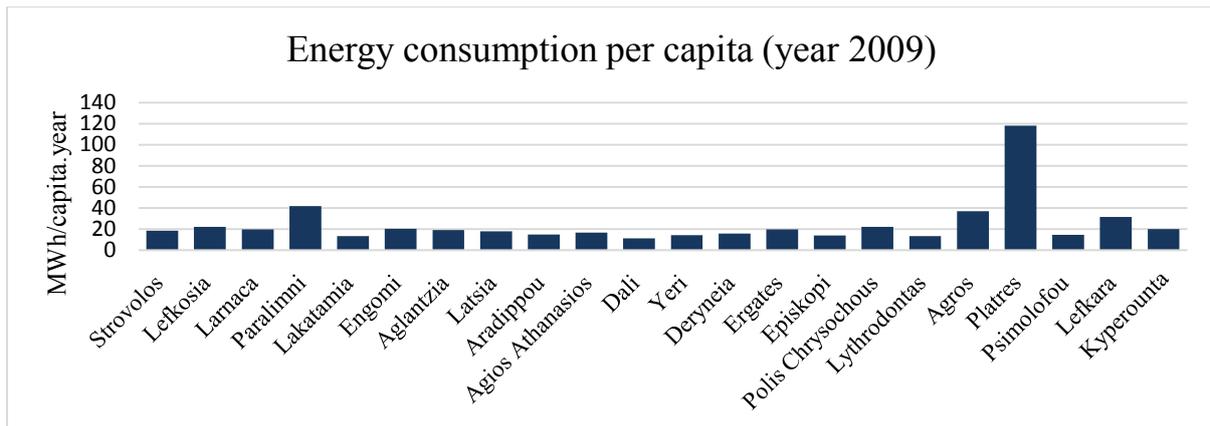


Figure 6: Per capita energy consumptions for Cyprus Local Authorities (year 2009)

Energy consumption and CO<sub>2</sub> emissions at the local level are dependent on many factors: economical structure (industry/service oriented and nature of the activities), level of economic activity, population, density, characteristics of the building stock, usage and level of development of the various transport modes, citizens' attitudes, climate, etc. Some factors can be influenced in the short term (like citizens' attitudes), while others can only be influenced in the medium or long term (energy performance of the building stock). It is useful to understand the influence of these parameters, how they vary in time, and identify upon which the local authority can act (in the short, medium and long term).

The following Figure 7 shows the reduction of the total CO<sub>2</sub> emissions in 2012 in comparison with the baseline year 2009.

