

ENERGY	<u>A:</u> Define your energy policy and adopt targets	ENERGY	<u>A:</u> Define your energy policy and adopt targets
<u>A1:</u> Define fundamental objectives of your energy policy		<u>A2:</u> Lay the ground for your energy policy, formulate the action programme	
<p>Develop an ENERGY MASTER PLAN to perform in the municipality an active, coordinated energy policy.</p> <p>Major actions for a successful energy policy are:</p> <ul style="list-style-type: none"> ✓ Evaluating the municipality's energy <u>demand</u> and comparing it with other European cities reference levels ✓ Promoting <u>energy saving actions</u> both for the private and public sector ✓ Promoting <u>energy efficient</u> technologies and <u>rational use</u> of energy (RUE) ✓ Applying CO2 emissions <u>restrictions</u> to new or renovated buildings ✓ Promoting <u>renewable energy</u> sources aiming at energy independence ✓ Reducing considerably <u>GHG emissions</u> 		<p>Develop the energy plan in practice, defining concrete actions to short, middle and long term according to the special features and potentials of your city.</p> <p>Main steps of an energy action plan should be:</p> <ul style="list-style-type: none"> ✓ Organising campaigns for the rational use of energy ✓ Setting up energy efficiency <u>standards</u> for public and private buildings referring to the EU-Directive ✓ Analysing the local energy <u>supply</u> vs. energy <u>demand</u> matching – both for the electric and thermal sector ✓ Evaluating energy <u>saving</u> potentials and defining energy saving targets ✓ Evaluating the <u>renewable energy</u> local potential and defining the targets for the integration of renewable energy sources in the local energy supply system ✓ Defining of <u>indicators</u> and so monitoring the power consumption ✓ Carrying out an energy <u>monitoring</u> system 	
ENERGY	<u>A:</u> Define your energy policy and adopt targets	ENERGY	<u>A:</u> Define your energy policy and adopt targets
<u>A3:</u> Adopt detailed targets for individual sectors or subjects		<u>A4:</u> Adopt the target: 100% renewable!	
<p>According to the European best practice cases and to your municipality's potential define your targets in each field.</p> <p>Define your aims in reference to periods of time like 5, 10, 50 years. Allow renewable energy production in municipal properties as leading examples: photovoltaic panels on public buildings or wind turbines on municipal land.</p> <ul style="list-style-type: none"> ☆ Graz, Austria Global reduction emission target: 60% by 2010. By carrying out the "Eco-City 2000 programme – on the way to sustainable city development", the City of Graz has used an integrated concept considering the many aspects of the ecologically relevant issues. In such a way Graz has achieved its high objectives and is now among the leading municipalities for climate protection policy and for emissions reduction. ☆ Leicester, United Kingdom The city committed to 50% reduction in energy consumption by 2025 and to supply 20% of its energy needs from RES by 2028. ☆ Barcelona, Spain The Barcelona Solar Thermal Ordinance represents a major milestone in urban energy policy. The ordinance requires all new buildings above a certain size category to provide at least 60% of their domestic hot water energy demand from solar thermal collectors. Swimming pool heating must be 100% from solar. 		<p>Commit your city through a political resolution, to produce or obtain a supply of 100% renewable energy</p> <p>Examples of steps to take are:</p> <ul style="list-style-type: none"> ✓ Reducing energy demand drastically, through energy saving campaigns, energy pass regulations, emissions limits, etc. ✓ Energy efficiency policy for private and public buildings, industry and agriculture ✓ Free consulting desk for rational use of energy available for citizens ✓ Evaluating all possible renewable energy sources in your area ✓ Using combined heat and power generation fuelled with biomass ✓ Integrating many different energy sources to avoid dependence on one single source <ul style="list-style-type: none"> ☆ Växjö, Sweden. The municipality committed itself to reducing the CO2 emissions registered per inhabitant in 1993 by half by the year 2010. Växjö is also an EU pilot partner for 100% RES achievement. ☆ Bruck in the Leitha, Austria The "Environmental Town Bruck/Leitha" has a long-term oriented programme. The town committed to massive energy consumption reductions, through energy efficiency measures, and to 100% RES conversion. 	

ENERGY	B: Institutionalise your energy policy	ENERGY	B: Institutionalise your energy policy
B1: Define responsibilities and allocate staff		B2: Install cross-sectoral cooperation structures within the administration	
<p>Organise your municipality in such a way that the responsibilities, in energy matters, are clear and well defined</p> <ul style="list-style-type: none"> ✓ Establish an <u>energy committee</u> with decisional power on all relevant questions regarding energy policy and energy activities. Financial, juridical, political and technical responsibilities are be defined and strategically allocated. ✓ Organise <u>round tables</u> with communities' representatives. ✓ Nominate an <u>energy referent</u> in every department or working group dealing with matters related to energy consumption. For example: <ul style="list-style-type: none"> - in the construction department an energy expertise should care about energy regulations in new and refurbished buildings; - in the waste disposal (environment) department the energy expertise should care about energy potential of landfill gas and/or incinerators ; - in the agriculture/land use department an energy expertise should be surveying the biomass potential of the area. 		<p>Cross-sectoral cooperation between different areas of the same municipality's administration is the precondition for a successful energy policy on the local level.</p> <p>When discussing an issue, technical, as well as socio-economic aspects, should be taken into account with help from qualified partners able to list pros and cons for every option and to find out the most suitable solution.</p> <p>The use of such an approach leads to a coherent and effective framework growing and developing through mutual exchange of information and experiences.</p> <p>Political and institutional forums, in which energy play a key role, offer the chance to establish a cooperation on different levels.</p> <p>Interdisciplinary committees should be formed gathering representatives of different fields such as building & construction, environment, health, mobility, forestry, waste and water management, etc.</p> <p>Example 1. Building energy certification: To make the building certification having good impact you need to have good level of communication and cooperation between the department of Energy, Urban planning, Housing and Economic development.</p> <p>Example 2. Biomass district heating: To carry out the installation of a biomass plant the departments of Energy, Civil engineering, Land use and Economic development need to work in close collaboration.</p>	
ENERGY	B: Institutionalise your energy policy	ENERGY	B: Institutionalise your energy policy
B3: Involve municipally owned companies in the energy policy		B4: Install a local energy agency	
<p>Gain the commitment and the collaboration of the municipal companies and services.</p> <p>Possible partner companies in your energy policy can be:</p> <ul style="list-style-type: none"> ✓ the municipal transport company ✓ the local company of water processing and water provision ✓ the municipal sewage service ✓ the public utility companies <p>A global approach to the local energy management is crucial for the sustainable development of the municipality.</p> <p>Example1.</p> <p>A close cooperation with electricity and gas utility is necessary especially for the promotion of RES, CHP and long-distance heating.</p> <p>Example2.</p> <p>If you want to produce biogas from waste water you need to agree with the municipal sewage service to assess, to plan and to realise the project.</p>		<p>Region, county and district authorities can agree to establish an energy agency for the local energy management.</p> <p>The regional energy agencies are aimed at promoting the efficient use of energy and renewable energy sources in their own regions.</p> <p>Most energy agencies have been established with the basic funding granted by the EU SAVE Programme which aims to support the start-up phase.</p> <p>Technically qualified staff should be part of the agency and attend to the fulfilment of the main tasks:</p> <ul style="list-style-type: none"> ✓ Assisting local councils in their energy plans and strategies for energy efficiency ✓ Organising of training and further training for the administration's staff responsible for the energy management ✓ Organising the local energy consulting service ✓ Providing an updated energy data base of the most efficient electric appliances as well as heating/cooling systems ✓ Realising local demonstration projects <p>You can find EU SAVE project info at: http://europa.eu.int/comm/energy/</p>	

