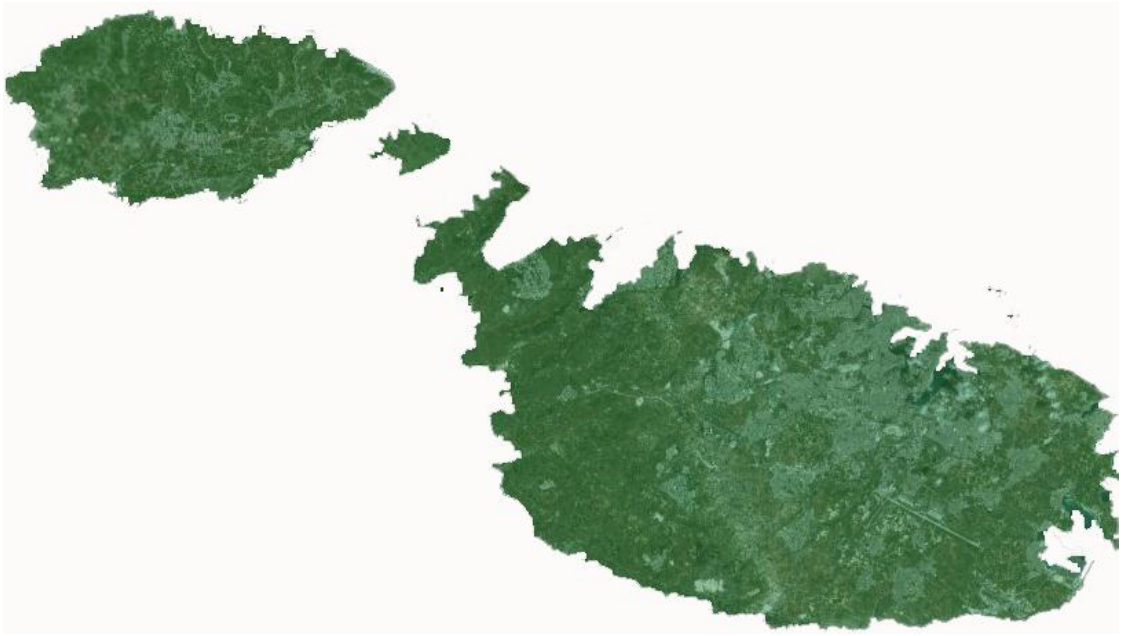
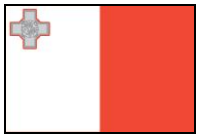
ISLAND SUSTAINABLE ENERGY ACTION PLAN





Dingli, MALTA

Executive Summary

The European Union, in its bid to lead the global fight against climate change has committed itself to reduce the overall emissions to at least 20% below 1990 levels by the year 2020. The EU has also acknowledged the key role that local authorities have to play in the achievement of the EU's energy and climate objectives.

To reach this goal, local communities themselves have voluntarily agreed to reduce their CO_2 emissions beyond this 20% target.

Studies developed in the 5 localities of Malta involved in the project show how they can reduce CO_2 emissions. The quantifiable actions of the SEAPs discussed in this document shall reduce the CO_2 emissions in Dingli by 24%.

Objectives, targets and expected results

In this plan, objectives and targets were set for the year 2020 and the actions for sustainable energy to achieve these targets were studied. The objectives, targets and expected results in the year 2020 with the implementation of the plan's actions are presented in the following table. 2005 has been chosen as a Baseline year because is from this year in advance when the data is more complete and reliable to develop the study

Table 1 Objectives, targets and expected results in 2020

Objectives		Targets	Expected results
1.	Improve security of energy supply.	Increase by 20% the number of days of autonomy of primary energy storage in comparison to 2005.	>20% (estimate)
2.	Reduce energy dependence from abroad.	Increase to 20% the use of regional energy resources in primary energy demand.	21%
		Increase to 50% the use of regional energy resources in electricity production.	50%
3.	Reduce energy intensity in Gross Domestic Product.	Reduce by 20% the energy intensity in Gross Domestic Product (primary energy/Gross Domestic Product) compared to 2005.	>20% (estimate)
4.	Reduce carbon dioxide emissions.	Reduce CO_2 by 20% in comparison to 2005.	24%

Budget

The overall budget for the conduction of these projects will be of Euro 376,050

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1. CONTEXT

1.1. Geography and Territory

Malta is an archipelago composed of 5 islands (Malta, Gozo and Comino, Comminetto and Filfla), with only the three largest islands, Malta, Gozo and Commino being inhabited. The Maltese archipelago is situated in the centre of the Mediterranean, 100 km south of Sicily and 300 km north of Libya. The capital of the country is Valletta.

Malta has been a member of the European Union since 2004 and member of the euro zone since 2008.

Malta has a surface area of 316 km². In 2010 there were 417,617 inhabitants and the population density was 1,322 persons per km² which is the highest in the EU and one of the highest in the world (NSO, 2011).

The islands are characterised by an indented coastline of 140 km in length, this provides numerous bays and safe harbours. The landscape of the islands is characterised by high hills and terraced fields. The highest point is 253 km above sea level and is situated on the western coast of the island, in the locality of Dingli.

***Map1**-The Maltese Islands in Europe*

Source: Wikipedia

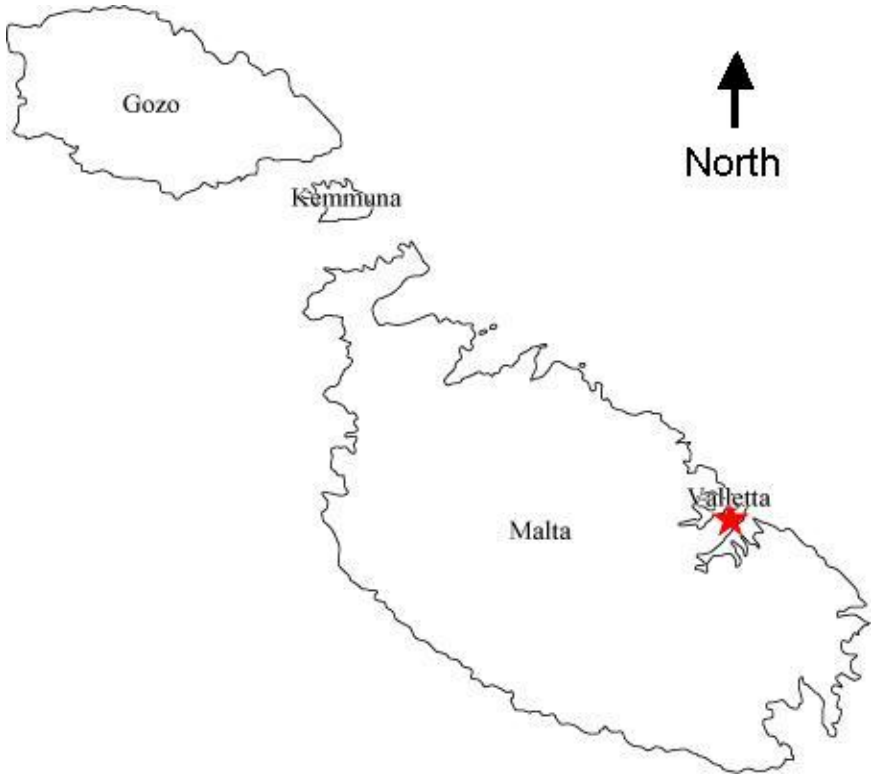
A detailed description of the islands is follows:

1) ***Malta*** *(Malta)* is the largest island. It is only 27 km at its longest point from the northwest to southeast, and 14.5km at its widest point, from west to east. Malta has a total population of 385,117. It is political and economic centre and has the main industry centres. It also houses the airport, the freeport, the two main commercial and passenger harbours, the two principal power stations as well as a number of desalination plants. Malta is seen as the highest densely populated country in Europe. It has a high level of urbanisation concentrated towards the more flat parts of the island. The Western coast is characterised with agricultural lands, high cliff areas and less population when compared to the eastern parts of the island.

2) **Gozo** (*Għawdex*) is a third the size of Malta, is greener and more rural. Its landscape has hills and deep valleys as well as rugged cliffs, which give natural protection to the island's small harbours and inlets. The population in Gozo amounts to just over 32,000 people. It is less developed and industrialised than Malta and attempts to generate industry on this island have not always been successful. Gozo has recently embarked on a campaign to develop the island as an eco-island.

3) ***Comino*** *(Kemmuna):* The smallest with a total area of 6km2. It has 2 inhabitants and one hotel which is open from April to September. The island is used mostly for tourism activity during the summer months however it also provides avenues for environmental friendly activities such as bird watching, walks and diving.

Map 2- *The Maltese Archipelago*



The island of Malta is made up of rock and limestone. There are no mountains, rivers or lakes. The appearance is emphasized by scores of dry stone walls that flank fields, terraces and slopes, gardens and paths. Since the 1980s, the drinking-water supply has been heavily dependent on saltwater desalination.

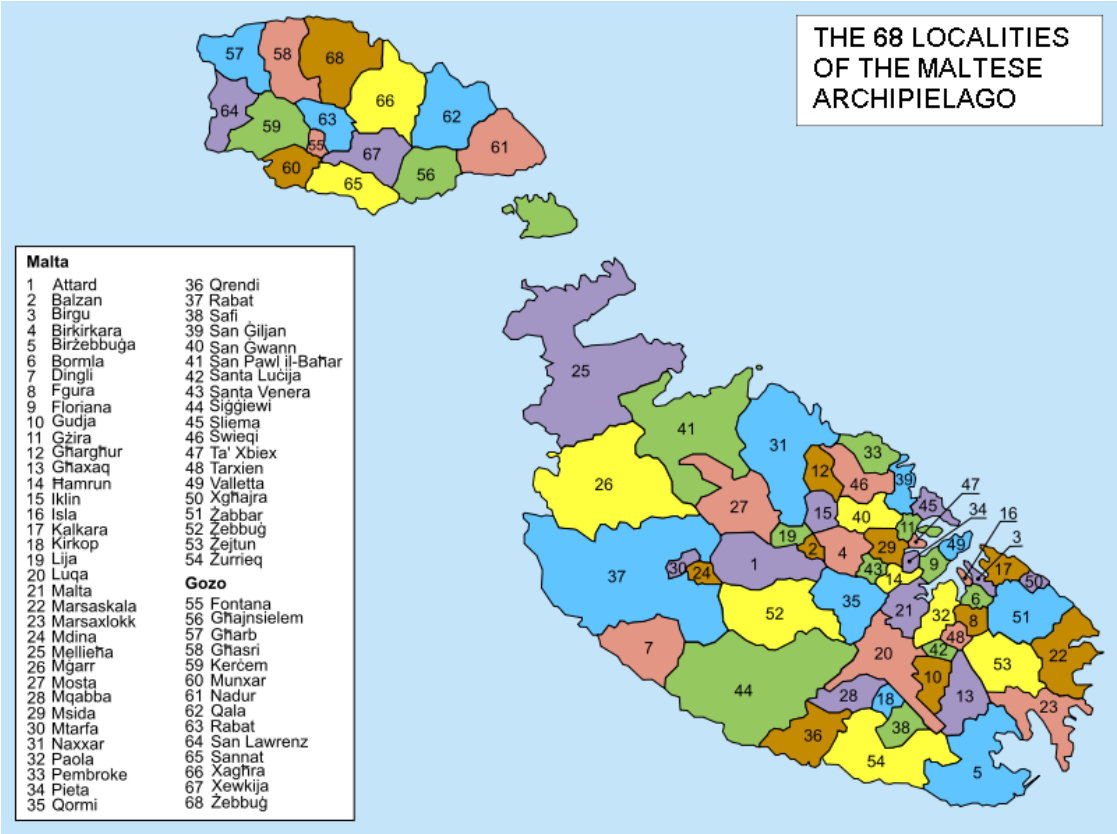
The islands have very few natural resources. There are no minerals and the islands have depended on natural limestone, climate and sea as their main resources. This makes the islands very heavily dependant on importation of goods, and obviously this includes the importation of its energy.