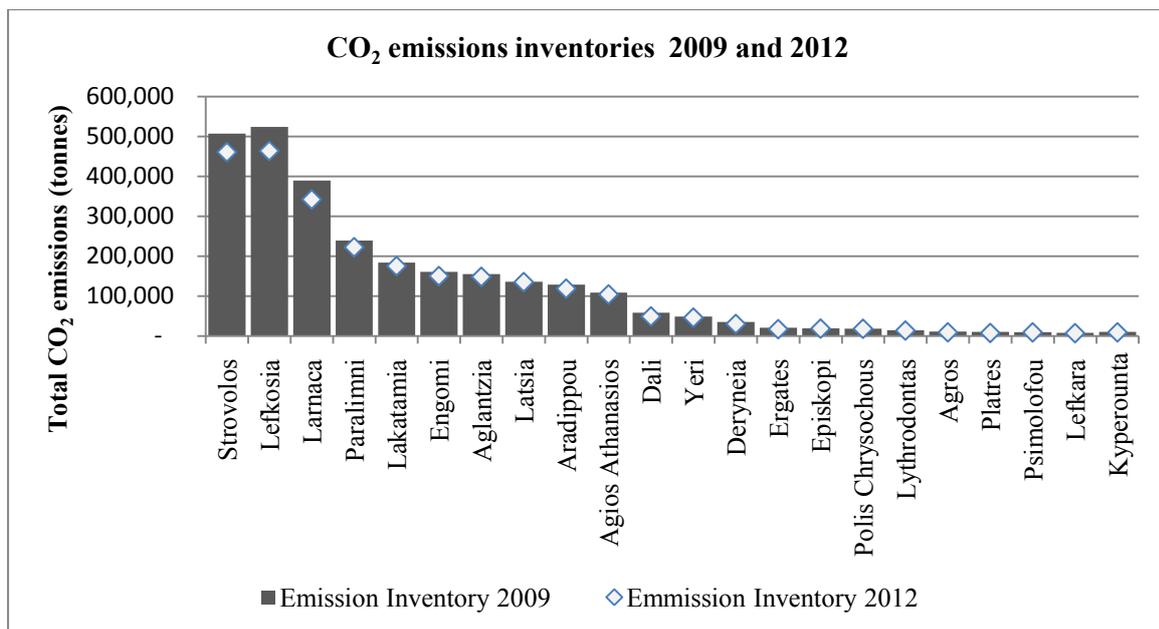


Figure 7: Baseline energy inventories for Cyprus Local Authorities (year 2009)

The total CO<sub>2</sub> emission for the twenty two (22) local authorities reduced in 2012 (2,547,296 tonnes) by 9% based on 2009 inventory (2,792,452 tonnes). Much lower than the expected CO<sub>2</sub> emissions according to the business as usual forecast scenario. As it is shown in the next Figure 8, an important increase of RES electricity production realised during the period 2009-2012. The total RES production increased 139% from 2,979 MWh/year 2009 to 7,112 MWh/year 2012. The electricity production comes mainly from small photovoltaic systems and biogas utilization plants.

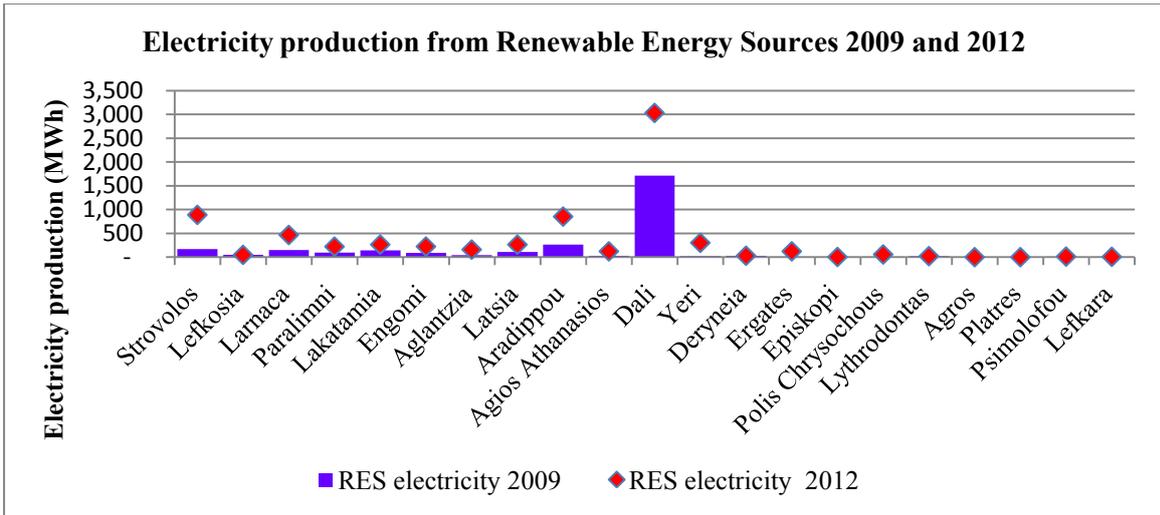


Figure 8: Electricity production from Renewable Energy Sources for Cyprus Local Authorities (2009 and 2012)

The reduction of the equivalent CO<sub>2</sub> emissions during the period 2009-2013 it is a result of the local actions but also the effect of other externalities such as the current financial crisis and the business activities downturn. It is estimated that the reduction in energy consumption is the result of the following:

- Awareness campaigns, educational activities and training
- The introduction of the new public transportations systems
- The promotion of sustainable transport
- The promotion of energy efficiency technics and renewable energy sources for households
- The financial crisis and energy prices [3].

