



Adaptation and Mitigation- an Integrated Climate Policy Approach

Report on the Mitigation Scan
City of Venice

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A. Mitigation Scan Venice

1. Situation of the City of Venice

The following data are taken from the energy plan of the City of Venice

1.1 Production of electrical energy and steam

The City of Venice is characterised by the presence of numerous and large power plants in its territory (partly producing combined heat and power). The electrical energy production in 2000 was approximately 12.000 GWh compared to about 7.920 GWh in 1990. This energy was produced with an installed capacity that has increased from 1.539 MW in 1990 to 2.228 MW in 2000.

The graphic shows the consumption of primary energy sources to produce electrical energy (above 1000 ktep) and steam. These are very high figures that can be attributed only partly to the activities in the territory of Venice, because the electrical energy for the most part is exported. The production of electrical energy in 2000 was equal to nearly four times the average consumption, while the relation in 1990 was two to one.

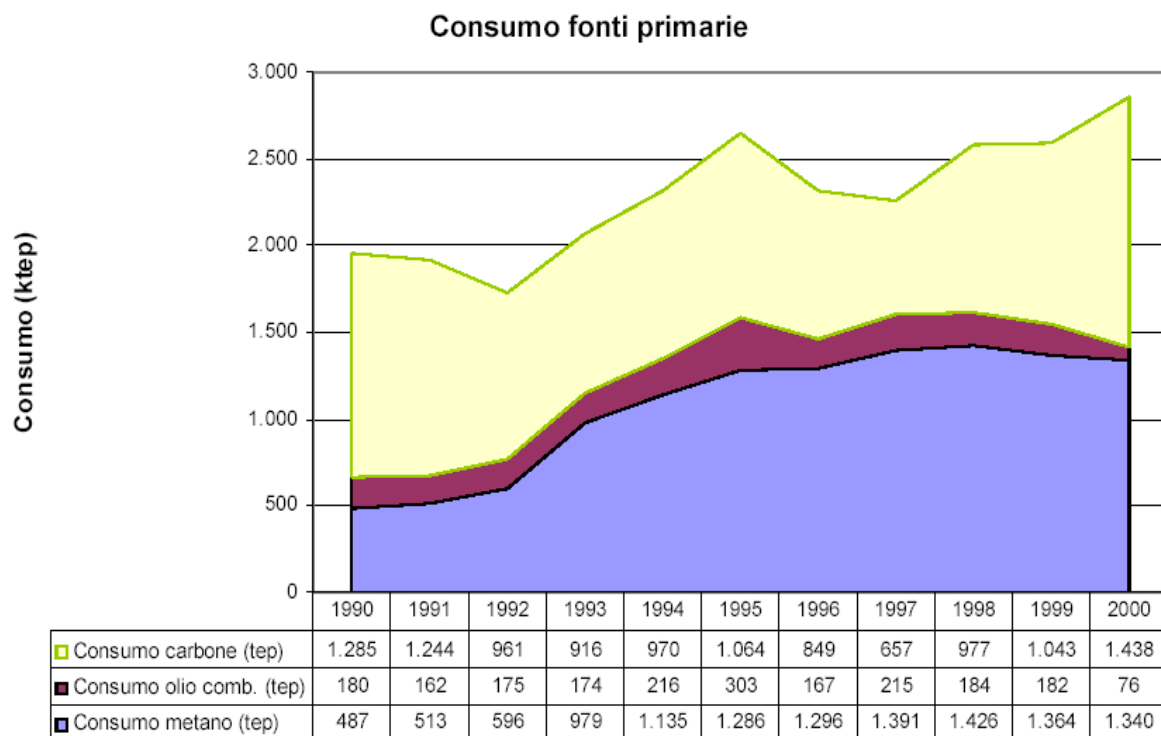


Figura 1 - Evoluzione del consumo di Energia nel Comune di Venezia

The energy production (electricity or steam) involves the consumption of high quantities of fuels, predominantly of coal and methane.

We must note that the quantity of methane is nearly four times higher than the quantity used in the residential, service and production sectors. The case of coal is similar as far as the energetic content is concerned.

The average efficiency of the power stations is obviously influenced by the ENEL stations that are responsible for more than 50% of the total production and have an average efficiency of 36%.

1.2 The emissions of greenhouse gases - CO₂

We analysed the energy system of the municipal territory by means of an historical reconstruction of the energy consumption of the citizens from 1990 to 2000. The details of this analysis permit to look separately at the consumptions of the various sectors of activity (residential, service, productive activities and transports) and of energy vectors used (electric energy, natural gas, gasoline, etc.). The decision to reconstruct the energy consumption for a certain number of years has allowed to identify the dynamics for the different energy vectors and sectors more clearly.