The climate characterised by mild rainy winters and hot dry summers can be considered as one of the main resources, which has been used to sustain and develop a very successful tourism industry with a total of 3000 hours of sunshine per year, tourism benefited as an industry for both summer as well as winter

Since 1993, Malta has been subdivided into 68 local councils or localities. These form the most basic form of local government and there are no intermediate levels

between it and the national level. Map 3 below shows the localities of the Maltese archipelago.

Map 3- *The Localities of Malta*



Source: Local Council Association

1.2. Demography

Native Maltese people make up the majority of the islands. The resident population of the Maltese islands, which includes foreigners residing in Malta for at least a year, was estimated at 417,617 persons in 2010 (NSO 2011).

Table 2 –Population in Malta 1950-2011

Population Evolution	1950	1960	1975	1990	2000	2010
Number	180,000	310,000	300,000	365,000	390,000	417,617

Historically, the population in the islands has fluctuated with the prosperity or otherwise. During the era of Knight of St John (1532-1798), Malta has seen an explosion in its population numbers, especially in the Grand Harbour area leading the Knights of St John to develop new cities and devising means of servicing the urban population with potable water by building a system of aqueducts that brought water from the hilly areas of the western parts of islands. Fountains also helped to provide fresh water supply and the building of reservoirs to service private homes were mandatory.

Population continued to prosper under the British occupation (1798-1964), which resulted in more urban towns being built in and around the harbour area as well as outside the urban centres.

The Second World War led to severe economic problems with Malta experiencing heavy out migration during the 1950s especially from the rural areas, including the island of Gozo with people migrating to Australia, UK, USA and Canada. The economic boom of the 1970s coupled with the rise of the tourism industry, investment in the manufacturing industry led to the stabilization of the population which started to boom once again. During the 1970s and 1980s the Maltese governments initiated a scheme whereby people could own their own houses, built various housing estates to accommodate the baby boomers. The extensive building on the islands has had severe impact on the natural environment since there was encroaching on the rural areas.

The building boom in Malta brought with it several changes in the traditional architecture of the Maltese Islands, - standards of housing changed. Traditional buildings practices of thick walls and high ceilings which acted as an insulation during the hot summers by keeping the rooms cools and kept warm air inside during the colder winter months gave way to buildings using thinner walls and lower ceilings, making houses less environmentally friendly.

Moreover, the building of wells which was a mandatory requirement in the previous century was forgotten and no longer enforced. This led to a situation were the islands had more development, more population and less environmental friendly houses, leading to higher pressures on the environment.

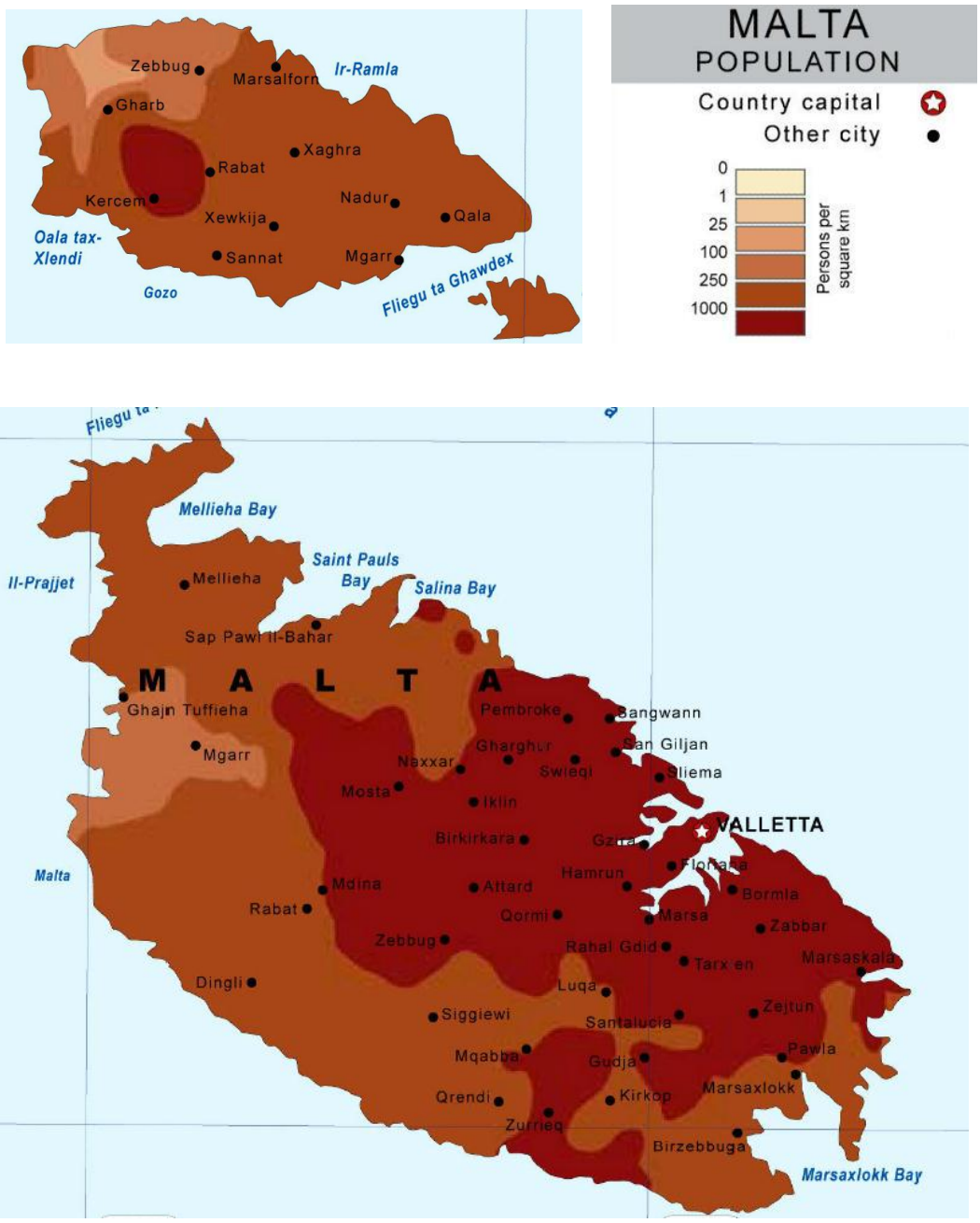
Figure 1: Acquaducts built by the Knights of St. John to transfer water from the western coast of the Islnds to Valletta and the Three Cities

Figure 2: Modern architecture, characterised by high rise buildings and pre-fabricated concrete

Malta is the largest and the most populated of the Maltese islands, but the distribution of the population is not regular as shown in the map below. The southeast of the island is by far the most populated area and in consequence the biggest density of population with more than 1000 persons per square km. This coincides with the concentration of industry located in this area which includes the main manufacturing centres, the goods and passenger harbours, the Grand Harbour and the Free Port, the two power stations, the airport, quarries and other related industries. The northern and western parts of the islands are more agricultural and population density in these areas is much lower.

Gozo, has traditionally been less populated since the island offered less employment opportunities. The majority of the people live in the area of Victoria, its capital city and in two other localities of Nadur and Qala.

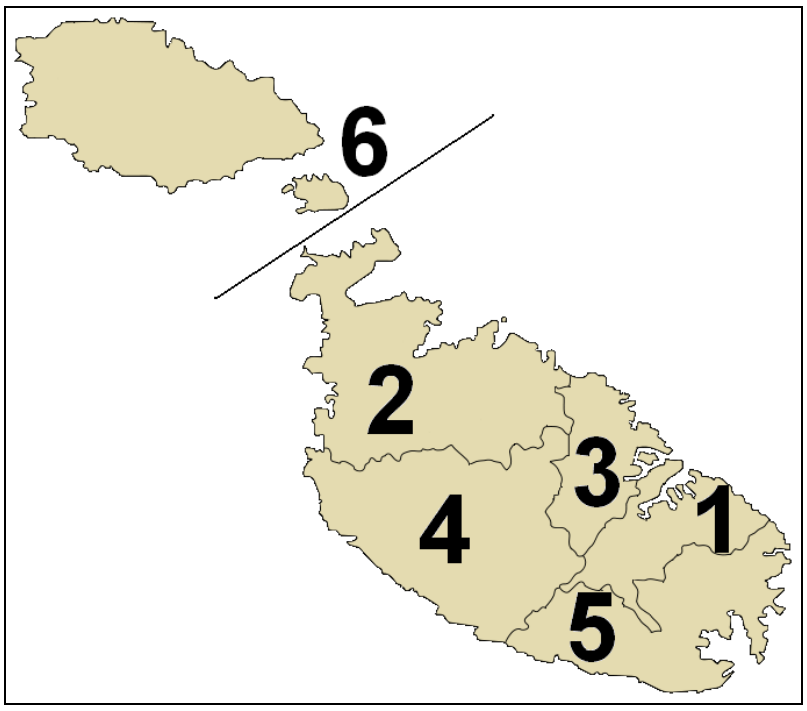
Map 4 - *Distribution of the population*



Source: Best Country Reports

The localities of the islands are grouped into 6 districts for statistical purposes as shown in the Map 5 below. Table 3 shows the localities within each district, the population and the surface areas respectively.