**4.4 2020 objectives**

The estimated annual CO<sub>2</sub> emissions reduction for 2020 by the successful implementation of the 22 Sustainable Energy Action Plans amounts to 600,000 tons. The impact of the reduction to the Business As Usual Scenarios will result to a reduced amount of local annual CO<sub>2</sub> emissions of 2,200,200 tons by 2020. That is, 35% lower with respect to those in the reference year 2009. The 600,000 tons of CO<sub>2</sub> emissions reduction will be the result of 2 millions MWh planed energy savings and 90 thousands of MWh energy to be produced by renewable energy. This is demonstrated in Figure 9 below.

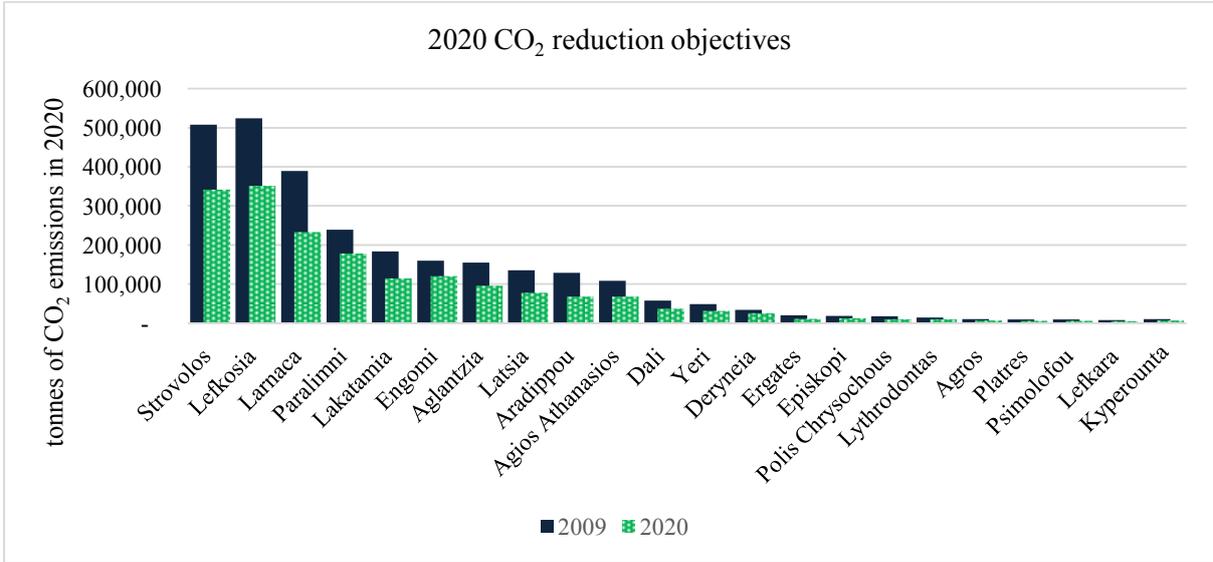


Figure 9: 2020 CO<sub>2</sub> reductions objectives in comparison with the baseline emission inventory

## **4.5 Identified Best practices**

### **4.5.1 Energy Efficiency Public buildings – Strovolos Municipality’s Library**

The Strovolos Municipality’s Library was constructed in 1915. At the beginning the building was operated as a school, then was transformed to slaughterhouse and finally has been used until 1993 as the Municipal Town Hall. The library was abandoned for many years until the decision of Municipal council to renovate it.

The construction materials of the old building before renovation were limestones in both internal and external walls, clay was used for insulation. This clay was removed and replaced by polyurethane foam. Before the renovation no heating system was installed (individual heating apparatus probably electrical or diesel heaters) and no roof insulation.