In 2000, the total emissions, as referred to the final energy consumptions, amount to 3.944 kton of CO₂ equivalent. The value of 1995 was 3.984 kton and that of 1990 4.588 kton. We can note that, after a decrease in the early 1990's, the emissions have been stable. If we consider the normalised values, that take into account the climatic conditions and the reduction of the municipal territory, we had 4.040 kton in 2000, so we can note a small increase in the last years (3.907 kton in 1995).

The annual emissions per inhabitant exceed 14 tons, which is about twice the national average.

As for the energy consumption, the biggest share of the greenhouse gas emissions is represented by the production sector, as shown in the next graphic. The present share of the productive sector exceeds 55% of the total because of the high consumption of electric energy. It is the productive sector that leads the large scale dynamic of the greenhouse gases. The share of the other sectors is about 15% each.

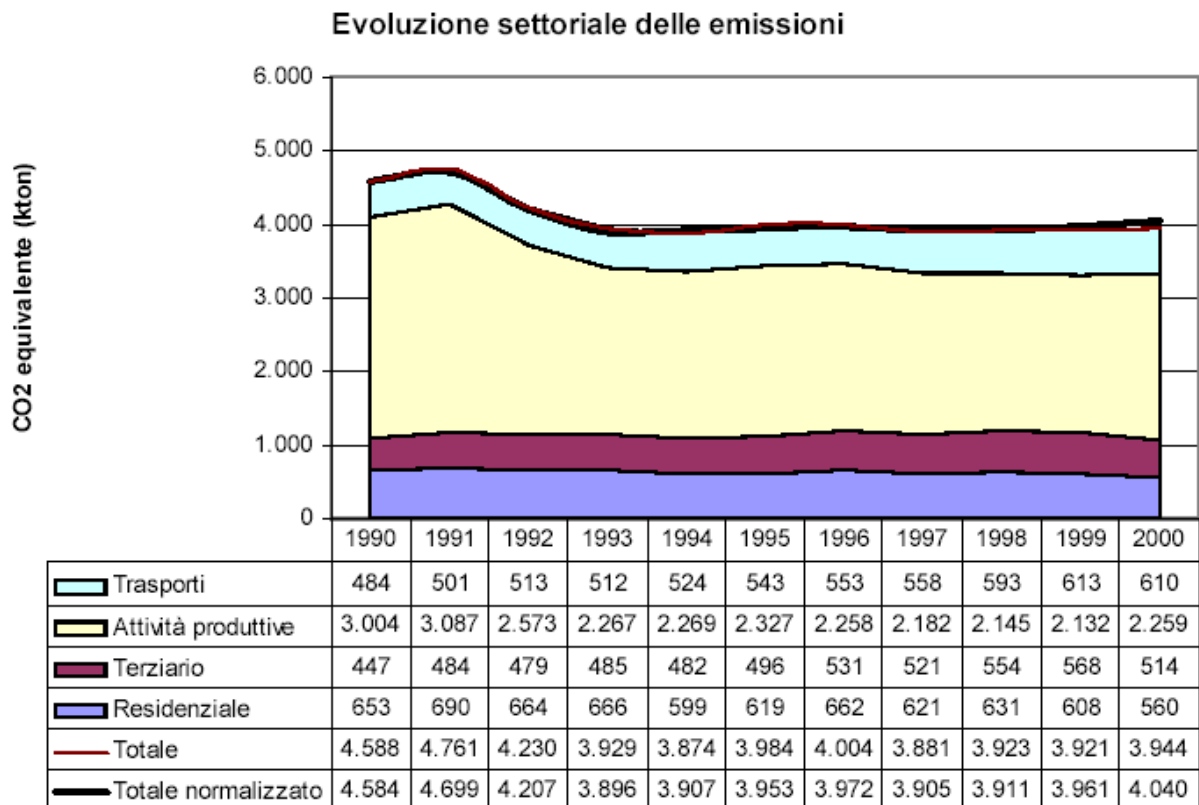


Figura 2 - Evoluzione delle emissioni di CO₂ nel Comune di Venezia suddivise per attività

We can see that the greenhouse gas emissions are dominated by the productive activities which make them very high compared to an average urban context. It is also obvious that the weight of few but substantial productive units can change the present tendency in a short time. This has been the case in the early 90's when some productive activities with high energy intensity were discontinued.

If we exclude the productive sector, we can observe that the tendency of the emissions is more in tune with a "normal" urban reality. In this case, the total emissions related to the residential, service and transport sectors, evaluated with the data of real and normalised consumption, increased during the decade 1990-2000 by 6% for the real data and of 14% for the normalised ones.

In the next graphic, we represented the tendency of the emissions from the thermo-electric power plants in the municipal territory. The increase of these emissions has essentially been guided by the natural gas. However, the share referring to coal remains dominant.