Map 5 – *Maltese statistical districts*



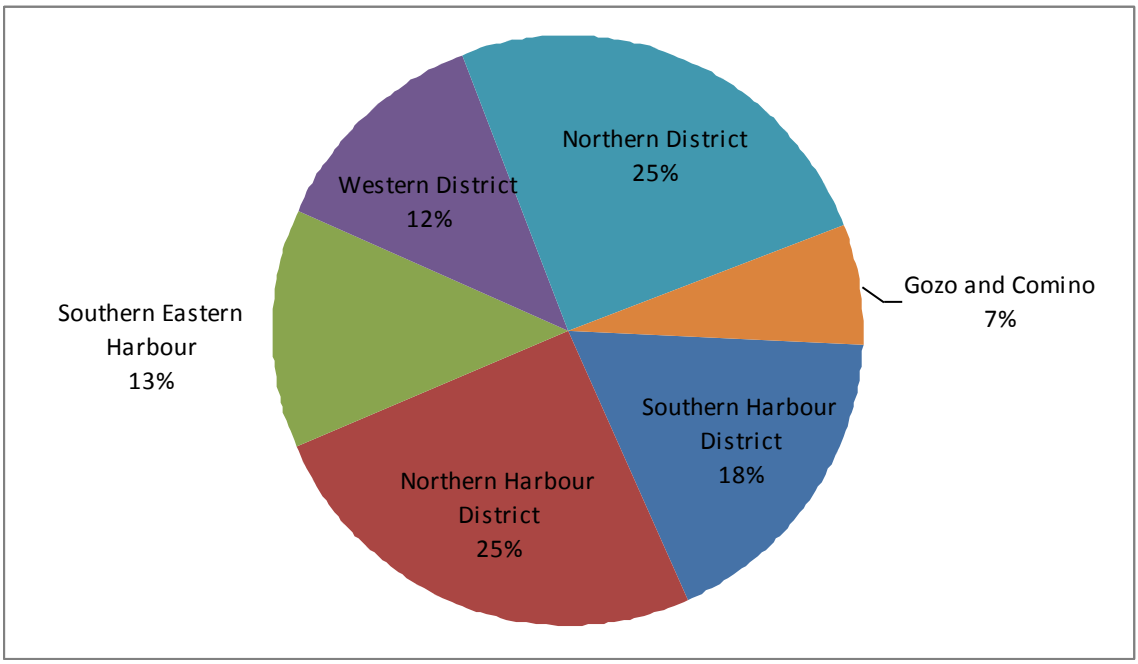
Source: Wikipedia

Table 3 – *Population Distribution by District*

Region	Locality	Population	Area (km²)
Southern Harbour District	Valletta, Birgu, Isla, Bormla, Zabbar, Fgura, Floriana, Kalkara, Luqa, Marsa, Paola, Santa Lucija, Tarxien, Xghajra	80,100	32
Northern Harbour District	Qormi, Birkirkara Gzira, Hamrun, Msiada, Pembroke, Pietà, San Giljan, San Gwann, Santa Venera, Sliema, Swieqi, Ta'Xbiex	115,000	15
South Eastern	Zejtun, Birzebbuga, Gudja, Ghaxaq, Kirkop, Marsaskala, Marsaxlok, Mqabba, Qrendi, Safi, Zurrieq	60,000	53
Western District	Mdina, Zebbug, Siggiewi, Attard, Balzan, Dingli, Iklin, Lija, Rabat, Mtarfa	57,000	69
Northern	Gharghur, Melliena, Mgarr, Mosta, Naxxar, San Pawl il-Bahar	55,000	78
Gozo and Comino	Rabat, Fontana, Ghajnsielem and Comino, Gharb, Ghasri, Kercem, Munxar, Nadur, Qala, San Lawrenz, Sannat, Xaghra, Xewkija, Zebbug	30,000	69

The area surrounding the Grand Harbour Region (the Northern and Southern Harbour Districts) has the highest population amounting of 43% of the total population. Gozo and Comino show the lowest population (7%), followed by Western District (12%), South East Harbour (18%), and Northern District (23%).

Chart 1 *- Percentage Population in each region*



Source: NSO 2011

1.3. Economy

The strengths of the economy of Malta are its limestone, a favourable geographic location, and a productive labour force. Malta produces only about 20% of its food needs, has limited fresh water supplies, and has few domestic energy sources. The economy is dependent on foreign trade, manufacturing (especially electronics and pharmaceuticals), and services, tourism and financial services. Economic recovery of the European economy has lifted exports, tourism, and overall growth. Malta adopted the euro on 1 January 2008.

Tourist arrivals and foreign exchange earnings derived from tourism have steadily increased since the 1987, in which there was growth from the previous year of, respectively, 30% and 63%. Following the September 11 2000 attacks, the tourist industry suffered a temporary setback, which it recovered since.

With the help of a favourable international economic climate, the availability of domestic resources and industrial policies that support foreign export-oriented investment, the economy has been able to sustain a period of rapid growth. During the 1990s, Malta's economic growth has generally continued this brisk pace. Both domestic demand (mainly consumption) boosted by large increases in government

spending, and exports of goods and services contributed to this favourable performance.

Buoyed by continued rapid growth, the economy has maintained a relatively low rate of unemployment. Labour market pressures have increased as skilled labour shortages have become more widespread, despite illegal immigration, and real earnings growth has accelerated. Growing public and private sector demand for credit has led in the context of interest rate controls - to credit rationing to the private sector and the introduction of noninterest charges by banks.

Despite these pressures, consumer price inflation has remained low (according to the Central Bank of Malta), reflecting the impact of a fixed exchange rate policy (100% hard peg to the euro, in preparation for currency changeover) and lingering price controls.

***Table 4** – GDP: Per inhabitant*

Year	2008	2009	2010
GDP	18300€	18000 €	18300 €

Source http://www.economywatch.com/economic-statistics/Malta/Gross_Domestic_Product/

The Maltese Government has pursued a policy of increased economic freedom and privatisation, taking some steps to shift from reliance on government intervention to allowing a greater role for free market mechanisms. While change has been substantial, the economy remains regulated.

There is a strong manufacturing base for high value-added products like electronics and pharmaceuticals, and the manufacturing sector has more than 250 foreign-owned, export-oriented enterprises. Following a 1.2% contraction in 2009, GDP grew 2% in 2010. In early 2011, the EU ended excessive deficit procedures against Malta, after Malta had taken measures to correct an excessive deficit in 2010 and appeared likely to reach its deficit target of 2.8% of GDP in 2011

Table 5 *- GDP: Real growth rate*

Year	2003	2004	2005	2006	2007	2008	2009	2010
GDP (%)	2,20	0,80	1,00	1,00	2.40	3.80	2.70	-1.20

Source http://www.economywatch.com/economic-statistics/Malta/Gross_Domestic_Product/

The GDP in Malta is heavily skewed towards the services sector as shown in the Table 6 below:

Table 6 *–GDP in Malta expressed by Sector (2011)*

Sector	Agriculture	Industry	Services
Percentage	1.9%	17.2%	80.9%

Source http://www.economywatch.com/economic-statistics/Malta/Gross_Domestic_Product/

Tourism generates 25% of GDP of direct and inducted impact. In 2011, Malta received a record number of tourists which amounted to 1.3 million visitors and 500,000 cruise liner passengers (NSO 2011). The tourism industry is both a blessing as well as blight for the Maltese islands. On the one hand it has helped the Maltese economy to flourish from the 1970's onwards. Tourism is responsible for the employment of over 40,000 full time equivalent (FTE) in employment (Ministry for Tourism, 1998). On the other hand, tourism has led to major environmental impacts on the natural and physical environment of the islands. The building of the tourism plant led to encroachment of land, as well as to other impacts such as the building of extensive road network, increased consumption of water and electricity to service the industry.

Film production in Malta is another growing industry. Between 1997 and 2011 it generated approximately 35 million Euros, despite stiff competition from other film locations in and North Africa. Malta Film Commission has attracted block buster films such as The Da Vinci Code, Gladiator, Troy, Munich and Count of Monte Cristo amongst others, commercials and television series.

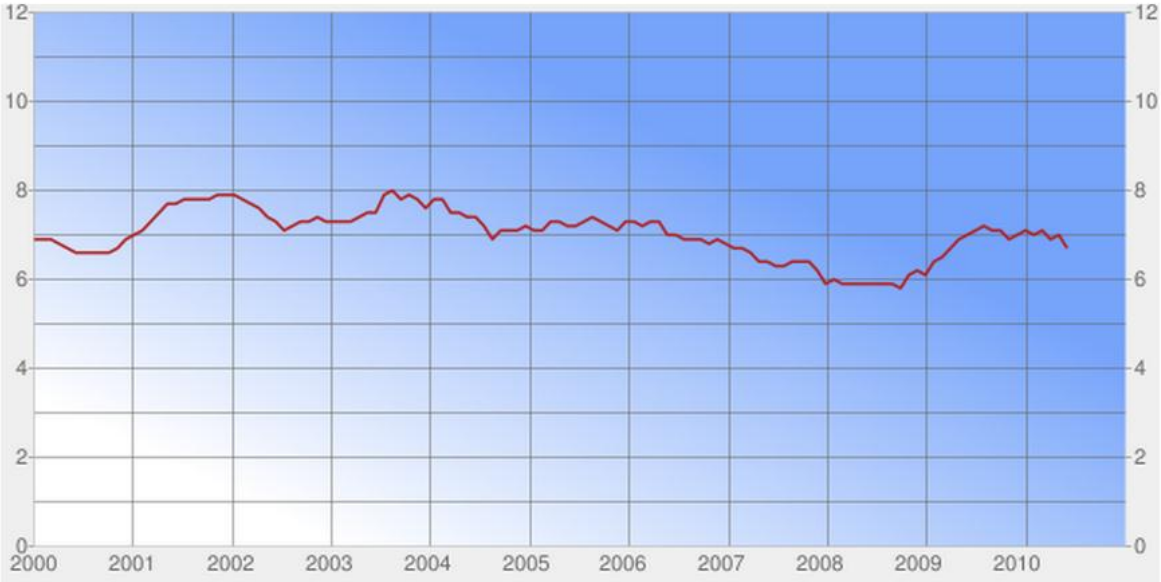
The Financial services sector is another main contributor to the Maltese economy. Malta is continuing to diversify its economy to include a range of services which draw strength from its location, the education and skills of its people and its centuries old tradition as a hub on one of the most important trading routes of

history. The country's financial sector has grown rapidly in the last few years and is now a major force in the economy, contributing 12% to GDP. The Government's ambition is for the sector's contribution to GDP to rise to 25% and for Malta to become the leading regional centre of excellence in financial services by 2015 (http://www.integra-international.net/files/guides/malta.pdf)

Malta has a developing economy that managed to withstand the economic crises and maintain a relatively low unemployment rate when compared to other EU countries. The Maltese government invests a lot of effort and resources in order to keep this rate as low as possible. Because of the relevant size of the English-speaking community and the warm climate, Malta attracts a considerable number of foreign workers, especially in the online gaming, financial, IT and tourism sectors. 75% of the employment in Malta is in the services industry, while 22% is in the manufacturing sector and 3% in agriculture.

As said, Malta register one the lowest employment rate among the EU member states which is always under 8% as shown in Chart 2 below.

Chart 2- *Unemployment in Malta 2000-2011*



Source: Eurostat figures

1.4. Political and Administrative Structures

1.4.1. National Politics

The politics of Malta take place in a framework of a parliamentary representative democratic republic, whereby the President of Malta is the constitutional head of state with the general direction and control of the Government of Malta being the responsibility of the Prime Minister of Malta as the head of government and the cabinet.

Legislative power is vested in the Parliament of Malta which consists of the President of Malta and the unicameral House of Representatives of Malta with the Speaker being presiding officer of the legislative. Currently, Dr George Abela is the head of state, and Dr Lawrence Gonzi is a head of Government.