The objective of this project of energy renovation was to provide to citizens a new renovated public Library building with high energy efficiency standards. The increase of the building’s thermal comfort and indoor air quality with very low energy needs is also an additional and important objective. Further to that, the building is now a benchmark of excellence in Strovolos, promoting best energy efficiency practices and the use of renewable energy sources.

To increase the energy performance of the building, 5cm rockwool used for the roof, double glazing on north and east sides with u-value 1.1 W/m<sup>2</sup>K, laminated glazing on west side with u-value 3.8 W/m<sup>2</sup>K and internal wall insulation with polyurethane foam. The heating and cooling is covered by geothermal heat pump with total installed capacity 160 kW (2 units of 80 kW) and a vertical ground loop consisted by 22 drillings with 150 m depth each. In addition, efficient lighting and an Energy Management System installed in the building.

The total calculated energy demand of the building is 35 kWh/m<sup>2</sup>. The payback period for the retrofitting workings estimated to 4 years [3].

### **4.5.2 Promotion of bicycle parking places and park-ride in new buildings permits – Larnaca Municipality**

Since July 2011 following the Mandate of the Minister of Interior (Standards for the provision and the configuration of parking spaces) set that every development with an area larger than 1200 m<sup>2</sup> demands 5% of parking places designated for bicycles extra to the prerequisite car parks.

The Technical Services of Larnaca Municipality are responsible for the examination of Building Permit Applications in Larnaca Municipality area. Within the framework of examining building applications, Town Planning officers promote the use of the bicycle and better conditions for cyclists through various interventions. Since the beginning of 2011 and at least half a year before the enactment of the relevant Mandate of Minister of Interior, the Municipal Council have approved decisions made by the Town Planning Committee regarding:

- Spatial planning of bicycle parking places in apartment buildings, when possible (regardless of the area and/or the building factor).
- Spatial planning of bicycle parking spaces and availability of a specific number of bikes in accommodation units (hotels etc) in the city centre (regardless of the area and/or the building factor).
- Spatial planning of bicycle parking spaces and availability of a specific number of bikes in multi storey car parks; the bikes are available for free after you park your vehicle. Small scale park-and-ride schemes.

This initiative is part of the Municipality’s series of actions to promote alternative mobility. The Municipality is in constant cooperation with the local Environmental Movements and Cycling Clubs, frequently organizing cycling events. The bicycles that are available at several points either by hotels or multi-story car parks are used regularly and so are the bicycle parking spaces. The current financial situation is expected to encourage the use of bicycles, therefore the demand for park-and-ride systems or for bicycle parking spaces is going to grow. As a result, traffic noise will be limited, emissions generating from road traffic will be reduced and the city will centre will appear more attractive to passersby. This initiative will be frequently evaluated by the Sustainable Energy Action Plan Monitoring Committee to ensure its good progress.

Larnaca has been participating for 11 consecutive years to the European Mobility week. In 2011 ranked among the three finalists on European level and shortlisted in 2012 [3].

#### **4.5.3 Promotion of Sustainable transport – Lefkosia greater area bike sharing**

The bike sharing system has been the most ambitious project related with urban mobility within the greater Lefkosia area. The Bike Sharing system aims the transposition to sustainable transport and moreover to encourage the public to choose alternative means of transport that protect the environment. The Municipalities has established DEPL (Inter-municipal Bike Company of Lefkosia), which aims to change the behavior of citizens through sustainable mobility and reduce the traffic via an automated 3rd generation bike sharing system which is similar to the ones used widely in major cities across the world. The bike sharing system has been implemented to complement the development of existing bike lanes within the Lefkosia area and it will also integrate with the new bike lanes that are currently under construction. By the end of 2012 an extensive bicycle lane network aims to serve both the local population but also the tourists who visit the city.

In the Lefkosia greater Area were installed 100 bikes in 5 stations: in Aglantzia Municipality 50 bikes in 5 stations, in Strovolos Municipality 80 bikes in 8 stations, in Dali Municipality 20 bikes in 3 stations, in Agios Dometios Municipality 20 bikes in 2 stations, in Latsia Municipality 15 bikes in 2 stations and in Engomi Municipality 30 bikes in 3 stations. The system is integrated between all of the participating municipalities and each user can use and return a bike at any station. The user may, for example, get a bike from Aglantzia and return it to Strovolos or to any other station.