ENERGY	C: Use innovative financing schemes	ENERGY	C: Use innovative financing schemes
C1: Inform yourself about national and European funding opportunities		C2: Identify first buildings for energy performance contracting (EPC)	
<p>There are programmes of the European Union for intelligent energy use and renewable energy sources use, which finance international projects, events, and the start-up of local or regional agencies in 4 main fields:</p> <ul style="list-style-type: none"> ✓ Energy efficiency in buildings and industry (SAVE) ✓ Promotion of RES for electricity, heat, and biofuels (ALTENER) ✓ Energy aspects of transport, fuel diversification, biofuels and energy efficiency (STEER) ✓ Initiatives relating to the promotion of renewable energy sources and energy efficiency in the developing countries (COOPENER) <p>More info at: http://europa.eu.int/comm/energy</p> <p>These programmes include, for example: creation of certification and labelling systems; monitoring of market conditions; promotion of sustainable energy; spreading of best practice; efficient building etc.</p> <p>Self Financing through Contracting:</p> <p>Energy Performance Contracting (EPC) is a form of 'creative financing' for capital improvement which allows funding energy upgrades from cost reductions. Under an EPC arrangement an external organisation (Energy Service Company- ESCO) implements a project to deliver energy efficiency or a renewable energy project and uses the stream of income from the cost savings, or the renewable energy produced, to repay the costs of the project, including the costs of the investment.</p> <p>More info at: http://energyefficiency.jrc.cec.eu.int/ESCO/esco.htm</p>		<p>Let your energy office together with the building department prepare a list of municipal buildings in which an energy performance contracting can be convenient.</p> <p>The suitable buildings can be selected through:</p> <ol style="list-style-type: none"> 1) Preliminary audit of eligible buildings 2) Detailed audit of a few selected sample buildings 3) Computer simulation of heat loss and energy savings potentials for the selected buildings 4) A database created from the results of the preliminary energy audit. <p>The EPC feasibility can this way be assessed. An accurate analysis of the potential energy savings and an economic evaluation are essential in order to forecast the actual energy cost savings.</p> <p>☆ An excellent example of planning a wide energy saving action through contracting is the Municipality of Sofia with the project "Energy Efficiency Action Plan for Buildings in Bulgaria" in which 300 public buildings were scanned to assess energy consumption; identify appropriate energy conservation measures; and prepare a long-term energy conservation plan that defines the necessary financing, the possible financial resources, and the implementation steps for the selected measures.</p>	
ENERGY	C: Use innovative financing schemes	ENERGY	C: Use innovative financing schemes
C3: Analyse results of your first contract and potentials for enlargement to additional buildings		C4: Reform financial framework conditions to facilitate internal EPC and apply it to all public buildings	
<p>Use the success achieved by your first contracting projects to improve other projects.</p> <ul style="list-style-type: none"> ✓ Define parameters to select best results through economical, environmental and social criteria. ✓ Assess then the possibility to perform EPC project in buildings with similar use. ✓ Advertise your successes to citizens and potential new investors, through news papers, local radio, local TV and Internet. ✓ Include in your EPC pool also projects that, even if environmentally interesting, are economically less profitable, so that different actions have the opportunity to be performed and the overall project is still economically advantageous. <p>☆ In Berlin the success of consecutive projects motivated other public institutions to carry out new projects. The urban development and the environment departments together with the Berlin energy agency carried out the "Energy Saving Partnership" initiative.</p> <p>The energy efficiency measures realised are:</p> <ul style="list-style-type: none"> ✓ Heating and power stations from RES ✓ Combined heat and power generation (CHP) ✓ Efficient lighting systems ✓ Load management ✓ Hot water supply from RES 		<p>100 % of investments will be financed through energy savings; integration of Ecological investment funds.</p> <p>This financing system is based on contracting, but operates with the council budget or with the citizens' investment funds, the energy cost savings will be paid to the investors as profits.</p> <p>Once the initial investment is paid back , funds are available to perform further measures.</p> <p>The Energy Management Department adopts the role of contractor and is responsible for technical and economical analysis, forecasting and monitoring.</p> <p>The city's Building Department awards contracts to selected qualified Energy Service Companies.</p> <p>☆ The Energy Department of Stuttgart, Germany introduced the "internal contracting (intracting)" model together with the City Treasury. This financing system takes up the idea of contracting, but operates exclusively with the budgetary funds of the city.</p> <p>☆ A good example of involving directly citizens in sustainable development projects, as investors who can also take advantage of the project successful results, is the "Citizens' Solar Power Station" in Cologne, Germany. A "Solar and Save Contract" was signed with capitals coming from citizens, bank credits and sponsorships.</p>	

ENERGY	<u>D:</u> Bring your own facilities up to scratch	ENERGY	<u>D:</u> Bring your own facilities up to scratch
D1: Check selected own facilities in terms of energy use and saving potentials		D2: Establish energy performance standards for municipal buildings	
<p>Perform, through expertise staff and together with your environmental department or the local energy agency, a systematic analysis of the municipal facilities aiming to identifying potentials for energy savings as well as for the improvement of energy efficiency.</p> <p>Eligible buildings for energy checks can be:</p> <ul style="list-style-type: none"> ✓ Buildings of the municipal administration ✓ Municipal schools ✓ Sport facilities ✓ Cultural facilities (municipal theater, cinema, conference hall, etc.) ✓ Neighbourhood association centres, etc. <p>Buildings Energy Rating</p> <p>By gathering the annual energy consumption for the selected buildings, it is possible by means of dedicated computer tools to quickly estimate the specific demand and to compare the building's levels to those of other buildings having the same or similar use. In comparison to efficient buildings standards – Nation or Europe wide - is then possible to define saving potentials both energetically and economically.</p>		<p>Setting of minimum standards in new and existing buildings.</p> <p>In Europe 40% of our energy use is consumed in buildings, more than by industry or transport. There is great potential for energy savings in this field, often at little cost.</p> <p>The Energy Performance of Buildings Directive 2002/91/EC provides for the application of minimum standards of energy efficiency to buildings in every country in the EU and the creation of a certificate to inform buyers or tenants of the energy performance of the building they hope to occupy.</p> <p>The standards should be set in a flexible way so that architects are able to meet energy efficiency requirements in the most cost-effective way and can be expressed in simple energy indicators.</p> <p>They are to be adopted by the Member States individually for the different categories of buildings and take into account climatic differences.</p> <p>A differentiation may be made between standards for new and for existing buildings.</p> <p>Integrated standards will be formulated for: insulation, heating, hot water, cooling, ventilation, built-in lighting, heat recovery, passive & renewable energy installations, indoor climate, position and orientation of the building.</p> <p>Standards will be periodically reviewed to update on technical progress</p> <p>☆ 124 European towns and cities of 21 countries participate in the display campaign (www.display-campaign.org) whose aim is to encourage local authorities to publicly display the energy and environmental performances of their public buildings.</p>	