Ministers have specific portfolios. Those of energy and environment which involve aspects of this project, fall under the responsibility of no less than 5 different ministers as follows:

***Table 7** – List of Ministries related to Energy and Environment*

Ministry for Tourism, Sustainable Development and Environment	Dr. Mario de Marco
Ministry for Infrastructure, Transport and Communications	Dr. Austin Gatt
Ministry of Finance, the Economy and Investment	Mr. Tonio Fenech
Ministry for Resources and Rural Affairs	Mr. George Pullicino
Ministry for Gozo	Mrs. Giovanna Debono

Under these ministries, there are a number of agencies that regulate and monitor aspects of the portfolio as shown in the Table 8 below. Each agency is regulated by its own statute, has a board that is appointed by the Prime Minister and is directly answerable to the responsible Minister. Agencies can and do in fact issue regulations that govern practices related to sustainability and development as well

as well as they are responsible for policies within that area. Since Malta's accession to the EU agencies were also responsible for issuing of EU Grants that enable the private sector to benefit from funds that can be used to address energy related project

***Table 8** – Agencies Under the Respective Ministries*

Ministry for Tourism, Sustainable Development and Environment	❖ MTA- Malta Tourism Authority ❖ STDU- Sustainable Tourism Development Unit
Ministry for Infrastructure, Transport and Communications	❖ MTA- Malta Transport Authority
Ministry of Finance, the Economy and Investment	❖ ERDF ❖ Other public sector funding
Ministry for Resources and Rural Affairs	❖ MRA- Malta Resources Authority ❖ WSC- Water Service Corporation ❖ Enemalta Corporation
Ministry for Gozo	❖ ECO Gozo

1.4.2. Local Politics

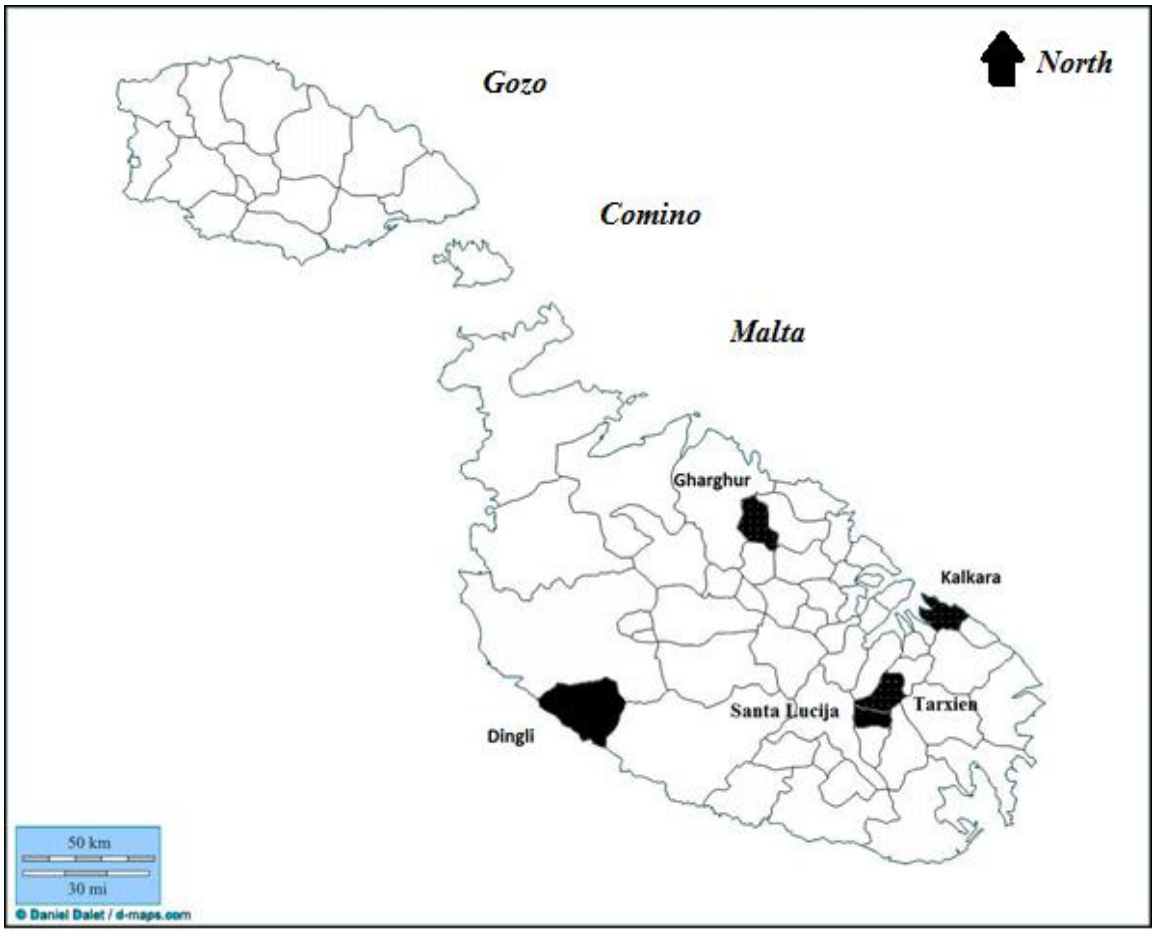
By virtue of the Local Council Act of 1993, the 68 localities of Malta and Gozo can elect their own council. The first councils were set up in 1994. A council is elected for a period of three years. A council is composed of a mayor, deputy mayor, and councillors who are the elected members. Each council has an Executive Secretary who is a government a appointee and a number of administrators which depends on the size of the council.

Local councils are responsible for the general upkeep and embellishment of the locality, local wardens, and refuse collection, and carry out general administrative

duties for the central government such as collection of government rents and funds, and answering government-related public inquiries.

For the Isle Pact project, five Maltese localities were chosen to participate, in order to reduce the CO2 emissions for the year 2020 through the sustainable energy plans designed for each one of them. Dingli was chosen as one of these communities.

***Map 6** – The Maltese islands, with the five localities involved in the project*



Dingli *(Ħad-Dingli)*

Population: *3,326 inhabitants*

Date of adhesion of Covenant of Mayor: *6 October 2009*

Date of formal approval: *15 June 2010*

Covenant Coordinators: Local Council's Association (Malta)

Adhesion to the Pact of Islands: *12 April 2011*

Dingli is a rural village on the west coast of Malta, with a population of 3326 persons. It is situated 13 kilometers from the capital Valletta. Dingli is located in one of the rural regions of Maltese island. The major activity is agriculture. Dingli is also a major tourist attraction due to it nature and open landscape with the cliffs being the major crowd puller. Dingli also has remains of some of the troglodyte habitation considered to be one of the oldest forms of habitation of the Maltese Islands. Due to its spectacular landscape, Dingli is often used as a film location.

Figure 3: View of Dingli village showing also the agricultal surroundings

Political Commitment to Environmental Sustainability

The current council is in its 7th legislature and has been elected in 2012. The Council is composed of the Mayor, Deputy Mayor and three Councillors. The Dingli Local Council is committed to create a healthy, thriving development with increasing concern for its environment and surrounding natural resources. As a result, it thrives to ensure that future developments are conducted with sustainability in mind.

The Dingli Local Council has already committed itself by adhering to the Covenant of Mayors since 6 October 2009. Furthermore, it has taken an active role by starting the Covenant of Mayors process. This commitment was further reinforced by adhering to the Pact of Islands. The sustainable energy action plan and its implementation is a step towards encouraging citizens to take the responsibility for their o wn part, however small, in conserving the environment. It aims to reduce climate change by reducing CO2 emissions.

The Local Council is aware that to realize its ambitions to reduce the locality's impact on climate change it needs to encourage the reduction of fossil fuels and a challenging plan of actions is required to define its commitment to reducing CO2 emissions. The Local Council is also conscious that to achieve its overall target, it needs to involve all stakeholders in the process. Each citizen of the locality needs to be involved to participate in at least some of the actions of this plan. Through the actions employed by the Council as well as the action plans, the Council is committed to raise further awareness among the public to encourage further uptake of energy friendly measures that will bring about effective change.

It is evident that due to the limited administrative power of Local Councils in general, it shall have to rely on a number of actions that need to be implemented by the Central Government. Nevertheless, it shall do its utmost to lobby for the implementation of the necessary actions.

Source: Panoramio.com

Figure 4: Dingli Cliffs – considered to be areas of High Landscape Value, these are important sites for their richness in fauna and flora as well as their spectacular views

The further commitment of Dingli Local Council has been demonstrated by the Council commissioning a Sustainable Developmnet Strategy for the locality in 2010 (Formosa 2010). This report outlines a holistic development strategy for the locality including, phsyical development of the locality, the social and cultural aspects, health, sustainable tourism, conservation and energy.

2. OVERALL STRATEGY

2.1. Objectives and targets

The European Union, in its bid to lead the global fight against climate change has committed itself to reduce the overall emissions to at least 20% below 1990 levels by the year 2020. It has also acknowledged the key role that local authorities have to play in the achievement of the EU's energy and climate objectives. To reach this goal, local communities have committed themselves to voluntarily reduce their CO2 emissions beyond this 20% target.

The specific main objectives of the strategy for sustainable energy in Malta are to (MRRA):

1. Improve security of energy supply
2. Reduce energy dependence from abroad
3. Reduce energy intensity in Gross Domestic Product
4. Reduce carbon dioxide emissions

The targets to achieve in 2020, in Malta are presented in the following table.

Table 9: Targets for 2020

Objectives		Targets
1.	Improve security of energy supply.	Increase by 20% the number of days of autonomy of primary energy storage in comparison to 2005.
2.	Reduce energy dependence from abroad.	Increase to 20% the use of regional energy resources in primary energy demand.
		Increase to 50% the use of regional energy resources in electricity production.
3.	Reduce energy intensity in Gross Domestic Product.	Reduce by 20% the energy intensity in Gross Domestic Product (primary energy/Gross Domestic Product) compared to 2005.
4.	Reduce carbon dioxide emissions.	Reduce CO_2 by 20% compared to 2005.

Source: MRRA

2.2. Strategic Guidelines

In order to fulfil each specific objective, and taking into account the targets for 2020, six strategic guidelines are established, that aim to guide the implementation of sustainable energy actions in Malta:

1. Improve efficiency in energy conversion and use.
2. Increase the contribution of regional energy resources.
3. Diversify energy sources.
4. Increase the capacity of energy storage infrastructures.
5. Promote energy products and services that encourage economic development, regional added value and skilled labour.
6. Promote energy carriers with lower carbon content.

These strategic guidelines relate to the objectives established as can be seen in the following table.

Table 10- *Strategic guidelines per objective*

Objectives		Strategic guidelines
1.	Improve security of energy supply.	• Improve efficiency in energy conversion and use • Increase the contribution of regional energy resources. • Diversify energy sources. • Increase the capacity of energy storage infrastructures.
2.	Reduce energy dependence from abroad.	• Improve efficiency in energy conversion and use. • Increase the contribution of regional energy resources.
3.	Reduce energy intensity in Gross Domestic Product.	• Improve efficiency in energy conversion and use. • Increase the contribution of regional energy resources. • Promote energy products and services that encourage economic development and skilled labour
4.	Reduce carbon dioxide emissions.	• Improve efficiency in energy conversion and use. • Increase the contribution of regional energy resources. • Promote energy carriers with lower carbon content.

The improvement of efficiency in energy conversion and energy use, as well as, the increase of the contribution of regional energy resources in primary energy demand, are common strategic orientations to all objectives, which constitute fundamental aspects in the regional policy and in the actions to be implemented.

Dingli's current CO2 emissions amount to 9850 tonCo2 of which 132 ton CO2 are produced by the municipality buildings and other public spaces. The CO2 emissions by the locality are outlined in Table 11 below. Through the SEAP the locality has identified a number of quantifiable actions discussed in Section 4 whereby it will reduce the above CO2 emissions, produced by the public buildings and public spaces by **24%.**

Table 11 *- CO2 emissions of Dingli Community*

Field of action	Emissions (Ton CO2)
Municipal Buildings, Facilities and Equipment	14.88
Municipal public lighting	115.83
Municipal Fleet	1.23
Total CO2 emissions	131.94

3. ENERGY BALANCE AND EMISSION INVENTORY

3.1 Energy consumption and energy efficiency in the Maltese Islands

3.1.1. Energy Efficiency Trends

Between 2000-2008 the energy efficiency index for the whole Maltese economy (ODEX) improved by 8%, similar to the EU average.

The efficiency of the industrial sector (measured at the level of the 7 main branches in terms of energy used per unit value added) showed an improvement of 5% from 2000 to 2008. A significant difference between the EU evaluation and the Malta measurement of ODEX is that in Malta, the value added are used as a proxy for sectoral production for each industrial branch.