These data are reported separately from the ones analysed before, because they cannot be totally attributed to the city itself, even though they have their origin in its territory. Only the portion of electric energy that is locally produced and consumed is indeed to be attributed to the city; the rest is exported. This principle is being applied also to the share of emissions associated to the imported energy which is obviously attributed to the city.

Emissioni dalle centrali termoelettriche

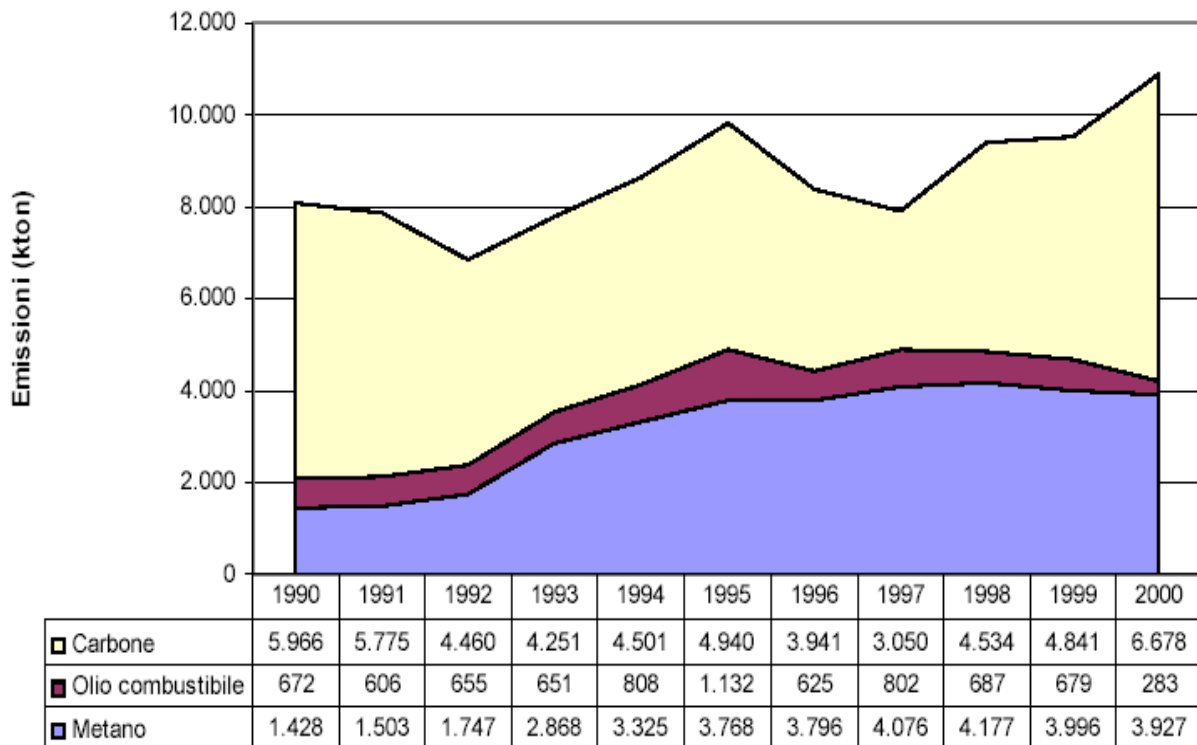


Figura 3 – Andamento delle emissioni dovute a centrali termoelettriche

2. The actions of the City of Venice

The city administration has initiated numerous actions among which the Municipal Energy Plan merits particular attention. The plan has analysed the situation and proposed the best solutions by means of specific sheets.

2.1 Municipal Energy Plan of Venice: state of elaboration

The Municipal Energy Plan of Venice (PEC) has been approved in October 2003. It is composed of several "Action Sheets"; each of them containing concrete proposals meant to reduce energy consumption and energy waste as well as to increase the energy efficiency. The Energy Plan has also been elaborated in order to reduce the CO₂ emissions in the atmosphere.

The updating of the "Action Sheets" will take place between December 2006 and January 2007. In view of this date, an electronic update of all the actions has already started. It concerns the actions already performed, the ones presently in progress, and those that are no longer relevant or for various reasons considered not feasible. Obviously, there are also all the new projects realised directly by the administration or by the companies involved or the Venetian Energy Agency (AGIRE).