ENERGY	<u>D:</u> Bring your own facilities up to scratch	ENERGY	<u>D:</u> Bring your own facilities up to scratch
D3: Install an energy management system for all municipal buildings, including energy audits		D4: Improve energy performance standards for public buildings	
<p>The energy consumption should be constantly monitored to allow optimisation of the installed systems and achievement of possible savings.</p> <p>Perform Energy Management</p> <p>Perform an up to date inventory of the available user's energy data so that the consuming profile is always supervised and eventual increases or anomalies in the energy use are immediately detected.</p> <p>Perform Buildings Energy Audits</p> <p>Perform an accurate evaluation of the building heating and cooling loads to work out the building energy performance and to assess economically and technically the potential energy savings in terms of renovations measures or more efficient systems alternatives.</p> <p>Refer to the Eco-Audit and EMAS directions: http://europa.eu.int/comm/environment/emas/about/summary_en.htm</p> <p>☆ Rosengårdsskolen School, Odense, Denmark: it has managed to reduce its energy consumption by nearly one quarter, by implementing straight-forward, cost effective improvements achieving a payback of only four years.</p>		<p>According to the EU Directive on the energy performance of buildings, energy performance standards for public buildings will be reviewed at the most every 5 years to update them on technical progress.</p> <p>Take the political decision and make a local plan to conform new buildings to low energy or passive house standards.</p> <p>The new standards for buildings should focus on the following requirements:</p> <ul style="list-style-type: none"> ✓ Excellent heat insulation of all building components ✓ Avoidance of heat bridges ✓ Compact building form ✓ Airtight building construction ✓ Controlled ventilation <p>Support and promote low energy building through advantageous building regulations for energy efficient houses.</p> <p>☆ The City of Frankfurt am Main, Germany, has carried out the project: "energy efficiency in public buildings" reaching 54% energy savings, with a pay back of 8 years for the initial investments.</p>	

<p>ENERGY</p>	<p>E: Become a model for sustainable energy use</p>	<p>ENERGY</p>	<p>E: Become a model for sustainable energy use</p>
<p>E1: Define a package of sustainable energy use measures with low initial investment or very short pay-back time.</p>		<p>E2: Define a package of sustainable energy use measures that require higher initial investments.</p>	
<p>Examples of cost effective measures are:</p> <p><u>Improving the lighting system</u> through:</p> <ul style="list-style-type: none"> · accurate maintenance (up to 40% saving possible with very low cost) · use of reflectors (up to 50% saving with very low cost and short payback) · use of day light (up to 75% savings, with very low cost and short payback) <p><u>Avoiding stand-by loads</u> through:</p> <ul style="list-style-type: none"> · automatic central on-off or plug-in timers (11% savings in offices with very little investment) <p><u>Central heating</u> through:</p> <ul style="list-style-type: none"> · Boiler replacing (only when requested). Modern condensing boilers have up to 35% improved efficiency. · Pumps replacing: better motor and adjustable power make pumps save considerably. · Better system control: Internal temperature and zone sensible control can lead up to 30% savings with a fairly low investment. · Hydraulic adjustment of the heat flow regulation system to get a correct distribution of the heat/cool loads (up to 20% savings) · Isolation of warm water pipes (up to 10% savings) <p><u>Cogeneration - CHP:</u> It is suitable when a base, constant load is to be supplied all over the year, in this case, it has got a very short pay-back time and leads to important energy-cost reductions.</p> <p>Get information on the EU Green Building Programme: http://energyefficiency.jrc.ecc.eu.int/greenbuilding/ Or on EU-small scale CHP plants: www.cogen.org/cogen-challenge</p>		<p>When more financial resources are made available by the energy savings you can move on with more significant investments:</p> <p><u>Thermal solar plant installation:</u> 60% of the annual energy requirement for water heating can be covered. Pay back time varies depending on several factors as local sun insolation, size of the plant and most of all on efficient installation and maintenance. In optimal conditions, the pay back time can be as low as 4 years or even less.</p> <p><u>Building heat insulation improvements</u> – like roof or walls insulation, droughts reduction, double glazing, can lead to a massive heat load reduction, but should be performed during building renovation or at best during the building process itself, in this case the payback time is reduced to a few years.</p> <p><u>Biomass central heating:</u> especially in northern European countries, wood fired heating appliances are suitable. The technology is nowadays advanced; reaching low gas emission standards and efficiencies up to 80%.</p> <p><u>Geothermal:</u> use geothermal heat pumps (GHP) when suitable, for heating and cooling loads. Geothermal heat pumps offer high efficiency and low operating cost. They use the relatively constant temperature of soil or surface water as a heat source and sink for a heat pump.</p> <p><u>Photovoltaic:</u> Installation of PV systems on roofs: it is a well developed technology and its costs have been rapidly sinking in the last 15 years. However it still requires a significant investment, that's why the installation of such systems should be performed only after a strong reduction of electricity demand to minimise the amount of power to be installed.</p>	
<p>ENERGY</p>	<p>E: Become a model for sustainable energy use</p>	<p>ENERGY</p>	<p>E: Become a model for sustainable energy use</p>
<p>E3: Purchase green electricity to supply a portion of your energy demand</p>		<p>E4: Resolve upon the continuous progression of the share of green electricity</p>	
<p>✓ Inform yourself about certified green electricity suppliers</p> <p>The European Green Electricity Network (EUGENE) has defined a Standard, that provides energy suppliers and consumers with sets of criteria (like: RES mix, environmental impact, additional benefits) by which to judge the environmental quality of 'green energy'. You find detailed information at: http://www.eugenestandard.org/</p> <p>✓ Buy a portion of your energy demand from a green electricity supplier</p> <p>Select a group of public buildings - schools, administration buildings, etc. <u>where you have already performed energy saving measures</u>. Commit to supply the remaining energy demand with green electricity. Make then an assessment of the costs and compare the energy costs before performing the rational energy measures (demand reduction) and after the green electricity supply start.</p> <p>When joined to energy efficiency, green electricity can be competitive!</p> <p>✓ Advertise your results to find potential partners and sponsors for you next goal.</p> <p>☆ The City of Darmstadt (Germany) supplies 29% of its electricity demand (from 33 schools, 23 kindergartens and the municipal administration) with green electricity.</p> <p>☆ The City of Heidelberg (Germany) since April 2001, a quarter of the city's electricity demand is supplied by renewable energy sources. The Eco-power is supplied from the public utility "Heidelberg AG" and is certified by the association "Verein Grüner Strom Label"</p>		<p>✓ Make your buildings ready to purchase 100% RES. Become a model for strong energy consumption reduction.</p> <p>✓ Adopt high efficiency standards.</p> <p>✓ Commit your Municipality to the gradual acquisition of renewable energy up to 100% RES purchase.</p> <p>☆ The municipality of Rennes, France. being involved already for 20 years in sustainable energy management projects, Rennes established in 2001 an "energy" working group, whose mission is to design, apply and evaluate a package of measures aimed at converting the city to 100% RES. http://europa.eu.int/comm/energy/en/renewable/idae_site/depoly/mapa_siete.html</p> <p>☆ The municipality of Powys, United Kingdom: the local energy agency has undertaken an ambitious work programme aimed at the design and implementation of a renewable energy development plan for the period 2000-2010. Info: http://www.mwea.org.uk/</p> <p>☆ County of Fürstentfeldbruck, Bayern, Germany: made up in April 2000 the "Energy Resolution of the County of Fürstentfeldbruck" to bring the County to get 100% supplied with RES by 2030. Info at: http://www.managenergy.net/conference/res0504/baindl.pdf</p>	