Between 2000 and 2008, the total energy efficiency of households improved by 8%. For heating, the data cannot be classified as the energy is mainly electrical, which is lumped with other consumption. Nevertheless, the energy demand for cooling is significantly on the increase with a greater import of air conditioning units. Its consumption is also lumped with other electricity uses, such as lighting and cooking.

Since 2000 there was a notable shift from electric space heating to the use of portable gas (LPG) heaters; further shifts are expected in the future.

Between 2000 and 2006, the transport sector experienced a marginal increase in energy efficiency: 5%. This development is mainly due to the efficiency improvements in vehicle engines. Malta has no domestic air or rail transport systems.

3.1.2. Energy Efficiency Policy measures

As part of Malta's alignment with EU policies, Parliament set up the Malta Resources Authority (MRA) in 2000, under the Minister responsible for Resources. As a public corporate body its mandate is to regulate and advise Government on matters related to energy, water and mineral resources (including quarrying and oil exploration). Its role is also to advise, co-ordinate and assist other government entities, to promote and administer energy legislation and to conduct analyses and assessments of developments in the energy sector.

Through the MRA, the Maltese Government has launched a number of energy efficiency programmes as part of a holistic energy policy, running in parallel with the three pillars of EU Energy Policy, namely security of supply, open market competition and the protection of the environment. In tandem to the MRA, the MEPA (Malta Environment & Planning Authority), apart from being the Authority responsible for all master planning and local development, is also responsible for conducting air quality surveys and the drawing up of biennial 'State of the Environment Report'.

Malta Enterprise has implemented up a number of initiatives to enhance energy savings and improve energy efficiency in the industrial sector. Other initiatives of Government include:

- Power factor correction for large scale energy users.
- Energy auditing scheme for major industrial activities (production processes).
- Eco-contribution as a disincentive to minimize waste (industrial, commercial & domestic sectors).

Energy consumption in buildings is the latest intensified energy conservation focused effort. This is spelt out through a specific Legal Notice (Nov 2006). With effect from January 2007, the main initiatives include a new stringent energy requirement in the Building Regulations (part F). This eventually led to a harmonised energy certificate for all buildings by 2009.

A standard national calculation software tool has been designed in conformity with EU methodology for energy certification of buildings at design and auditing stages. Household appliances are now subjected to an improved energy labelling scheme, enhanced inspection of boilers and ventilation systems and increased efforts in energy savings and green procurement in the public sector at large.

The Maltese government considers cost efficiency for commuters as one essential basic tool for regulating energy efficiency and minimising environmental impact of transport. In the absence of local air, surface rail or underground transport communal travel is encouraged through public transport by diesel bus. A 'Park and Ride' scheme has been in operation for almost a year and a new CVA (controlled vehicle access) scheme was introduced from 01 May 2007; this has introduced an hourly charge for entry into Valletta, a historical city, during office hours yet encouraging free access in the evenings promoting private enterprise and social activities.

Energy prices and taxes are important determinants of energy consumption and have been successfully used to promote energy savings in Malta. Formerly, electricity rates were always considered a social commodity, almost by right, provided by a state-monopoly corporation, Enemalta. However, electricity tariffs went through a general overhaul in 2003, and another major review in 2008, essentially reflecting the true price of oil on international markets. Although this affected all sectors, the household and tertiary felt this most, raising a greater awareness of savings in consumption and the importance of energy efficiency at all levels.

In this context, the Government of Malta has recently set the following ambitious targets for energy efficiency, renewable energy and greenhouse gas emission reduction:

- A maximum increase of greenhouse gas emissions not falling within the scope of the EU Emissions Trading Scheme of 5% by 2020 (compared to 2005 levels particularly emissions from transport, mainly road transport, waste, agriculture and fuel combustion in industry and commercial and residential buildings).

- A commitment to achieve by 2020 a share of energy from renewable sources in gross final energy consumption of 10%.

- A commitment to achieve by 2020 a target of 10% of energy consumed in all forms of transport from renewable sources.

- A commitment to achieve a 22% energy or 235,254toe savings target by 2020 with an intermediate target for 2014 of 15% or 144,876toe.

Energy efficiency is a key objective in the Government's energy policy. Energy efficiency finds synergy in the achievement of all Government's objectives - it can assist the economy, as well as help to achieve social and environmental objectives. Energy efficiency can have a significant impact on the demand for energy, and so can reduce the country's fuel bill and the release of carbon into the environment. It is widely perceived that the potential for improving energy efficiency exists in Malta.

In improving energy security and reducing carbon emissions, it has arguably the lowest cost, and highest reversibility of all options available to Government to meet its objectives. It is even more rewarding than the introduction of renewables in the achievement of environmental objectives, and hence deserves priority. The most important aspect of the energy efficiency policy is for that part of the technical potential that yields the most savings for a given investment to be identified and exploited first.

3.1.3. National context of energy savings

The Maltese population are generally frugal in resource use. This has been consistently demonstrated in Eurobarometer surveys carried out since 2004. The latest survey published in 2011 showed 75% of Maltese indicating that they are cutting down on electricity use, well above the EU average of 53%. Recent increases in electricity prices have reinforced this culture.

The Government grants for energy efficiency and renewable energy sources were greeted due to the trends in electricity prices and the economic crisis. More people were realising the benefits of investing in these technologies and the rate of take up was successful in most cases.

The main tangible efforts during the past three years have been on promoting energy efficiency in the domestic sector, tourism and industry. A number of schemes have been issued targeting these sectors and the uptake was very successful. Measures for the Public sector and Transport sector were also devised but more effort are to be made in these sectors since there is more potential to be realised in both sectors. SMEs were the least focused on and government will make an effort to identify measures even after the second NEEAP is published to promote energy efficiency measures.

Mainly, results have been achieved from the industrial sector (including early actions in the water sector), the domestic sector (due to schemes to replace appliances, change lighting systems and install solar water heaters), as well as in the transport sector (due to changes in the fleet composition brought about changes in the vehicle registration system).

3.2 Global Energy Consumption in Malta

Using data base from 2005, a total of 2,263,145 MWh of electricity were generated in Malta. The power generated in 2009 was 2,167,640 MWh and in 2010 was 2,113,112MWh. The decrease of energy consumption has been brought about thanks to an improvement of the electricity distribution. Enemalta Corporation, the sole energy provider to date on the Maltese Islands, can do a lot of improvement on this network because the waste during the distribution represents 12% of power generated (2005/2006).

Table 12 *– Energy Consumption Malta by year*

Year	2005	2006	2009	2010
Power generated (MWh)	2,263,145	2,260,762	2,167,640	2,113,112

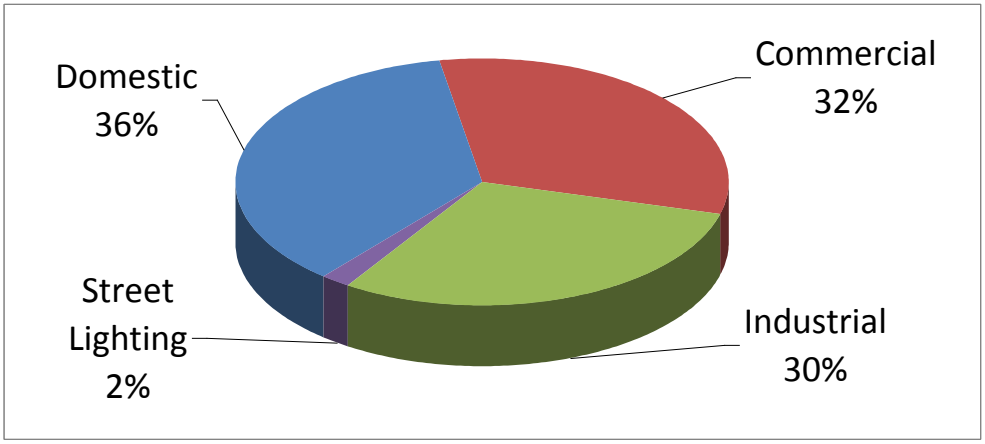
Source: NSO Malta

Chart 3 shows the energy consumption by sector for the whole of Malta, and the highest consumption is occupied by *domestic sector*, which consumes **36%**, this is followed by the *commercial sector* with **32%**, *industria*l sector by **30%**. *Street Lighting* which falls under the direct jurisdiction of Local Councils amounts for only **2%** of the overall consumption.

Since Malta has a high ratio of built up sector dedicated to domestic use, it is understandable that this sector would consume the highest source of energy. In addition, energy use in homes depends very much on the use of fossil fuel energy generated. Recent increase in standard of living, coupled also with changes in the architectural structure of the houses has also led the Maltese population to increase its reliance on domestic appliances such as air conditioners, microwaves and other electric power generated appliances.

Another major contributor to CO2 emissions in Malta is private vehicles. Malta has the highest number of cars per capita.

Chart 3 – *Energy Consumption by Sector*



Source: NSO Malta (2008)

The fact that Malta does not have its own energy resources makes that the country needs to import in order to cover the needs of energy. The national company for electricity, Enemalta has almost 600 MW of installed capacity, it has two power stations in the island, the first one of 300 MW located in Delimara near Marsaxlokk, running on fuel oil, and the other one near Marsa also operating in fuel oil with a installed capacity of 267 MW.

Malta gets its fuel oil from Libya and Russia. This dependency on foreign trade balances and fluctuating oil prices, make Malta vulnerable not to mention the burden that such heavy reliance on fossil fuels makes on the environment.

Malta must ride the current economic challenge and diversify its energy supply and also need electricity sector which guarantees security of supply.

Malta can not continue depending on volatile regions of the world for their energy requirements (oil price). The only way is reducing inefficiencies in power generation, reducing dependence on fossil fuels and investing heavily in clean energy production.

According to the commitments signed in Malta, the island must start producing a minimum of **10 %** of all its electricity generation from renewable sources by 2020. It also has to have **10 %** of all its transport fuel needs met by bio fuels.

In this way, the government of Malta proposed a new energy policy and the priority areas and the overall goals and objectives for the development of the energy sector. This policy identifies key areas that need to be addressed as we can see in the table below:

Table 13: *Energy Policy for Malta*

Areas	Explanations
Increase Energy Efficiency	❖ Improve efficiency in electricity generation and distribution ❖ Improve energy efficiency in transport (Through newer and smaller vehicles) ❖ New modes of transport (water taxi, local ferry)
Reduction of the reliance on imported fuels	❖ Diversify the sources of energy ❖ Increase the use of renewable energy (wind and solar)
Improve stability in energy supply	❖ Pursue the realization of the required infrastructure for the provision of a natural gas supply ❖ Ensure the implementation the interconnection with Sicily
Reduction from the energy sector	❖ Reduce the national carbon footprint
Deliver efficient and effective energy	❖ Open the energy market.

As part of the implementation plan, the government has proposed a number of projects aimed at helping Malta in general to meet the 2020 targets. These projects some of which have already been initiated whilst others are still in pilot or study phase are listed hereunder indicating also the stage of research that they are in.

Table 14 – Renewable Energy Source Generation in Malta by 2020

Renewable Energy Generation	Status
2 Offshore Wind Farms	Still under study
Domestic and Public Buildings Photovoltaic Panels	In progress, so far
Energy from Waste	In progress
Solar Water heaters	In progress
Smart grid for distribution of water and electricity	Pilot studies in five localities

The following section outlines the consumption of the five localities in the study. The data is based on SEAPs prepared as part of Covenant of Mayors and additional research prepared for Isle Pact by Paragon Europe and its team of experts.