2.2 The Actions Sheets of the Energy Plan

In the following, an overview of the action sheets completed that have lead to a reduction of the CO₂ emissions, with their relative state of progress:

N.	Object	State of progress	Promoter
1	Introduction of the variable energy in the building code	Work in progress	AGIRE
2	Introduction of the variable energy among the criteria for permits of industrial settlements	The decision has been taken	City of Venice - Urbanistics Productive Activities, Environment
3	Requirements for criteria of bio-architecture	work in progress	INBAR, ANAB, working group on bio-architecture
4	Long distance heating in Mestre and Marghera	Pre-feasibility by ASM Brescia and AGIRE under evaluation by the City and VESTA	Province of Venice, City of Venice
5	Oxygen-combustion in the glass district of Murano	About to be completed	City of Venice - Productive Activities, Artambiente, SAPIO S.p.A.
6	Criteria of bio-climate and bio-architecture in the building regulation of Campalto	Done	City of Venice - Urbanistics
7	Increasing the energy efficiency of public buildings	Work in progress	City of Venice - Energy Manager
8	Exchange of the warm water tubes in the public buildings	To be verified with the person responsible for the action	City of Venice - Energy Manager
9	Photovoltaic panels on public buildings	Done	City of Venice, AGIRE
10	Solar panels for warm water production on public buildings	Work in progress	City of Venice - Energy Manager
11	Energy autonomy of the student's population	The project is ready and the work has begun	Legambiente, City of Venice, University of Ca' Foscari
12	Green roofs	Done	City of Venice
13	Methane buses	Work in progress: until now, 35 methane buses have been acquired; financial means of the Region of Veneto exhausted for 2006	Actv
14	Blue sticker	Work in progress: in the first 7 months of 2006, 58.617 stickers have been handed out	ASM SpA, City of Venice, Province of Venice
15	Hybrid minibuses	Done	Actv, suppliers of hybrid minibuses
16	Car sharing	Work in progress: 37 cars until now (13 of which are methane run) - 2500 users in the first semester of 2006	ASM
17	Renewal of the public transport vehicle park	Work in progress: about 200 buses have been bought until now; no further regional financial means for 2006	Actv
18	Park and Ride	Work in progress: the planned car parks have been done, there is a project of 6 more car parks; other 8 measures are planned	Actv, Asm, City of Venice
19	System of environmental management for energy saving	Work in progress	City of Venice - Environmental office - Dr Nazzari

20	Project "Cambieresti?" ("Would you change?")	Concluded. A follow-up project "cambieresti energia - 300x70" ("would you change energy - 300x70") in progress	City of Venice/Environment - AGIRE - MAG Venice
21	Courses on sustainable building	Organized in 2005 and 2006	City of Venice/Urbanistics
22	Ecostylar - energy efficient community stimulation by integration and use of local energy	EU project in progress	AGIRE
23	Solar ship	To be evaluated with the persons responsible	City of Venice - Environmental office - Dr E. Caramelli
24	Solar energy on the island of Lazzaretto Nuovo	To be evaluated with the persons responsible	EKOS CLUB - licence taker of the island of Lazzaretto Nuovo
25	Clean heat	Work in progress	AGIRE
26	Woods of Mestre	Work in progress	City of Venice - Office for the Wood of Mestre
27	Biomass long distance heating and air conditioning in Bissuola	Project abandoned by the City in February 2005	La Immobiliare Veneziana, City of Venice
28	"Hydrogen Park" in Porto Marghera	To be evaluated with the persons responsible	Region of Veneto; National Ministry of Environment
29	Systems of high efficiency air conditioning in the new elderly peoples' homes	Done	IRE
30	Energy certificates for the buildings of Venice	Work in progress	AGIRE
31	Municipal illumination plan	Work in progress	AGIRE
32	Reactivation of 6 CHP plants	Under evaluation by the City	City of Venice - Department of public works
33	The use of liquid gas on ships	Work in progress	AGIRE
34	Hydrogen passenger ferries	To be evaluated with the persons responsible	Consorzio Whale - consisting of: Fincantieri, Cantieri de Poli, ACTV, Venezia tecnologie, Hydrogen Park
35	The tram of Mestre	Work in progress: it should be completed by 2009	Actv - PMV
36	Replacement of the merchandise vehicles	To be evaluated with the persons responsible	City of Venice - Mobility
37	City Logistic	Work in progress	City of Venice - Mobility
38	Modernisation of the VESTA vehicle fleet	Done: only 14% of the VESTA fleet are conventional vehicles	VESTA S.p.A.
39	Experimenting biofuels in the VESTA vehicles	Experiment concluded: the systematic use of biofuels in the fleet is planned	VESTA
40	Rephasing of the electric systems in some city buildings	Done	City of Venice - Energy Manager
41	L.E.D. traffic lights	Under evaluation by the City	City of Venice - Department of public works

The content of some of these sheets is specified below:

2.2.1 Integration of the objectives of energy sustainability in other municipal instruments of programming and regulations

Beyond what has already been said in answering point 1, (Sheet n.1: integration of the “variable energy” in the City building regulations; Sheet n.31: planning of the city illumination, both projects in progress of AGIRE) we must mention the Municipal Action Plan for Saving the Atmosphere.