ENERGY	E: Provide "green" public lighting	ENERGY	E: Provide "green" public lighting
F1: Analyse potentials for immediate savings in public lighting		F2: Formulate a public lighting policy plan focussing on energy efficiency	
<p>Evaluate public lighting current conditions</p> <p>With the data gathered from your energy provider and through the support of expertise of the local energy agency, evaluate the state of the art of your street lighting systems:</p> <ul style="list-style-type: none"> ✓ energy consumption ✓ load daily and weekly profiles ✓ equipment used in public lighting ✓ lamps technology ✓ control strategies ✓ maintenance procedures ✓ costs <p>Select a pilot area and:</p> <ul style="list-style-type: none"> ✓ measure fotometrical parameters on the field to check the lighting quality and optimise the illumination level ✓ inform yourself about the current available technologies to gain energy efficiency ✓ perform a test of the available technologies such as efficient lamps (high pressure sodium lamps), flux control systems, etc. ✓ Install a monitoring system and perform an assessment of the potential savings expanding these measures to other areas <p>More info at: http://www.eu-greenlight.org/</p>		<p>The aim of your public lighting policy should be a more efficient and less wasteful street-lighting system.</p> <ul style="list-style-type: none"> ✓ Define your short and long term energy savings targets for public lighting ✓ Organise a permanent monitoring and management of the public lighting system through the local energy agency or your own energy department. ✓ Choose the most efficient technologies. ✓ Establish the appropriate design of lamp units/hoods for roads, bike ways and walkways. ✓ Find out the appropriate electric load for lights in different situations: roads, bike ways and walkways. ✓ Ensure a proper maintenance of the lamp units, significant savings can arise from it (up to 30%) ✓ Promote your Public Lighting policy <p>★ Brasov Municipality, Romania: has performed the rehabilitation of public lighting by bringing the system at European standards and reaching 25% energy savings. More info at: www.energie-cites.org/db/brasov_569_en.pdf and http://www.ecee.org/pubs/romania.htm</p> <p>★ Municipality of Vila Nova de Gaia, Portugal. "Energy Efficient Public Lighting" info: http://www.managenergy.net/download/nr20.pdf</p>	
ENERGY	E: Provide "green" public lighting	ENERGY	E: Provide "green" public lighting
F3: Purchase green electricity for public lighting		F4: Implement the policy plan and move forward to 100% RES target for your public lighting network	
<p>The official liberalisation of the European energy market from 2007 offers you the possibility of choosing freely your energy provider, choose green energy for your public lighting system.</p> <ul style="list-style-type: none"> ✓ Inform yourself on the local green energy providers ✓ Define your green energy use target in public lighting ✓ Make a comparison among the different providers and try to reach special agreements, as big consumer, with the energy companies ✓ Consider possible partners or sponsors ✓ Consider the possibility of setting a joined campaign together with the energy company you choose. That would advertise your policy as well as the company and be then advantageous for both. ✓ Select a demonstrative sector (i.e. cycle-lanes, pedestrian areas or a district) where public lighting is to be supplied 100% RES. ✓ Inform yourself about the possibility to produce a part of the electricity, needed for public lighting, from PV systems. This way you enhance the demonstrative impact of your policy. 		<p>Prepare the ground to switch your lighting system to 100% RES. Set up a General Lighting Plan</p> <p>Switching to 100% RES means using at the best your energy system. The most sustainable (zero impact) energy, is the energy that you save. Reducing drastically your energy consumption will let you achieve the ambitious target.</p> <p>Increase to the maximum your energy saving targets by:</p> <ul style="list-style-type: none"> ✓ identifying equipment to be renewed (mainly the large stock of relatively inefficient mercury vapour lamps), ✓ redefining lighting categories, like low traffic roads, footpaths and cycle-lanes and the principles for the selection of lighting types, ✓ striking a balance between lighting standards and economic considerations. <p>Make a summary of the current situation on the main road network, identifying the renewal needs and costs.</p> <p>An annual lighting maintenance plan covers the management of the existing network and specifies maintenance policy and pricing.</p> <p>Perform regular 5-year up date reviews of the general plan.</p> <p>Doing a benchmarking study, you can compare the costs of lighting services in other cities, to learn from the experience of those cities that had achieved reductions.</p> <p>Info on EU intelligent street lighting: http://europa.eu.int/comm/energy/intelligent/projects/save_en.htm</p>	

ENERGY	G: Implement RES – give your citizens the opportunity to buy green electricity	ENERGY	G: Implement RES – give your citizens the opportunity to buy green electricity
G1: Generate a share of your city's electricity and/or heat in own RES plants		G2: Set up a land register for the potential of RES use	
<p>Realise renewable energy plants in municipal buildings, provide yourself with green energy.</p> <p>Make a review of public buildings and sort out those where renewable energy production would be successful, like:</p> <ul style="list-style-type: none"> ✓ Biomass CHP in swimming pools or sport centres - where there's a constant heat demand throughout the year. ✓ Photovoltaic (PV) systems for electricity production are good demonstration projects in schools and public buildings where a large sun-exposed surface is available. A monitor could display the energy production and the avoided emissions in real time ✓ Solar panels for hot water in schools or sport centres , especially suitable in case of increased use for summer activities. The best use is achieved coupling them with a small CHP covering the yearly constant heat demand. ✓ District heating for council houses supply would reduce considerably the energy cost and have a good impact on public awareness. <p>An exemplary municipal behaviour concerning the use of renewable energy increases their popularity among the population and opens new possibilities for citizens' participation in your climate protection activities.</p> <p>This would be the first step to provide citizens with green electricity in public utilities, moreover a part of the energy produced would be let into the local grid to build up the energy supply in the city.</p> <p>☆ Aachen, Germany: PV systems were installed on 14 schools, reaching 360 kW of total power installed.</p>		<p>Study the possibilities for cogeneration and RES and develop a sustainable energy supply strategy.</p> <p>Let the local energy agency investigate the regional energy resources.</p> <ul style="list-style-type: none"> ✓ PV – get a sun insolation map and an assessment of the potential sun energy production in your region ✓ Wind – get a local wind map and an assessment of the potential wind energy production in your region. ✓ Biomass - Gather a Database of biomass and biogas resources available locally (for example from agricultural activities or food processing industry) and then assess the possibility to produce heat and electric energy. ✓ Small scale Hydro – if your region has hydro resources make an evaluation of the potential energy production on small scale and the relative environmental impact. ✓ CHP - district heating - evaluate the pipe distribution grid in your area and consider the conversion to district heating and biomass CHP. Get informed on: http://www.opet-chp.net/ ✓ Geothermal: evaluate the geothermal resources in your area and the possibility of heat pumps installations. <p>Gather information on sustainable energy use and from INFORSE-Europe, a network of NGOs, working for sustainable energy solutions. http://www.inforse.org/europe/</p>	