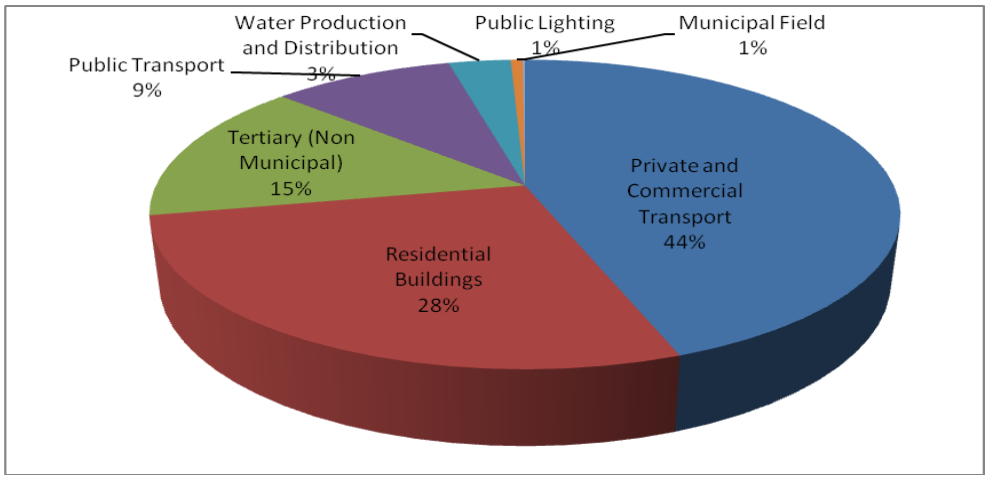
3.3 Dingli consumption

3.3.1 Energy consumption

3.3.1.1 By sector

Chart 4 shows how Private and Commercial Transport represent the largest consumption of energy (44%), followed by Residential Buildings (28%).

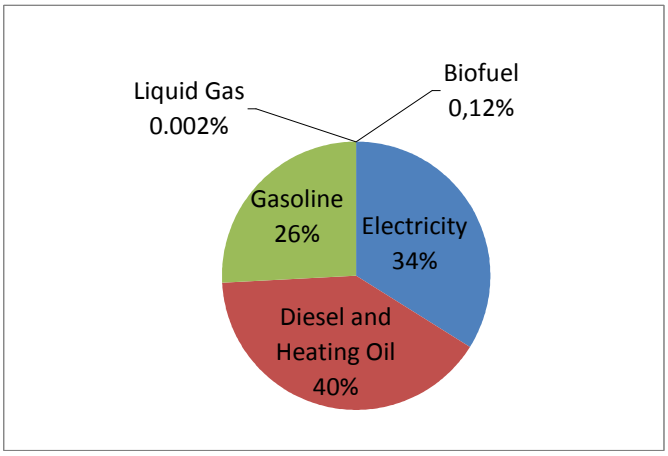
Chart 4 – *Energy consumption by sector in Dingli*



3.3.1.2 By source

Regarding the source, there is an equal percentage in consumption with the diesel and heating oil, the electricity, and the gasoline as shown in Chart 6 below:

Chart 5 – *Energy consumption by source in Dingli*



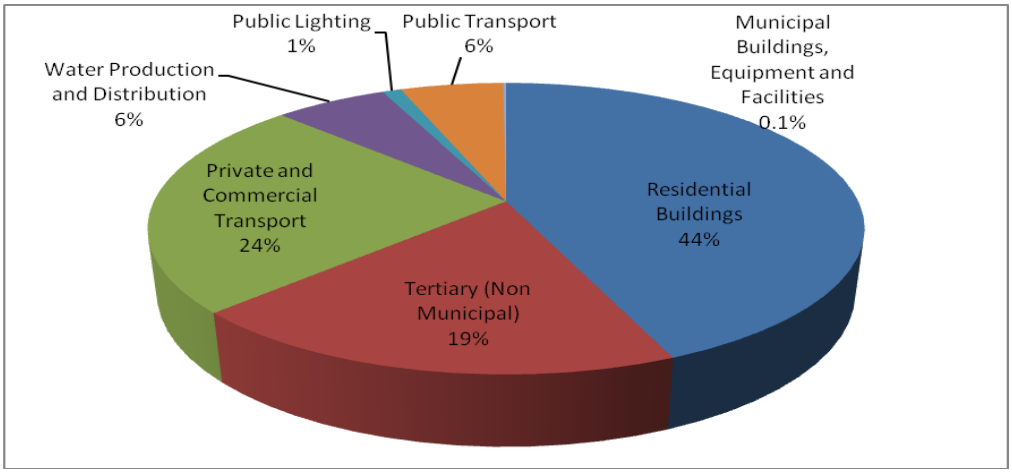
3.3.2 Emission of carbon dioxide

CO2 emissions were determined according to the IPCC (Intergovernmental Panel on Climate Change) methodology, which considers the carbon content of fuels or fractions of non renewable energy resources used in the combustion or in electricity production

3.3.2.1 By sector

Residential buildings, with their high weight on energy demand from fossil fuels, have the greatest share of carbon dioxide emissions.

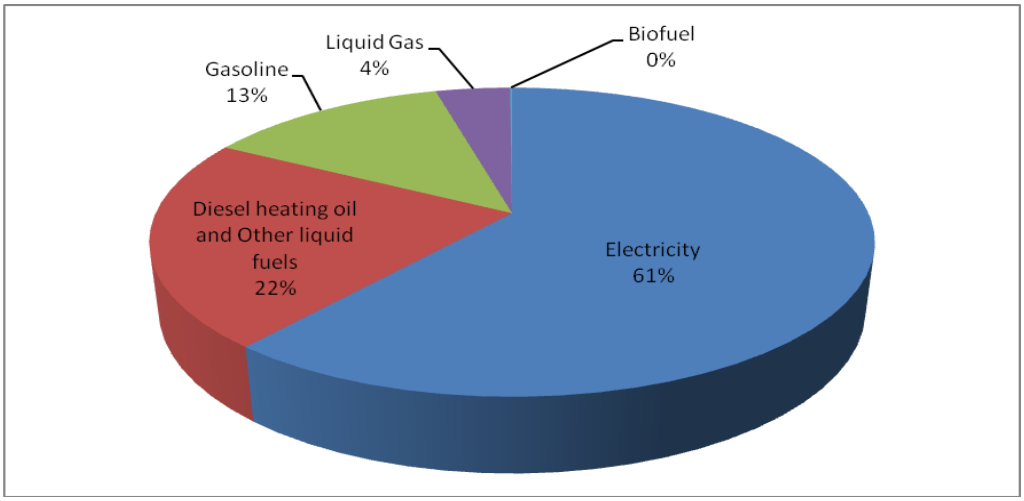
Chart 6 – *Carbon dioxide emission by sector in Dingli*



3.3.2.2 By source

Regarding sources, energy conversion refers mainly to electricity production with a 61% of the total, followed by diesel and heating oil (22%), gasoline (13%) and liquid gas (4%).

Chart 7 – *Carbon dioxide emission by source in Dingli*

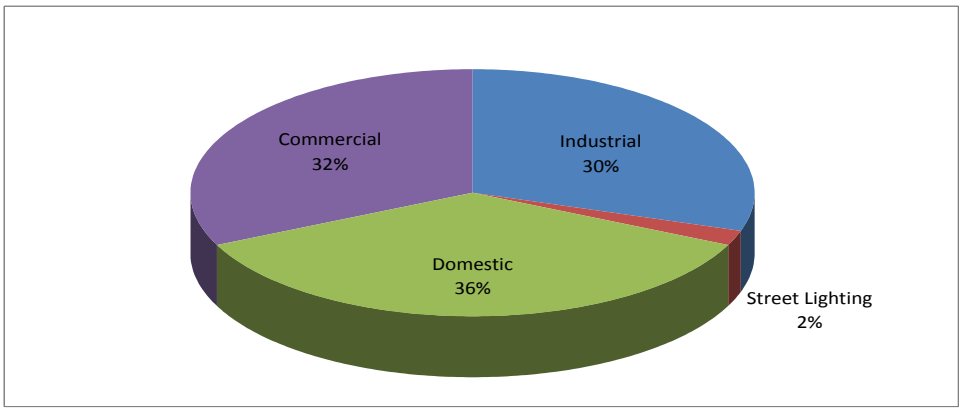


3.4 Final Energy Demand

Energy consumption in Malta is derived from a range of imported fossil fuels which are burnt for different uses. The three major energy consumers are domestic transport, industry and power stations.

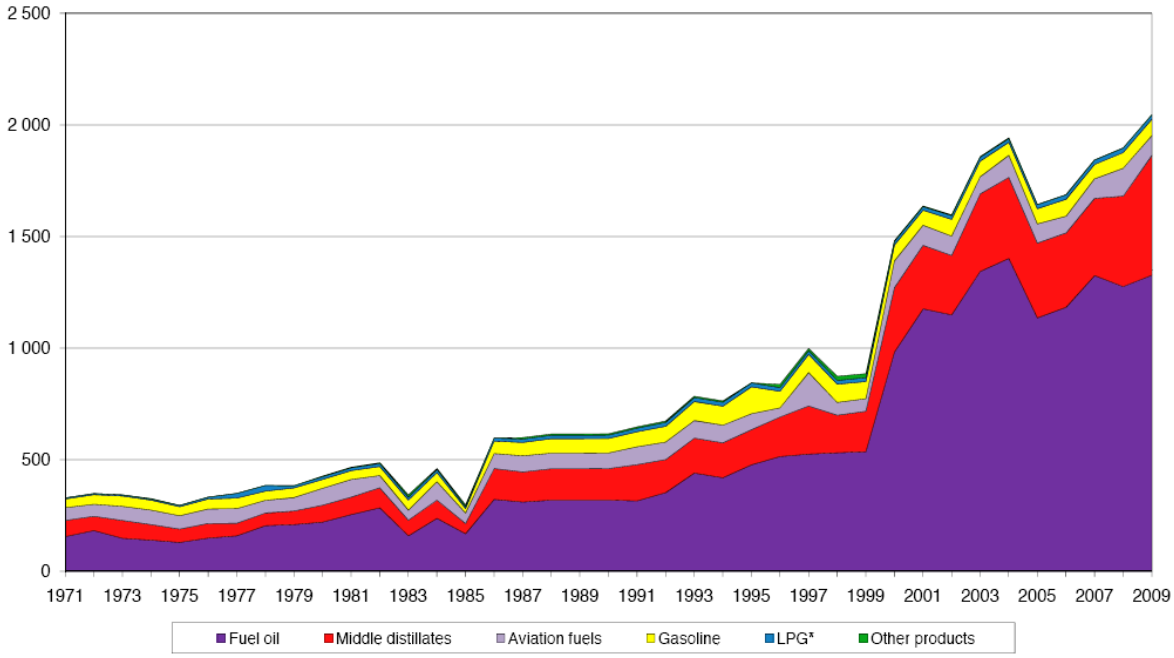
Around 60% of fuels are used for electricity production while another 34% of the total fuel share is consumed by the public and private transportation.