It will be the task of the Environmental Department to check the possibility to integrate this instrument with other instruments of municipal programming and regulations like the Mobility Plan, the Green Public Procurement, etc.

2.2.2 Instruments of simplified administrative procedures

One field of activity will be to study all possible mechanisms to **simplify the administrative procedures that can favour the development of energetic sustainability**. This will be done in collaboration with the Urban Development Department, the General Secretariat and the Citizens Advisory Board.

The recent creation of the “Scientific commission for the reduction of the urbanisation fees and construction costs” is a first example where the fruition of economic benefits occurs with simplified procedures for the citizen.

2.2.3 Voluntary procedures in the field of energy

For this subject, see point 1:

- Sheet n. 20 (project “Cambieresti?” followed by “Cambieresti 300x70” and the recent European project “ECHO Action”) about to be realised by the Environmental Department of the City and by the Energy Agency;
- Sheet n. 30 (energy certification of buildings by the municipality), about to be realised by the Energy Agency;
- Sheet n. 33 (liquid gas for the ferries), about to be realised by the Energy Agency.

2.2.4 Updating of the Municipal Energy Plan

The last updating of the Municipal Energy Plan has been completed at the end of 2004 (with reference to the data of 2003) with the help of the Research Institute AMBIENTE ITALIA, which was also its author. The updating has been presented on the 16th of December 2004 in the conference “*Venice for Kyoto*”.

In order to guarantee continuously the next updating of the energy plan and the quantification of the greenhouse gas emissions at a municipal level without any further costs for the administration, a specific software has been acquired from Ambiente Italia. This software has been transferred to the Energy Agency, accompanied by an adequate training of the personnel.

Because updating the Municipal Energy Plan is quite expensive, as far as the collection of the statistical data as well as their analysis are concerned, the Energy Agency has recently proposed to the Administration to adopt a triennial or quadrennial interval for this process. Given the fact that the last updating has been made up to the end of 2003, the next one could for example represent the data until the end of 2006 and be executed in the second half of 2007, when the data would be available.

We must also highlight the efficiency of the new instrument of the Municipal Action Plan for the improvement of the atmosphere in updating the policies of the Administration in at least two thirds of the subject matters covered by the Energy Plan (the thermal and the transport parts, while the third part of the Energy Plan, that is to say electricity, is more neutral from the point of view of the air quality).

2.3 AGIRE - the Energy Service Company of the City of Venice

The agency **AGIRE** has been founded under the programme SAVE - Regional and Urban Energy Agencies by the European Commission, and is a no-profit association promoted by the City of Venice and by the public environmental utility VESTA. Its task is to monitor and implement the environmental and energy strategies of the City of Venice as defined by the Municipal Energy Plan until 2010, final year of the Kyoto protocol on climate change.

Anticipating considerably the final date of December 2006 for the contract "SAVE", the administrative council of the agency has elaborated in March 2006 an organic proposal to transform the Association (the present juridical status of the Agency) to a Society with Limited Responsibility with its own capital and a capacity to apply for credits. This should strengthen the activities in the public realm of AGIRE as the **Energy Service Agency of the City** and at the same time guarantee its operational capacity on the energy services market in the quality of an "ESCO".

In the following months, the founding partners, City of Venice and Vesta, developed the proposal for the Board of Directors, with the specification of the mission of the new society, the definition of the agreement of governance (with Vesta at 51% of the social capital), the statutes and the business plan.

The change in the Bersani law on competition and liberalisation of August 2006 has made it more difficult to follow the plan elaborated above to put together an activity of an energy agency that works for public entities and activities that are more oriented versus an ESCO market. The project is being re-elaborated under the new technical and juridical situation.

On the alternative to make use of other **ESCOS** for access to the market of the **Energy Efficiency Titles**, see the conclusion of the preceding section.

In general, as far as the Energy Efficiency Titles are concerned, we can observe that the data for 2005 show that the titles put into circulation by the Manager of the Electric Market have exceeded by 80% the national quantitative goals of the same year. The excess of offers for the Energy Efficiency Titles compared to the relatively small demand of the distributors of electricity and gas has obviously had negative effects on their market value. This value is indeed below the tariffs that the distributors themselves obtain (100 euros/Title), and does not leave any significant margin to third operators on the Energy Efficiency Titles market (typically ESCOS). The proposal of an energy law presented in the last weeks by the Minister for Economic Development plans among other things an increase in the annual

rate of obligatory energy savings by the distributors. This would give new life to the market of such an important instrument as the Energy Efficiency Titles. With the present values, the Energy Efficiency Titles will not be able to trigger a decision to invest in energy efficiency because they do not reduce considerably the time of return, but rather constitute an additional benefit (that can oscillate around 10% of the energy saving caused by the investments).