ENERGY	G: Implement RES – give your citizens the opportunity to buy green electricity	ENERGY	G: Implement RES – give your citizens the opportunity to buy green electricity
G3: Create an offer of green electricity for your citizens		G4: Implement a long term action programme for RES and CHP to achieve a 100 % community	
<p>Diversify the energy production to avoid power dependence from one single source.</p> <p>Use:</p> <ul style="list-style-type: none"> ✓ Biogas and biomass plants as base load supply and backup resource ✓ Small scale Hydro Energy as base load supply and backup resource ✓ Geothermal (direct geothermal heat) for continuous heat production ✓ CHP + district heating as heat (base load) and electricity resource ✓ Solar for hot water, as summer (mostly) and day long resource ✓ Solar Power stations as summer (mostly) and day long resource ✓ Wind energy plants as winter (mostly) and peak time resource <p>Involve your citizens, turning local power stations into cooperatives where they can participate, providing investment funds.</p> <p>☆ The Hessen Energy Agency – Germany – that installed 13 Wind Parks throughout the region, producing 65 Million kWh/year. The wind parks are municipal wind parks, whose technical managing were overtaken by the Hessen Energy Agency.</p> <p>☆ The Rouge Energy Park Project for renewable energy sources – Estonia This project aims for the establishment of an energy park in the Rõuge rural municipality, in the middle of an attractive tourism area.</p>		<p>To supply your municipality with 100% RES you need to cut down on your energy demand so to keep the energy expenses reasonable.</p> <p>Develop your own independent energy supply plan, make sure that RES and energy efficiency play a central role in the overall planning. The pre-existing plans are normally based on fossil fuels and nuclear power use and can't really account RES the due importance. The energy plans need to be completely re-thought and re-written, with a "fossil fuel free" point of view.</p> <p>The energy plan should contain the following information:</p> <ol style="list-style-type: none"> 1) General description: demographic analysis, economic activities, built environment, climate, terrain morphology, land use 2) Energy system analysis: demand / supply, electrical system 3) Forecasting: trends, the business as usual and the optimistic scenario. 4) RES potential-Natural resources base 5) Non technical RES status-prospects: economic, environmental and social issues, legislative framework 6) Action Plan Synthesis: decisions and planning, RES Action plan <p>☆ Bruck in the Leitha (Austria) has built an Energy Park aiming to be an energy technology centre, reference point for the whole region. It has at present a 1,6 MWh_{th} CHP plant, run with local agricultural and industrial waste, 6kW Biomass district heating plant serving 30% of the council buildings and a 9MW wind park providing electricity for 5000 dwellings.</p> <p>Get more info on 100% RES communities: http://europa.eu.int/comm/energy/en/renewable/idae_site/</p>	

ENERGY	<u>H:</u> Inform and involve citizens	ENERGY	<u>H:</u> Inform and involve citizens
H1: Inform the citizens about your energy policy and give hints for own contributions		H2: Install a local energy advice centre	
<p>The development of renewable energy and energy efficiency needs to gain people's consent; therefore it is important that citizens understand the importance of such policy and realise that they directly benefit from it.</p> <p>When dealing with renewables we often talk about small scale systems, their impact occurs on a local and community level, that's why people are to be involved to make the project really successful.</p> <p>Plan your information activities at different levels including:</p> <ul style="list-style-type: none"> ✓ Campaigns to inform about the municipal activities ✓ Campaigns for Energy Saving and Efficiency ✓ Realisation of an energy information point/advice centre ✓ Production of info material like: web-sites, handbooks, data bases, etc. ✓ Educational programmes in schools ✓ Organisation, on a regular basis, of public talks on the up-to date state of the art of technology, prices, financing, etc. ✓ Information of citizens about local RES plants: organising schools and citizens' visits on your plants. <p>Refer to ManagEnergy, an initiative of the European Commission Directorate-General for Energy and Transport, which aims to support the work of actors working on energy efficiency and renewable energies at the local and regional level. The main tools are training workshops and online events. Additionally information is provided on case studies, good practice, European legislation and programmes. www.managenergy.net</p>		<p>Keep citizens informed is crucial to achieve your targets.</p> <p>Lack of information should never occur.</p> <p>Informed citizens are much more likely to take action for energy efficiency.</p> <p>Your local advice centre should have the following tasks:</p> <ul style="list-style-type: none"> ✓ Energy efficiency and RES info material production and distribution ✓ Energy efficiency and RES first consulting for those who want to refurbish or build a new house ✓ Green energy purchase consulting ✓ Energy check of buildings (rough energy rating of a family house or flat) ✓ Consulting on the national and regional financing opportunity ✓ Consulting on credit facilities for those who want to invest in RUE ✓ Data base of energy efficient electric appliances ✓ Data base of specific heat and electricity consumption in dwellings <p>Invest in communication means, get consulted by professionals about how to carry out successful dissemination campaigns.</p>	
ENERGY	<u>H:</u> Inform and involve citizens	ENERGY	<u>H:</u> Inform and involve citizens
H3: Organise targeted campaigns on energy efficiency		H4: Mainstream energy in education and professional training	
<p>Involve citizenship to give their own contribution to reach the city targets.</p> <p>Cooperate with banks or financial institutes to obtain:</p> <ul style="list-style-type: none"> ✓ Good credit facilities for those citizens who wish to invest in RES or RUE ✓ Green Energy-trusts to invest in collective/public energy projects as: wind parks, solar systems, hydro energy parks, etc. <p>Organise public Intelligent Energy competitions and award prizes to those who have made the most efficient renewals.</p> <p>Organise targeted campaigns:</p> <ul style="list-style-type: none"> ✓ Energy Efficiency for companies, household, offices, etc. ✓ Buildings Energy Checks (energy rating of buildings) ✓ Gas/oil boilers check and replacement information ✓ Buildings energy pass (labelling more efficient houses) ✓ Efficient buildings (insulation, double-glazed windows, etc.) ✓ Lighting-efficiency ✓ "stand-by" action weeks ✓ "Cut-down electricity" action weeks/campaigns in cooperation with electrical appliances retailers 		<p>Organise campaigns to include energy topics at school teaching as well as in vocational trainings of technicians and in universities</p> <p>Organise your educational program together with teachers, expertises and the local energy agency.</p> <p>Cooperate with the university – when present in your municipality – to encourage the vocational training of expertises</p> <ul style="list-style-type: none"> ☆ The EU project: Force for Energy by Children Children in 8 European countries have been learning about renewable energy sources and the rational use of energy in an education project that has reached 100 schools. They produced exhibitions on energy topics – inspiring friends, parents and local communities to get involved in energy-saving issues. ☆ Energy Self-Audit Scheme – Poland The project was carried on to develop scheme and additional necessary tools, which would encourage industrial companies to undertake well coordinated and comprehensive actions aiming at improvements in energy efficiency and reduction of emissions to the environment. ☆ Vienna University of Technology; Austria in collaboration with the Energie Park Bruck in the Leitha, offers the Msc program "Renewable Energy in Central and Eastern Europe, the first cross-border course in Austria dealing with the future issues of alternative energy production. 	