Chart 8 - *Electrical Consumption Share in Malta*



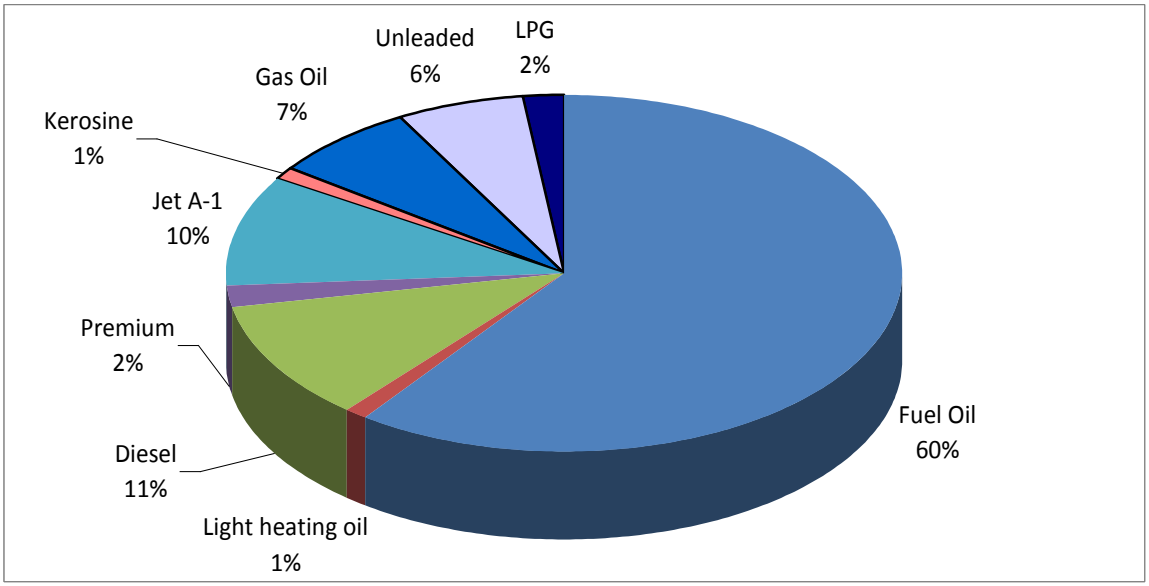
Source: NSO

Chart 9 - *Fossil fuel Imports evolution in Tonnes (1971-2009)*



Source: NSO

Chart 10- *Energy balance in Malta*



Source: NSO

Secondary Energy Conversion

In Malta, energy conversion refers essentially to electricity production. Table 15 shows the electricity and heat data with their respective losses and self consumption.

Table 15- *Conversion of Energy and losses*

Fuel oil		Distribution losses and self consumption
Electricity	1,021,154	51,058
Heat	415,852	415,852
Total	**1,437,006**	466,910

Primary energy consumption refers to the primary energy that is converted in secondary energy as shown in Table 17 below:

Table 16- *Primary energy converted in secondary energy*

Fuel oil		Conversion losses from primary to secondary energy
Electricity	2,552,886	1,531,732
Heat	519,815	103,963
Total	**3,072,701**	1,635,695

Primary Energy Demand

The primary energy demand is determined, through an energy balance, by the final energy demand and by the use of energy resources for energy conversion into heat and electricity.

Table 17- *Primary energy demand*

Fueloil	**Diesel**	**Gasoline**	**LPG**	**Natural gas**	**Coal**	**Sub-total**
7,094,300	1,137,500	1,100,000	210,000	0	0	**9,541,800**

Data in Mwh (referred to year 2005)

3.7 Emission of carbon dioxide

The carbon dioxide emissions were determined according to the IPCC (Intergovernmental Panel on Climate Change) methodology, which considers the carbon content of fuels or fractions of no renewable energy resources used in the combustion or in electricity production.

Table 18- *Primary energy converted in secondary energy*

Fossil fuels						
Fueloil	**Diesel**	**Gasoline**	**LPG**	**Natural gas**	**Coal**	**Sub-total**
1,979,310	303,713	273,900	50,400	0	0	**2,607,322**

Data in Tonnes (referred to year 2005)

4. ACTIONS

4.1 Dingli

Dingli is located in one of the rural regions of the island. It is based on agriculture activity and has one of the major attractions of Malta its cliffs. The local council of Dingli has proposed many actions to reach their goal. The initial actions presented for the report for the Covenant of the Mayors still applies, however in the two years since the compilation of the report, a number of new initiatives have taken place. The community is committed more than ever to adopt sustainable actions to implement within the community a safe and sustainable environment. In 2011 the Dingli Local Council commissioned a holistic study on the sustainability of the community (Spiteri 2011).

The fact that Dingli cliffs is also a tourism based community, proposals under Isle Pact apart from those proposed in 2010 also include actions that will sensitise the tourism and leisure community to be more sensitive and aware of the impact that the tourism and leisure sector will have on the community. The Dingli Local Council has also started plans to develop an Interpretation Centre for the visitors and the community.

Other new measures include more community awareness campaigns. The actions to be adopted by Dingli Local Council are outlined in Table 19

Table 19: Actions for Dingli Local Council

Action	Description	Year of Implementation	Co2 Reduction
Management			
Coordination		2012 -2020	NIL
Administrative costs		2012 – 2020	NIL
Sub-Total			
Training			
Train the Trainer courses	3 courses (monitoring, social and economic impacts) for Council Members at no cost	2012	Increase awareness - Not quantifiable
Transfer courses	1 course per annum following completion of ISEAP	2012 -2020	Increase awareness - Not quantifiable
Leisure and Tourism Providers	Training Course for Leisure and Tourism providers every other year 2012-2020	2012 - 2020	Increase awareness - Not quantifiable
Eco- guide development	No cost funded through Islepact		
Update of eco-guide, printing	200 every 2 years (2014 - 2020)		
Sub-Total			***Not Quantifiable***
Municipal Buildings, Equipment and Facilities			
	Conduction of Energy audits for Local Council Buildings	2012	Nil
	Conduction of Energy Audits for public gardens and recreational areas	2012	Nil
	Perform Actions identified in energy audit for local council buildings, municipal lighting facilities and public gardens and recreational areas	2012 onwards	Depends on Action
	Installation of a 2.4 kWPV system to serve local council building	2013	2.85 tCO2

Tertiary Non- Municipal Buildings			
	Promote energy audits for non-municipal buildings in the locality such as political clubs, band clubs, schools, etc	2013	Increase awareness - Not quantifiable
Residential Buildings			
	Perform Energy audits in a sample of dwellings (including, Social Assisted housing, apartment, free-standing 3 bed roomed house)	End 2012	Nil
	Analyse data from study and present it to the public	1st Quarter 2013	Nil
	Conduct Public awareness campaign and organise Energy Days to involve wider public. In 2012 this will be supported by Paragon thereafter, it will be conducted by LC (2013 - 2020) at Euro 2000 per annum	2012 -2020	Increase awareness - Not quantifiable
Municipal Public Lighting			
	Conduct an energy Audit for municipal lighting facilities in the locality to assess the adequacy of public lighting and identify methods to improve energy efficiency	2012	Nil
	Install intelligent street lighting control system in all substations	2,018	28.96 t CO2
Sub-Total			31.81
Transport			
	Provide 4 preferential reserved parking spaces for electric, hybrid, or low emission vehicles	2014 - 2020	Increase awareness - Not quantifiable
	As part of the community awareness campaign raise awareness about the benefits of car-sharing, use of bikes and walking	2012 -2020	Increase awareness - Not quantifiable
Sub-Total			Not Quantifiable
Land Use Planning			
Carbon sequestration Measures	Conduct a locality survey to identify areas where endemic species of plants and trees can be planted. Survey is to identify possible locations by available areas or number of tress		Nil

	As part of the community awareness campaign raise awareness about the benefits of having more trees and plants and encourage children to adopt and care for an endemic plant or tree	2012 - 2020	Increase awareness - Not quantifiable
	Undertake a tree planting exercise as identified in the locality survey		1 t CO2 per tree per 100 yrs
Sub-Total			
Public Procurement of Products and Services			
	Establish policy so that all equipment purchased by local council is rated as least energy consuming	2012	Not Quantifiable
	Assist Local Council to prepare templates of documents for procurement services that reflect green procurement	2012	Not Quantifiable
	Establish policy such that service providers that have recognised environmental policies and independent accreditation are preferred in the selection process	2012	Not Quantifiable
Sub-Total			
TOTAL CO2 REDUCTION			***31.81 tCO2***

5. ORGANIZATIONAL AND FINANCIAL MECHANISMS

In order to implement the action plan, it is necessary to create a coordination and organizational structure, to secure appropriate technical expertise, mobilize the involvement of stakeholders and provide financial means for the actions. To ensure that the objectives and targets are achieved, it is also necessary to establish follow-up and monitoring mechanisms.

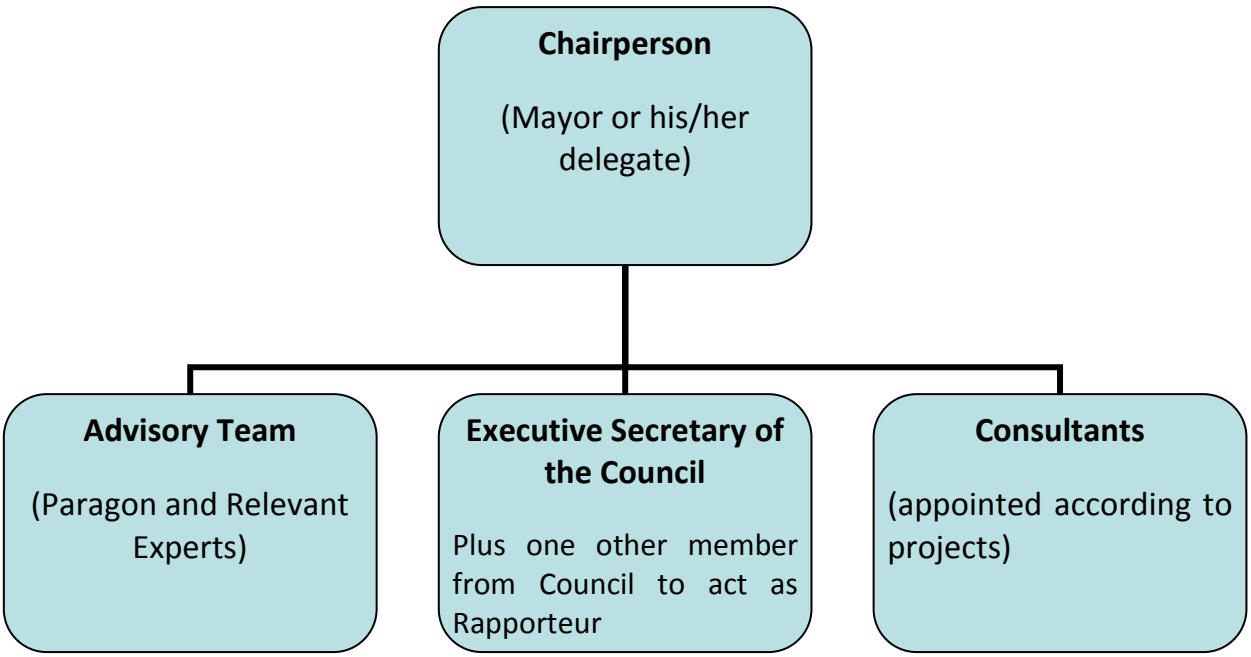
5.1 Coordination and organisational structures

The current management of energy related actions within the communities studied falls under the direct responsibility of each Mayor, with some cases where there is input from other internal personnel such as the Vice-Mayor or a volunteer. In some instances, councils get external help from paid consultants or in some cases from consultants who would like to pilot test ideas or actions related to energy efficiency, energy saving devises etc.