In spite of the current situation on the market, the realisation of concrete projects must continue with the use of highly efficient technologies and renewable energies, even though it is not the best time to launch the Energy Efficiency Titles on the market. In this sense, the competent offices of Public Works of the City of Venice are evaluating several technical projects together with the respective analysis of their economic and financial feasibility. They were presented last year by the Energy Agency AGIRE (retrofitting the whole system of traffic lights with LED lamps; re-activation of 6 mini- cogeneration plants installed in swimming pools and other public buildings; installation of zoning, thermo-regulation and accounting systems for the heating installations of schools and other public buildings).

2.4 The Woods of Mestre

The idea to give Mestre a big periurban forest originated in the City Administration of Venice in the Eighties of the last century.

The goals of the Venetian administration in reconstructing a part of the forest that once covered the Venetian Po Plain (scientifically the “Querco Carpineto Planiziale”) were, to:

- clear the air and treat the water that runs into the Lagoon;
- contribute to the water security of the city of Mestre;
- re-naturalise the territory and increase the biodiversity;
- create a “living laboratory” of environmental monitoring;
- create an area for recreation and free time;
- recuperate the historic memory and strengthen the city identity.

In the early Nineties the Region of Veneto, which is responsible for the water treatment of the Lagoon according to a special law for Venice, has acknowledged the positive value of the idea and has included the Woods of Mestre in its program.

In this period the collaboration between the two public entities led to the creation of the Osellino Woods (9 hectares), which was the first big nucleus of this ambitious project, and to the enlargement of the Carpenedo Woods, which is the last natural testimony of the antic forests of the Venetian plain.

With the new regulation plan of the City, written from 1995 to 1999, the idea of the forest grew into a coherent project. The area defined in the plan has a total extension of over **1300 hectares** and includes some large private and public estates.

In order to achieve its goals, the City Administration has created a specific structure dedicated to the promotion, the realisation and the management of the forest (Office for the Woods of Mestre, by now an autonomous organisation) to which 20% of the income from the fees of new constructions are destined (fees for secondary urbanisation).

In 2003, the City has acquired from the Querini Stampalia Foundation the usufruct of 200 hectares of agrarian land for 30 years and has started to realise with the help of regional funds a forest open to the public.

Today, on this large surface in the north east of Mestre, we can count on about 160 hectares of newly planted woods. The construction of some infrastructural works as well as their use are under way or planned (cycling roads, two small car parks and a visitor centre).

The City Administration, far from being able to realise such a project autonomously, is active most of all in the coordination and creation of a frame of reference, which would encourage the land owners to plant the trees (offering incentives or financial means from other bodies).

In the same area the Consortium Dese-Sile, who is a partner of the City in the planting of the woods, is also planning an important project of requalification of the rivers that run in the territory. The aim is to increase the time of permanence of the waters in the territory and to promote the degradation of nutrients lowering thus the arrival of nitrogen and phosphor in the Venetian lagoon and requalifying contemporaneously the environment. The wetlands created will be used, together with the forest, as an overflow area in case of flooding, protecting thus the living quarters of Mestre and Favaro Veneto.

The planting of a significant part of the forest on agricultural land of private property as well as the environmental requalification should act as a multiplier that starts off a virtuous process of environmental, social and economic improvement involving other subjects (public bodies but also private citizens and farmers).

A further effort to promote a “culture of the forest” will be the study and development of:

- initiatives of communication and complementary activities directed at the citizens but above all at the farmers (for the wood-energy chain, forest production, tourist and recreative attractions) that show the advantages of the forest and of differentiating the agricultural production.
- collaborations with the scientific institutions involved in research on the Woods of Mestre.

3. Mitigation Scan

The analysis of the actions undertaken by the Administration of Venice was done on the 23rd of October 2006 in the Osservatorio Naturalistico of the Lagoon.

The meeting was divided into two parts: the morning was dedicated to the presentation of the Woods of Mestre with the activities of reforestation done around the city of Mestre; in the afternoon there were presentations and illustrations of other activities of the Administration in the field of energy, in particular the project “Cambieresti” and some activities in the context of the Municipal Energy Plan.

The discussion continued with the presentation of the matrixes *Energy and Forestry* that follow.