ENERGY	I: Refurbish existing housing stock	ENERGY	I: Refurbish existing housing stock
I1: Inform house-owners about the potentials to increase energy efficiency of their building		I2: Collect data and set up a land register for energy use in the housing stock	
<p>The energy demand of old buildings can be twice or three times higher than efficiently refurbished buildings. This means that old houses can produce three times as much CO₂ emissions as modern ones.</p> <p>Efficiently refurbishing old houses would have a considerable impact on cutting down polluting emissions.</p> <p>Inform citizens through effective campaigns about potential energy savings in their households.</p> <p>Distribute pamphlets giving information and reference values on:</p> <ul style="list-style-type: none"> ✓ Basic advice on energy saving at home (avoiding stand-by losses, avoiding heat losses, use of water saving taps, etc.) ✓ Efficient Heating systems ✓ Energy efficient electric appliances ✓ Walls and roofs insulation ✓ Double glazed windows ✓ Solar collectors for hot water production ✓ PV solar panels for electricity production <p>as well as:</p> <ul style="list-style-type: none"> ✓ Possibility of financing and tax relief, locally and nationally ✓ Economics of the possible refurbishing measures ✓ Planning and managing energy use ✓ The increased house price resulting from the carrying out of such measures. <p>Arrange a consulting service (telephone – web - software – data bases) to help citizens evaluating their saving potentials.</p>		<p>When deciding about possible refurbishing measures in their buildings, owners can be effectively helped by getting informed on the building category, being every category defined by style, construction materials and several other characteristics, necessary to estimate the energy demand.</p> <p>Realise a decision making tool providing essential informations on buildings typologies in your area.</p> <p>Make a catalogue describing reference buildings from every category with their typical energy consumption and the relative relevant parameters.</p> <p>Buildings are normally classified:</p> <ul style="list-style-type: none"> ✓ by size - one or more family house, one or more levels, ✓ by year of construction, ✓ by shape – compact or many folds shape <p>Classify the refurbishing measures according to their economic and energy effectiveness, so that a priority list can be made to help the decision process.</p>	
ENERGY	I: Refurbish existing housing stock	ENERGY	I: Refurbish existing housing stock
I3: Label the housing stock according to their energy efficiency and offer targeted advice and recommendations		I4: Set up a loan programme for retrofitting the housing stock in terms of energy efficiency	
<p>The energy demand of a house is like the fuel consumption for a car and would definitely affect the decision of potential owners or tenants if they were provided with this information.</p> <p>More and more European cities offer their citizens the chance to label their house or flat and award it with an increased value.</p> <p>This is a very effective method to increase people's awareness of their energy consumption and on the many possibilities of saving energy.</p> <p>House owners who let their building be checked and get a bad energy rating are then strongly motivated to find out convenient measures to reduce their energy demand and improve their house's energy class.</p> <p>If you manage to make a good information campaign everyone who 's going to buy or hire a house will ask for the energy standards and every owner will then be pushed to get the house labelling to be made.</p> <p>This is a self feeding process that when correctly advertised can lead to excellent results in your energy reduction policy.</p> <p>Info:</p> <ul style="list-style-type: none"> - EU Directive: http://europa.eu.int/comm/energy/demand/legislation/buildings_en.htm - UK House Energy labelling: http://www.nef.org.uk/energyadvice/erhome.htm - German Energy Pass Standards: http://www.deutsche-energie-agentur.de/ 		<p>Issue local regulations to give tax relief and/or financial support to those households who have reached substantial emissions reductions.</p> <p>Arrange with local credit institutes a loan facility plan for those house owners who perform sustainable energy projects.</p> <p>Provide those citizens, who decided to invest in energy efficiency, with support facilities:</p> <ul style="list-style-type: none"> ✓ Info desk (internet and telephone) ✓ Public energy days to inform about the state of the art of energy efficiency technologies and relative local regulations ✓ "First aid" consulting service for those who wish to energy efficiently refurbish their properties ✓ Independent advise/information service as a link between citizens and companies that provide energy efficiency and renewable energy services <ul style="list-style-type: none"> ☆ „Warm and comfortable living" campaign in Amersfoort, Netherlands: encourages owner-occupants to perform energy assessments in their houses and carry out energy efficiency measures ☆ Many EU Energy Agencies carried out energy efficiency campaigns in their municipalities www.managenergy.net/download/gp2005.pdf 	

ENERGY	<u>J:</u> Work on green office buildings	ENERGY	<u>J:</u> Work on green office buildings
<u>J1:</u> Promote your energy management system towards external companies		<u>J2:</u> Investigate and establish energy performance standards for offices	
<p>Once you have developed an energy management system for your own facilities you can promote it towards companies of the private sector.</p> <p>Organise information days for private companies inviting energy managers, facility managers and potential investors:</p> <ul style="list-style-type: none"> ✓ Present the potential of energy savings in office buildings ✓ Give examples of European good practice case studies. It is crucial to present successful examples that can make energy saving attractive for enterprises ✓ Explain the interesting financial opportunities that energy saving actions can bring. The enterprisers will be encouraged to invest on renovation or improvement measures if they do not see the financial feasibility of the project ✓ Illustrate also the many other attractive factors that can increase their motivation: productivity enhancement, high quality equipment and innovative technology, more security in working places, maintenance costs reduction, increase of the building/factory value, etc. ✓ Discuss the advantages for the company in terms of public image <p>European good practice case studies :</p> <p>☆ Vienna, Austria: The municipal utilities have established a special large customer management programme to guarantee a customer oriented distribution of its energy services</p> <p>☆ Garston, UK : The "Energy Efficient Office" is demonstration building provided with the most efficient technologies available on the market</p>		<p>Most of the office buildings have a specific consumption of 400kWh/m3/a and more while the EU recommendation [1] is 70 kWh/m3/a and even less for new office buildings: 40 kWh/m3/a. With the energy saving and energy efficient technologies, today available on the market, it is possible to reduce the primary energy consumption and reach these standards, meaning that saving potentials in offices are enormous!</p> <p>Through the energy agency and the municipal utility review the energy performance of office buildings in your municipality.</p> <p>Refer to the EU guidance:</p> <ul style="list-style-type: none"> ✓ EU directive [2] for efficient buildings ✓ EUROPROSPER [3], the European programme for the certification of existing building energy performance <p>and define then energy standards for your offices</p> <p>Start then "Smart Energy Business Initiatives" in your city to encourage lead practice energy efficiency in business sector. Establish a Best Practice Award for those enterprises achieving the best values.</p> <p>Training Workshops</p> <p>Together with the university and/or dedicated research institutes organise sector training workshops for energy managers as well as investors or technicians responsible for energy maintenance work.</p> <p>[1] http://www.eceee.org/library_links/downloads/procurement/PROST/PROSTappendix4.pdf</p> <p>[2] http://europa.eu.int/comm/energy/demand/legislation/buildings_en.htm</p> <p>[3] http://europrosper.energyprojects.net/</p>	