More than 10,000 bike uses recorded since the beginning of the project in 26 Oct 2011. The estimated distance covered with the bikes rented is 50,000 km [3].

#### **4.5.4 Pay as you throw – Aglantzia Municipality**

The Municipality of Aglantzia has taken the initiative to apply on a pilot basis the Pay As you Throw Program. The Pay As You Throw Program is the billing system of garbage management services based on the "polluter pays" principle. Residents are charged for the collection of municipal solid waste based on the amount of waste they throw away. This creates a direct economic incentive to recycle more and to generate less waste. The process has been implemented on a pilot basis on an area in Aglantzia Municipality. So far the results are very encouraging.

The Municipality of Aglantzia has set three goals regarding Pay as you throw. First of all, to achieve environmental sustainability by increasing recycling and reducing waste. Secondly, obtaining economic sustainability by coping with soaring municipal solid waste management expenses. Residents benefit, too, because they have the opportunity to take control of their trash bills. Thirdly, to apply Equity for residents by paying only for what they throw away.

So far results of the PAYT program are quite encouraging. In the PAYT area there is an increase in recycling in comparison with the rest of Aglantzia area. In the pilot area that the PAYT is applied there has been an increase in recycling PMD by 39,8% and in paper by 11,9%. The rest of Aglantzia Area had only 6,3% increase in PMD and reduction in paper by 14,9% [3].

#### **4.6 Barriers to the successful implementation of SEAPs**

The main barriers identified to the implementation of SEAPs in Cyprus are the lack of Local Authorities competences and the absence of sufficient cooperation between different levels of governance (i.e. National, local). Also, the lack of resources and expertise on energy within the Local Authorities. One of the most important objectives of the project “smilegov” co-financed by European Commission, is to set up communication structures within European Islands for better understanding of the multilevel governance (facilitation of effective co-operation between different levels of governance, Local, Regional and National) and the socioeconomic, territorial and environmental parameters that influence the sustainability in practice and the [5].

Local Authorities could have a key role for the implementation and monitoring of National Energy Policies and

Regulations in local level. A Local Authority with enhanced competences could support the sufficient implementation control of the “Energy Efficiency of Buildings” law and regulations. For example, the monitoring of minimum energy efficiency requirements fulfilment for new and renovated buildings, the issuing of Energy Performance Certificates with correct information to be given to the prospective buyers and tenants of a building and the regular maintenance and inspection of heating and air- conditioning systems by qualified personnel.

Furthermore, local authorities are phasing difficulties to identify and mobilize National and European funds for financing sustainable energy projects. In addition the existing limitations for Local Authorities to participate in local investment schemes or to establish a local green tax for funding SEAPs actions or to grant citizens for energy efficiency applications.

## 5 Conclusions

Sustainable Energy Action Plans (SEAPs) have become a powerful tool for Local Authorities to plan, implement, monitor and evaluate climate and energy policies, and contribute to global mitigation and adaptation achievements. Through SEAPs Local Authorities can implement measures in a structured and integrated way, allowing them to systematically monitor their efforts in going beyond national legislation in these fields. A SEAP is also an instrument for local authorities to communicate to stakeholders the importance of energy and climate protection, and to encourage citizens and other relevant actors to take a part in the city’s ambitions.

The 22 Sustainable Energy Action Plans can bring 600,000 tons of CO<sub>2</sub> emissions savings in 2020 and contribute to the National objectives for energy savings, increased share of Renewables and CO<sub>2</sub> savings. The implementation of sustainable energy projects could result new skilled and stable jobs creation, energy savings and enhance economic development both for Local Authorities and their citizens.

The cooperation between different levels of governance (i.e. National, regional, local) and the capacity building of personnel within Local Authorities can have a key role to play towards reaching the 20-20-20 EU goals in the area of energy and climate change.

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