Matrix ENERGY

ENERGY					
Step:	1: getting started	2: moving forward	3: forging ahead	4: taking the lead	
A	Define your energy policy and adopt targets	Define fundamental objectives of your energy policy	Lay the ground for your energy policy, formulate the action programme	Adopt detailed targets for individual sectors or subjects	Adopt the target: 100% renewable!
B	Institutionalise your energy policy	Define responsibilities and allocate staff	Install cross-sectoral cooperation structures within the administration	Involve municipally owned companies in the energy policy	Install a local/regional energy agency
C	Use innovative financing schemes	Inform yourself about national and European funding opportunities	Identify first buildings for energy performance contracting (EPC)	Analyse results of your first contract and potentials for enlargement to additional buildings	Reform financial framework conditions to facilitate internal EPC and apply it to all public buildings
D	Bring your own facilities up to scratch	Check selected own facilities in terms of energy use and saving potentials	Establish energy performance standards for municipal buildings	Install an energy management system for all municipal buildings, including energy audits	Improve energy performance standards for public buildings
E	Become a model for sustainable energy use	Define a package of sustainable energy measures with low initial investment or very short pay-back time	Define a package of sustainable energy measures that require higher initial investments	Purchase green electricity to supply a portion of your energy demand	Resolve upon the continuous progression of the share of green electricity
F	Provide "green" public lighting	Analyse potentials for immediate savings in public lighting	Formulate a public lighting policy plan focussing on energy efficiency	Purchase green electricity for public lighting	Implement the policy plan and move forward to 100% RES target for your public lighting network
G	Support the implementation of renewable energy projects	Generate a share of your municipality's electricity and/or heat demand in own RES plants	Set up a land register for the potentials of RES use	Create an offer of green electricity for your citizens	Implement a long term action programme for RES and CHP to achieve a 100 % community
H	Inform and involve the citizens	Inform the citizens about your energy policy and give hints for own contributions	Install a local energy advice centre	Organise targeted campaigns on energy efficiency	Mainstream energy in education and professional training
I	Refurbish existing housing stock	Inform house-owners about the potentials to increase energy efficiency of their building	Collect data and set up a land register for energy use in the housing stock	Label the housing stock according to their energy efficiency and offer targeted advice and recommendations	Set up a loan programme for retrofitting the housing stock in terms of energy efficiency
J	Work on green office buildings	Promote your energy management system towards external companies	Investigate an establish energy performance standards for offices	Set up demonstration projects	Establish energy forums and offer energy performance services
K	Work with SMEs	Inform and consult local companies and organisations on energy efficiency and RES	Work with the Chamber of Crafts on branch specific measure recommendations and campaigns	Offer specific training for craftsmen, technicians and engineers	Give financial support to business activities on sustainable energy use
L	Collaborate with "powerful" partners (large-scale energy consumers)	Inform large-scale energy consuming companies about your energy policy	Address corporate clients with targeted advice	Set up agreements on the use of RES in plants/sites of such companies	Set up a joint project on efficient energy use (cogeneration, industrial waste heat, etc.)
M	Monitor your progress	Check data availability and define indicators	Monitor CO2 reduction impact of individual measures and report, incl. own facilities	Prepare a rough CO2 inventory every two years and publish it in a report, including the indicators	Monitor your CO2 emissions in detail every year and publish the full set of indicators



Matrix FORESTRY

A cura di:
Francesco Boldrin



FORESTRY					
	Step: 1: getting started	2: moving forward	3: forging ahead	4: taking the lead	
H	Assign a place to forest in your land use planning	Take stock of the forests in your municipality and their relevance for recreation, local economy, etc.	Design the development for the forests in your area	Consider afforestation in local planning, also in urban areas	Include avalanche forest and nature orientated recreational forest areas in land use planning
I	Improve the municipal forest management	Improve the stability of your forests	Consider hunt activities as forest conservation and development	Reorganise your forest as nature oriented as possible	Let your municipal forest get certified according to FSC-Standard
J	Involve private forest owners	Organise an information campaign on sustainable forest management	Support regional wood processing	Promote FSC-Certification towards private forest owners	Set up co-operations with private forest owners on sustainable forest management
K	Use the forest as renewable energy source	Promote the energetical use of wood in private homes	Set up wood-harvesting schemes for individuals in your forests	Support / set up local biomass power stations	Promote / support regional marketing and distribution structures for wood
L	Use the forest as a place for education	Present exhibitions, offer guided tours in the your forest	Organise tree-planting actions with citizens	Develop a pedagogic programme on forests and forestry for schools	Assign municipal staff for forest pedagogics and environmental education activities



Climate Alliance - Klima-Bündnis - Alianza del Clima: CLIMATE COMPASS / Compendium of Measures 2006

B. Identification of additional measures

1. Andreas Drack, Upper Austrian Academy for the Environment and Nature “Energy management for public buildings”

Energy management in public building gives a chance to lower costs and contribute to climate protection. Numerous examples in German speaking countries show (for example City of Stuttgart, Region of Upper Austria) that organising a central energy management brings economic benefits even if the costs of the managers are included. The management system should include the following features:

- Centralised responsibility by an energy manager, who co-ordinates the central database by means of a standardised energy accounting tool. The data have to include energy relevant information of the buildings (heated area, U-values, geometry information, energy sources and facilities) and the annual energy consumption.
- Annual reports about the situation and measures. The data are a base for fixing and controlling political goals. For instance to show how the public sector contributes to the goal of minus 9% energy consumption of the energy efficiency directive. The reports should be discussed in the local parliament.