ENERGY	<u>J:</u> Work on green office buildings	ENERGY	<u>J:</u> Work on green office buildings
<u>J3:</u> Set up demonstration projects		<u>J4:</u> Establish energy forums and offer energy performance services	
<p>Having successful results as models is strategic to raise the popularity of rational energy use projects.</p> <p>If the enterprisers can see a good example are more likely to be convinced about the feasibility and the convenience of such projects.</p> <p>Select one or more office buildings from the companies who showed interest to your information campaign and start a pilot project to perform strong energy saving measures and to reach high efficiency standards and use it to show how big the saving potential in offices is.</p> <p>When dealing with <u>already existing buildings</u> the suitable measures are:</p> <ul style="list-style-type: none"> ✓ Efficient and rational lighting (up to 50% potential) ✓ Heat, ventilation and air conditioning systems (up to 70% potential) ✓ Computer equipment (only stand-by mode of PC, printer or fax accounts for 11% of total energy consumption!) ✓ Co-generation ✓ Reduction of summer cooling loads <p>When dealing with <u>new buildings</u> it is possible to perform measures that are not possible or economically not feasible in existing buildings, but on the contrary in the construction phase require only a small extra investment and have a short pay-back time, for example:</p> <ul style="list-style-type: none"> ✓ building envelope heat insulation ✓ right windows positioning and dimensioning, as well as choice of low transmission types ✓ building compact shape ✓ efficient ventilation and hot/cool water circuit distribution 		<p>Forums</p> <p>Organise Energy Forums leading to the formation of Working Groups stimulating users, owners and investors in office and commercial buildings to analyse and optimise the energy demand of their buildings. Architects, engineers, planning consultants and other concerned people should take part to the discussions.</p> <p>The working groups should work following a benchmark programme:</p> <ul style="list-style-type: none"> ✓ Introductory workshop with discussion of main targets ✓ Defining sample buildings on which the group will focus ✓ Collecting data ✓ Data analysis and establishing of new standards for further efficiency. ✓ Results discussion and best practice measures presentation ✓ Measures implementation ✓ Monitoring <p>☆ A good example is the „Energy forum banks and office“from the city of Frankfurt. Aim of the project, with the co-operation of architects, specialised technical and internal investors, is decreasing the heat and electric consumption in big offices and banks buildings reaching the best European standards.</p> <p>Energy performance services</p> <p>Together with the energy utility and the energy agency develop a dedicated methodology to analyse in detail the electricity demand of office buildings, through load management and daily/weekly profile analysis. This methodology will help to find out saving potentials in lighting, ventilation and cooling devices and office equipment.</p>	

ENERGY	<u>K</u> : Work with SMEs	ENERGY	<u>K</u> : Work with SMEs
K1: Inform and consult local companies and organisations on energy efficiency and RES		K2: Work with the Chamber of Crafts on branch specific measure recommendations and campaigns	
<p>First make a survey of the local companies aiming to produce information documents and perform campaigns to acquaint the enterprisers with the possibilities regarding energy efficiency and renewable energy.</p> <p>A study performed on 20 SME by the Fraunhofer Institute for Systems Technologies and Innovation research (ISI) in Germany shows that the main factors influencing the decision makers towards RUE projects are:</p> <ul style="list-style-type: none"> ✓ Energy cost reduction and clear economical feasibility ✓ Improvement of production quality ✓ Increase of production itself ✓ Innovation technology ✓ Increase in the building value and/or industrial process equipment ✓ Improvement of the company image through an environmentally friendly energy policy. <p>The Fraunhofer study also highlights the importance to have case studies of successful examples that make enterprisers having a good attitude towards a rational use of energy policy.</p> <p>Organise meetings and sector conferences discussing these points and look for partners for a pilot project.</p> <p>You can find a wide range of interesting examples of SME that performed rational use of energy measures at: http://www.energie-projekte.de/ (German) www.caddet.org (European energy agency IEA)</p>		<p>In collaboration with the different professional organisations and with the local energy utility make a survey of the local enterprises, gaining information on their energy needs and their type of activities.</p> <p>Analyse, for each relevant (economically and energetically) sector, suitable measures based on the production process or other specific needs.</p> <p>Examples of measures to perform:</p> <p><u>Heat recovery:</u> In many activities hot water or/and steam are requested, heat recovery is the optimal solution to achieve energy savings in several industrial sectors, in hospitals as well as in smaller businesses like laundry shops or restaurants.</p> <p><u>Efficient lighting</u> In shops with large exposing areas investing on quality and efficiency of the lighting systems is always convenient</p> <p><u>Efficient Pumps</u> In industries with pressurised air requirements or in large shops, shopping centres having big air conditioning systems the use of pumps with adjustable flow rate is among the most effective measures</p> <p><u>Heat and Cool efficient production</u> In big shopping centres, in food processing and selling activities, in several industrial sectors it is possible a combined heat, cool and power generation (CHCP or trigeneration), this is new and very successful technology that can lead to 25% savings in comparison with conventional systems.</p> <p>☆ The city of Heidelberg, Germany with the project "Rational Energy use" has supported RES use and the energy saving both in the public and private sector.</p>	
ENERGY	<u>K</u> : Work with SMEs	ENERGY	<u>K</u> : Work with SMEs
K3: Offer specific training for craftsmen, technicians and engineers		K4: Give financial support to business activities having a sustainable energy use	