During the stages of data collection for this report it was a times difficult to obtain the necessary information especially due to the fact that all information depends on the central figure of the Mayor. In all cases Mayors, who in Malta are not fully employed by Councils but are on release on part-time basis from their full-time employment, where also busy with other activities. It is thus very evident that a coordination structure is required within each locality to provide for adequate support and guidance to be able to monitor progress, assess new ideas and obtain the right support and funding opportunities to fund projects and ideas.

The proposed structure within each community is proposed to have the following structure as represented by Chart 11 below.

Chart 11 Management Structure



The methods to co-ordinate and implement the Action Plan will follow the following course of action:

- A bi-monthly meeting to set the action targets for the projects
- Charting plan of action
- Determine if external services are required, if so draft call for services and prepare instructions for issuing of call
- Set out TOR for each action
- Prepare budget and identify financial source
- Approve budget
- If budget requires Council funding approve budget by Council
- If budget requires funding through project and will require co-funding from Council, approve budget by Council
- Prepare and issue press release to announce project / action

- Assign duties to the team
- Prepare timeline
- Identify indicators to monitor procedure
- Periodic reports are evaluated and presented to the Management Committee and a report is prepared for Council
- Issue press release upon completion of project/action

5.2 Staff Capacity

As stated in 5.1 the current staff capacity for each Council to work and implement such project is limited. This is even more so limited due to the fact that Councils in Malta have very limited disposable income which allows them to employ additional staff other than that stipulated by Law.

For IslePact, or any other measure such the Covenant of Mayors to succeed and to have the desired impact on our Islands, there needs to be a permanent structure within the communities that helps and assists the Councils in their implementation. For this aim the following needs have been identified within the five communities studied.

1. **Training**

   Each community requires training and education campaign to raise awareness among the residents, retail outlets. Having a community that is more aware of the impacts it can have on the environment would lead to more effective implementation. This is very valid for Malta since as has been established through this study the highest contributor to energy usage is the household, thus we are starting from the premise that a better educated citizen would yield a more energy efficient community.

   However this is not enough and further training will also be required for Council staff delegated to sit on the Board identified in point 5.1 above.

   Training will also be required for people who will be monitoring projects, and conducting the preliminary assessments of the projects.

   For the first year after the lifetime of the project Paragon Europe will be conducting a series of training seminars addressed to:

   - The community, at least 1 seminar per community twice a year

- The appointed council members to discuss the tools developed by IslePact project and how these can be implemented and used by the respective communities.
- Develop a train the trainer course that can be utilised by the individual councils so that training of the community can be conducted by members of the same community.
- Develop a simple eco-guide for households to serve as an aide memoir in order to help residents to adopt responsible actions related energy efficiency.
- Develop courses for specialised sectors such as Hotel and Retail sector, again with the aim to sensitize them towards the importance of responsible action in their day-to-day activities. By the first year at least one course would be held with each specialised sector by Paragon Europe in collaboration with the respective group representatives.

2. Monitoring and Audits

Training courses will be required by members of the Local Councils in order to be able to monitor and conduct audits of the projects conducted. In cases, where the council will not have internal funds or the expertise to carry out this task, then the council will have to subcontract this task.

Paragon Europe will through the Islepact project facilitate the work of monitoring through the tools developed as a result of this project.

The team will be responsible to conduct periodic reports (every two years) and will need to report back to the Management Team

3. Implementation Team

The Implementation Team should be composed of the team appointed by the individual Councils appointed for the purpose to ensure the implementation of the tasks at hand. It is envisaged that the implementation teams within each locality will be composed of both Council Members (core team) as well as externally appointed person engaged to conduct the specific tasks. It is understood that the implementation teams will change from time to time, according to the nature of the project.

The Implementation team will conduct an initial report at the start of each project, will present a periodic report – with frequencies of these reports being determined by the nature of each project and a final report.

The Implementation Team is answerable to the Management Team set up by the council and as described in 5.1 above.

4. Funding Team

Each Council should have a funding team to assist it in locating the ideal funding schemes or mechanisms ideal to carry out the projects.

The funding team will be composed of:

The Mayor as the Chair, The Councils' Executive secretary who by law is responsible together with the Mayor for the financial accountability of the Council; Paragon Europe who has the adequate expertise to provide advisory support to the Councils on funding mechanisms, two other representative from the councils.

The funding team may be required to prepare feasibility studies for the suggested energy related projects and ideas as well as to make presentations to banks, funding institutions and to prepare bids for funding programmes and/ schemes that are issued from time to time.

5.3 Involvement of Stakeholders

Stakeholder involvement is an essential step in ensuring that the community has maximum benefit from actions suggested through these actions.

Stakeholders vary between the different projects however there is always a core group of people who need to be involved if successful implementation of the tasks is to be achieved.

Stakeholder groups include the community including residents, NGOs and other civil society groups; the entrepreneurs willing to support or fund the projects; the contractors appointed to conduct the projects; funding institutions, planning and environment authorities, such as MEPA, Heritage Malta (if projects touch upon heritage sites); Malta Resources Authority.

The mechanisms required to involve stakeholders include six main steps (Altria 2004). These are the following:

(1) **Preparation**: This step involves the *identification of the issues* that need to be tackled and addressed in the specific action plan; *prioritisation of the issues* and *identification of the stakeholder* categories. This is a very important step since the preparation phse will help each Council to identify clearly what needs to addressed and who the actors will be.

(2) **Planning**: The first step in this phase would entail the establishment of objectives of the specific action, determining of the scope and accountability. Unless this step is conducted, the chances are that due to external factors, focus of the plan may be lost. Identification of the specific stakeholders and the prioritisation of the stakeholders. Finally this step entails the setting of the evaluation criteria for each step of the action.

(3) **Design**: The principles of each action need to be reviewed in order to ensure that they are relevant and valid. At this stage the initial outreach campaign should be conducted this could entail an information campaign, press releases and direct communication with the identified stakeholders. Once this is done, the mutual objectives of the Council and the stakeholders need to be established. The engagement activities need to be determined at this phase as well.

(4) **Engagement**: The first step at this phase is to prepare the Council staff that will be involved in the implementation of the action. Stakeholders need to be provided with background information. Engagement Conduct regular public meetings, which involve directly all the stakeholders

(5) **Invite** all stakeholders to events and activities related with energy activities

(6) Use press and media to report results of action conduct during a specific time frame.

5.4 Budget

The overall budget for the implementation of the action is the following.

For the Dingli community the budget required is as outlined in the tables hereunder:

Table 20 Cost for Implementation for Dingli Local Council

Cost	Description	Value
Management		
Coordination	Fee for the Team to coordinate the process 2012 - 2020 5 pax @ Euro 1000 for 4 man months pa	160000
Administrative costs	Flat rate calculation of Euro 3000 pa annum 2012 – 2020	24000
Sub-Total		***184000***
Training		
Train the Trainer courses	3 courses (monitoring, social and economic impacts) for Council Members at no cost	Supported by IslePact
Transfer courses	3000 per course at 1 course per annum following completion of ISEAP	24000
Leisure and Tourism Providers	Training Course for Leisure and Tourism providers every other year 2012-2020	Year 1 supported by Islepact, subsequent years supported by Paragon in conjunction with the ITTC - University of Malta
Eco- guide development	No cost funded through Islepact	0
Update of eco-guide, printing	200 every 2 years (2014 - 2020)	800
Sub-Total		***24800***
Monitoring		
	Estimated at Euro 10,000 every two years (2014 - 2020_	40,000
Sub-Total		***40,000***
Municipal Buildings, Equipment and Facilities		
	Conduction of Energy audits for Local Council Buildings	1000
	Conduction of Energy Audits for public gardens and recreational areas	1000

	Perform Actions identified in energy audit for local council buildings, municipal lighting facilities and public gardens and recreational areas	Costs depend on actual actions
	Installation of a 2.4 kWPV system to serve local council building	7000
Tertiary Non- Municipal Buildings		
	Promote energy audits for non-municipal buildings in the locality such as political clubs, band clubs, schools, etc	Supported by Paragon
Residential Buildings		
	Perform Energy audits in a sample of dwellings (including, Social Assisted housing, apartment, free-standing 3 bedroomed house)	Supported by Paragon
	Analyse data from study and present it to the public	Supported by Paragon
	Conduct Public awareness campaign and organise Energy Days to involve wider public. In 2012 this will be supported by Paragon thereafter, it will be conducted by LC (2013 - 2020) at Euro 2000 per annum	16000
Municipal Public Lighting		
	Conduct an energy Audit for municipal lighting facilities in the locality to assess the adequacy of public lighting and identify methods to improve energy efficiency	1000
	Install intelligent street lighting control system in all substations	100,000
Sub-Total		***126,000***
Transport		
	Provide 4 preferential reserved parking spaces for electric, hybrid, or low emission vehicles	1000
	As part of the community awareness campaign raise awareness about the benefits of car-sharing, use of bikes and walking	Supported by Islepact
Sub-Total		***1000***
Land Use Planning		
Carbon sequestration Measures	Conduct a locality survey to identify areas where endemic species of plants and trees can be planted. Survey is to identify possible locations by available areas or number of tress	250

	As part of the community awareness campaign raise awareness about the benefits of having more trees and plants and encourage children to adopt and care for an endemic plant or tree	Supported by Islepact and Paragon
	Undertake a tree planting exercise as identified in the locality survey	est at Euro 4000 per 100 sq km
Sub-Total		***250***
Public Procurement of Products and Services		
	Establish policy so that all equipment purchased by local council is rated as least energy consuming	Support provided by Paragon
	Assist Local Council to prepare templates of documents for procurement services that reflect green procurement	Support provided by Paragon
	Establish policy such that service providers that have recognised environmental policies and independent accreditation are preferred in the selection process	Support provided by Paragon
Sub-Total		***NIL***
Grand Total		*376,050*

* In absence of funds for the Management, Administration and Monitoring the Council is committed to use own resources to manage this, however funds will be sought to ensure that the Council is in a position to implement fully the ISEAP as described.

Financing sources and instruments

The funding for the above actions will be conducted through a combination of initiatives which include a mix of the following:

- Own financial resources to conduct internal management activities
- Third party funding to support certain actions as indicated in the tables above
- Funding through government schemes available directly to the local councils,

- Incentive schemes for the private communities and the retail community available through various agencies such as Malta Tourism Authority, Malta Enterprise, Malta Resources Authority and MRRA
- Access to green loans from the banks
- Public private partnerships which will entail collaboration between the Local Council and the private enterprise

5.5 Monitoring and follow-up

The monitoring envisaged will be conducted as outlined in this section and in line with the monitoring procedures proposed by the Isle Pact project. One of the major difficulties encountered by these communities to adhere to the Covenant of the Mayors has been the funding as well as the monitoring mechanisms required. Paragon together with its team of experts will be assisting each community to put into place a monitoring plan that will ensure that the actions are adhered to. Apart form monitoring the activities, Paragon will also be assisting the Local Councils with other forms of support such as funding alerts (especially funds or grant schemes issued by local authorities for projects, support in the application process, lobbying where necessary); support in the monitoring process by assisting the community to monitor each sub-project as well as by providing the necessary training. In addition Paragon will study with each of the communities a plan for in-house support team that will eventually take over the overall management of the process. The communities will continue to be supported in this manner until all parties are satisfied that the individual communities can take full ownership of the actions.

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