From an economic point of view the centralised energy management provides a lot of chances:

- Better economic conditions for energy-prices by pooling.
- Basis for contracting and in-tracting solutions. Measures with low pay back times can be financed externally(contracting) or internally (in-tracting). The saved energy costs are used for the refinancing.
- Basis for public awareness programmes to promote the right behaviour in saving energy in schools. The pupils get incentives if the energy demand is lowered by right behaviour. In Germany the program is well known under the synonym "Fifty-Fifty")

2. Andreas Kress, Climate Alliance Europe "Life-line"/Shore-side electricity for the harbour”

On-shore power supply for ships should be promoted, which means establishing a connection between the ships and shore-side electricity so that they can shut off their auxiliary engines.

While being docked at ports, ships turn off their propulsion engines but continue using their auxiliary engines for equipment like refrigeration, lights and pumps. These engines are mostly powered by high-sulphur marine heavy fuel oil, which leads to significant emissions of air - and also noise - pollutants and in the consequence to risks for human health and the environment. Up to now, the municipal legislation on emissions does not relate to ships, and so, in the European Union, ship emissions are higher than

other land-based transport emissions. E. g., SO₂ - emissions in the waters of the European Union are to be expected to account for 75% of all emissions from EU land-based sources in 2010.

Following different models, CO₂-, SO₂- and NO_x-emissions could be reduced between 70-80%. At the same time, a Swedish study by MariTerm found out that, though direct costs of shore-side electricity are higher than generating the electricity on board, if the indirect costs are taken into account, the on board-model is 15 to 75 times more expensive than the "life-line"-concept that connects ship and shore. Another study by American ENVIRON also states that for vessels of high power consumption and high port frequency it would be cost-effective to use shore-side electricity and that it would cut down their emissions significantly.

Some encouraging experiences of the use of shore side electricity have already been made, for example at the ports of Seattle, Los Angeles, Gothenburg and currently during a pilot project in Lübeck. If the ships additionally obtained release from electricity taxes then shore-side electricity would be even more attractive from an economic point of view. It is also recommended to install common international standards for shore-side electricity systems, if a wide-scale application of such systems is aspired.

However, this measure is not totally free of problems - e. g. it requires a certain amount of rebuilding in the ports -, but in the long run it provides a win-win-situation for cities, port operators, ship owners and the environment.

3. Lianda Sjerps, Climate Alliance Netherlands “Involvement of private business”

Encourage business companies to invest in local forest and landscape. Thus, they can buy their (voluntary) CO₂ compensation for the emissions they produce as a company. All local business companies (and local individuals, too) could buy CO₂ credits to be invested in the local forests. Companies to be asked first are those that have a good relationship with the local government, a high visibility or high impact on climate change. For example the energy company ENEL, and the companies that build high ways and roads might be the first ones to encourage to buy trees for compensation of the CO₂ emissions. By doing this, funds are raised from the green plains of Venice and the companies themselves have a better PR towards the public.

You can enlarge this scheme to add little green spaces in the city centre itself. Using walls and roofs for little gardens, it does not need a lot of open space. Thus the people can earn green points and a better living environment.

4. Karl-Ludwig Schibel, Climate Alliance Italy “Do not give up the option of using the biomass from the Mestre Woods for the combined production of heat and power”

The forestation and reforestation measures in the “Mestre Woods” would find their ideal correlate in the construction and functioning of one or more small CHP biomass plants. This obvious idea of closing the cycle with the production of electric energy and heat from wood has encountered some resistance among the resident population. It seems a pity to abandon the project because of this quite foreseeable

spontaneous reaction of the citizens of the territory. Foreseeable because while the renewable energies encounter a strong support in the general population – nobody anymore is explicitly against them – biomass occupies a special position. According to a report from Eurispes from January 2007 only 12% agreed strongly with the use of biomass, the lowest percentage of all, but more than half were undecided on the issue, while less than 10% were strongly opposed. This means there are few that spontaneously are in favour of the use of biomass or strongly opposed to it and there is a large group in between that does not know how to respond and it is them that have to be listened to, trying to gain their support.

Experience shows that the initial resistance to biomass plants can be overcome in a sensitisation campaign that demonstrates the improvements in air quality that can be obtained substituting single household burners with a centralised plant and reassuring the residents that the plant will not be used for burning waste. ITABIA (Italian biomass association) or a similar organisation can be helpful in mounting the campaign.