<p>Together with the Chamber of Crafts, professional organisations and your energy agency organise general professional training as well as sector-oriented ones</p> <p>Organise training courses for energy managers as well as maintenance technicians and other concerned staff. Depending on the business sector provide training courses dealing with the following issues:</p> <ul style="list-style-type: none"> ✓ Energy contracts managing, energy costs monitoring and forecasting ✓ Performing an energy analysis when dealing with production processes ✓ Efficient heating, ventilation and air conditioning (HVAC) systems ✓ Effective HVAC control systems ✓ Waste heat recovery ✓ Co-generation ✓ Heat pumps ✓ Economics of energy efficiency or renewable energy installations <p>Provide an advice service giving all the administrative information that enterprisers need to know to undertake sustainable energy projects, like special permissions and/or restrictions, available facilities, bureaucratic procedures, etc.</p>		<p>Support the companies that show to be a model for the sustainable energy use in business activities, this will motivate them to go further in this direction and will stimulate other companies to do so.</p> <ul style="list-style-type: none"> ✓ Define a scheme for tax relief and/or financial support according to the emission reduction and the efficiency in energy use. ✓ Agree with the local energy utility to provide more convenient contracts to those SME who produce a defined share of their energy with renewable sources. ✓ Arrange with local credit institutes a credit facility plan for those who perform sustainable energy projects through contracting. ✓ Organise energy efficiency competitions among the local business companies and award a "best practice" prize. ✓ Provide an advice service to keep SME informed on their opportunities and facilities to perform rational energy projects. Give specific consulting on EU and national financing to SME caring about sustainable energy. <p>☆ In Bulgaria, in Poland and in other Eastern European countries the Municipal Energy Efficiency Network has been established with the aim to help municipalities to overcome financing obstacles to develop energy efficiency projects.</p> <p>☆ Bonn, Germany. Energy Efficiency development in a Hospital through contracting financing, the biggest project in Germany in the Hospital sector with an investment of 4.5 Millions Euro.</p>	

ENERGY	<u>L</u> : Collaborate with "powerful" partners (large-scale energy consumers)	ENERGY	<u>L</u> : Collaborate with "powerful" partners (large-scale energy consumers)
<u>L1: Inform large-scale energy consuming companies about your energy policy</u>		<u>L2: Address corporate clients with targeted advice</u>	
<p>Contact the large scale energy consumers in your area and organise meetings to discuss with them the possibility of the rational use of energy in their sector.</p> <p>Illustrate them your energy plan aiming to involve them:</p> <ul style="list-style-type: none"> - in your local energy saving plan - in your energy management system - in your plan of renewable energy production <p>You need to consider that most of the large energy consumers do have an energy management facility and have already cared of reducing their energy costs even if not necessarily their emission levels.</p> <p>You could offer, together with the energy utility, an assessment of the saving potential in the company through the analysis of their electricity consumption.</p> <p>In the preliminary meeting you could find the common interests that can join you to work together for a RUE policy in the region. For example the company needs to get rid of industrial waste that can be used as biomass or for district heating or has got space and possibility to install RES plants in their own property.</p>		<p>Together with the energy utility, you should perform a study on the energy consumption of large customers in order to be able to fit the energy supply to the energy demand and reduce this way the energy costs.</p> <p>Example of Vienna Vienna energy utilities established a special "large customers management programme" aiming to guarantee a customer oriented distribution of the energy services as well as the implementation of environmentally compatible solutions.</p> <p>The Vienna municipal utilities have been developing an energy service package for large customers which range from system installation, systems operation and maintenance, all the way up to funding. Other elements of the energy service include the marketing mix, namely product/service, distribution and price policies, etc.</p> <p>An example of the services offered is the Load Management service, consisting in the analysis of company load development and survey of the technically and economically feasible savings potential in terms of electrical output.</p> <p>Another field of activities is the Corporate Energy Analysis, which is a detailed study of the energy flows. Energy flows in companies are usually very complex and mostly unknown to the companies themselves. The municipal utility can offer to combine its know-how with an individual concept based on the company's requirements; the large customer gets an advantage without a great risk. At the same time the plant operator will get the opportunity to reduce energy costs, to save energy and to allocate energy costs, which are otherwise included in total costs.</p>	
ENERGY	<u>L</u> : Collaborate with "powerful" partners (large-scale energy consumers)	ENERGY	<u>L</u> : Collaborate with "powerful" partners (large-scale energy consumers)
<u>L3: Set up agreements on the use of RES in plants/sites of such companies</u>		<u>L4: Set up a joint project on efficient energy use (CHP, industrial waste heat, etc.)</u>	
<p>Investigate the possibilities of installing RES systems in these companies and plan it in joint collaboration offering good tax relief and other kinds of financial facilities</p> <p>Large energy consumers in the industrial sector can also be large energy providers.</p> <p><u>District Heating</u> In many industrial fields there's an enormous production of heat in form of water, steam or gas that is often just wasted but could instead be used for district heating.</p> <p><u>Biomass</u> As waste of the wood processing industry As waste of agriculture industry (straw, wood, organic fibres, etc)</p> <p><u>Biogas</u> Animal manure Food processing industrial waste</p> <p><u>Wind:</u> Large farms having a vast extension of land with good wind resources</p> <p><u>Co-generation</u> The most popular for industry due to the good feasibility of the project and the fairly short pay back time. It is suitable to all those energy consumers who have a constant heat demand throughout the year, this amount of heat can be provided by CHP and at the same time electricity is produced and made available for use.</p>		<p>Industrial waste disposal, often a problem in municipal administration, can be converted in many cases in an energy source, resulting in an economically and environmentally advantageous solution.</p> <p>☆ Biogas from waste in Sweden The Kristianstad biogas co-digests municipal solid waste with manure and other organic biomass to produce energy and fertiliser offering a sustainable solution to waste disposal problems encountered in many countries.</p> <p>☆ Poultry Litter Power Station in the United Kingdom Poultry litter has presented a waste disposal problem to the poultry industry in many parts of the United Kingdom. The plant uses poultry litter, and generates 12.7 MW of electricity to be supplied to the National Grid.</p> <p>☆ Wood industry waste for energy production in Denmark Junckers is a leading European supplier of solid hardwood floors. The waste wood products - wood chips, sawdust, etc.- from the production processes are combusted at the factory and produce process steam and electricity is also generated to be sold to the public grid.</p> <p>☆ Heat waste recovery, Germany A paper factory in Salach, gives its waste heat for use of district heating in the nearby Households. The heat power is 1MW and connected to a conventional boiler as back up. The total investment is 1,6M euro partly funded from the regional agency for the protection of the environment.</p>	