



Joint Criteria for Energy-Efficient Public Procurement

Public procurement, often purely focusing on price competition in the acquisition of office equipment or cars for public fleets for example, is still an underestimated instrument in innovation and environmental policy. An overall strategy to include outcomes such as the fostering of regional economy or image enhancement is still lacking. At the same time, and in view of the global economic crisis, extra investments envisaged for the public sector can create new jobs. Thus the various processes to boost sustainability in public procurement can now successfully contribute to solving several problems.

The pro-EE project running as part of the EU's Intelligent Energy programme focuses on one of the programme's main working fields: the improvement of energy efficiency in public procurement in six European countries. The work plan includes the elaboration of "joint green criteria", which act as a common denominator and are ambitious yet realistic for all of the countries while leaving each the freedom to apply even more ambitious criteria. The common criteria shall not only consist of the selection of indicators, but also of concrete figures for the achievement of energy efficiency.

There are various models for establishing joint green criteria: installing ambitious criteria right from the start, setting up ambition levels (Basque Country) or including minimum criteria and giving bonus points for products that surpass these (Upper Austria).

Research Results for Energy relevant Products – Challenges to be met

The development of proposals for Green Public Procurement (GPP) criteria takes place on a local level (like in the city of Vienna) as well as on a national and EU level. Many of these proposals are comparable to thresholds for energy consumption or CO₂ emissions (Energy Star criteria). Differences in the proposals exist for other environ-



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mental criteria such as noise reduction, the contents of harmful substances or ease of repair. The criteria obviously depend on the product group. Since there are two different models to deal with cost savings from reduced energy consumption, the assignment of energy criteria is more complicated than for other environmental criteria: in a common approach, lower energy consumption is assigned to the environment criteria. Another approach involves including the cost-benefit from reduced energy consumption in the price criteria. In this case, prices are calculated according to a Total Cost of Ownership model (TCO model). Additionally, the EU will in future allow one further step: the inclusion of external costs for CO₂ emissions avoided (vehicles).

The official status of the GPP proposals needs to be kept in mind as another aspect in the selection of criteria. It is obvious that those listed on the EU's GPP homepage will be boosted in the course of time, being that they are currently voluntary but will, in all likelihood, become obligatory in the future. It is reasonable to use the EU criteria in the "GPP Training Toolkit" programme as a guideline. Taking into account the goal of enhanced environmental criteria, the EU's "comprehensive" model is preferable to the "score" model. The website presents ten criteria sheets online (including IT and vehicles), but more are in the pipeline.



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Proposal for the joint GPP Criteria

Green Public Procurement faces various challenges. Additional costs for GPP can arise in a TCO model. Whereas energy criteria often have a good payback effect, other environmental criteria like the use of eco-friendly materials or noise reduction may in fact increase costs.

Purchasers often face the practical problem that they do not have additional funds at their disposal for environmental criteria. If products are more expensive due to their eco-friendly design, purchasers cannot acquire as many products, which means that there are environmental departments that would like to implement GPP but for which purchasers need to consider their limited financial resources.

And even if higher energy efficiency is not automatically linked to higher prices and there is a pay-back effect from energy saving products, different budget lines in the authority for investments and energy costs can be an obstacle in GPP. The introduction of a threshold for the maximum amount of additional costs could be a solution to the challenges mentioned above.

The following proposal contains a certain amount of flexibility and is designed to fulfil the public sector's various needs and premises for GPP. The proposal comprises the following minimum requirements:

- Partners will include a TCO approach – at least including energy consumption either in cost or environmental criteria.
- The basis for the pro-EE product group is the EU's "Comprehensive GPP criteria model". For further standard product groups, ICLEI will, in its role as an advisory body for the project, elaborate additional proposals linked to activities in the EU scheme if necessary.
- Partners are able to exclude criteria if the extra costs based on a TCO model are more than 10 per cent higher than for non-green products. All criteria creating less than 10 per cent more costs have to be fulfilled, whilst the core GPP criteria are obligatory, regardless of the cost.
- The green criteria have a significant impact (more than 20 per cent) on both the technical specifications and, if possible, on the award criteria. The pro-EE partners analysed the following contract awarding procedures in general use in the respective countries or regions (see table next page).

Andreas Drack



Green Criteria in Technical Specifications

Country	Award criteria
EU	The EU works with percentages for weighting criteria
Region of Upper Austria	The region works with percentages for weighting criteria
Mainz (Germany)	Adapted percentage model: criteria/ price
Cities in Greece	100 percent price (However it is envisaged that the price should account for between 50 and 65 percent of the total points given for awarding the contract.)
Cascais, Torres Vedras (Portugal)	Percentage model (green criteria are seldomly used)
Ferrara (Italy)	Percentage model

Further information on Green Criteria:
<http://ec.europa.eu/environment/gpp>

With Electric Cars towards Climate-Friendly Mobility

Last year, a move was made towards climate-friendly mobility in the automotive industry for the first time. Triggered by extremely high oil prices as well as a handful of pioneering companies and accompanied by a controversial debate on biofuels under the slogan "fuel or food", all of the major car manufacturers announced alternative engine concepts for their new vehicles. On the whole, these did not relate to niche ecological concepts. Quite the opposite: the manufacturers emphasised how the car of the future is electric. The first prototypes from mass producers will go on sale this year already.

For a long time, there was little talk of electric cars. The automotive industry considered hydrogen to be the fuel of the future and car manufacturers documented their work on the cars of the future with a few test vehicles powered by fuel cell systems or hydrogen-powered combustion engines. None of these futuristic vehicles were available to ordinary customers however. Moreover, little progress was made in improving fuel consumption in the

serial models. Although the engines were more economical, high-performance motorisation and the increased weight of the cars sold more than overcompensated for this. When the high level of CO₂ emissions, particularly from German manufacturers' vehicles, came to the fore at the European level, there seemed to be an easy solution: a switch from petroleum to renewable fuels.

Use of these so-called biofuels, or to be more precise agro-fuels, wouldn't have actually made much difference. The combustion engine's inefficient technology whereby only a third of energy is converted to momentum with the remaining two thirds simply heating up the environment would still have been retained by the automotive industry. CO₂ emissions were supposed to be reduced through use of seemingly CO₂-neutral agro-fuels. However, studies document that CO₂ emissions from many agro-fuels even surpass emissions from fossil fuels. Only the use of waste biomass promises considerable CO₂ reductions, but there is not enough to replace fossil fuels entirely. Cultiva-



tion of agro-fuels requires large amounts of space, which then cannot be used to grow food anymore. In the face of this “fuel or food” dilemma in a world full of starving people, wide-scale introduction of agro-fuels failed.

The small North American company, Tesla Motors, played a key role in the rediscovery of the electric vehicle as a technological option. Until then, the e-mobile was considered a roomy soapbox car with which people could cover very short distances at a leisurely speed before having to plug it into a power supply. Tesla’s electric sports car certainly isn’t for the faint-hearted though: the Tesla Roadster can accelerate from nought to 100 km/h in less than four seconds, has a top speed of 200 km/h and only needs to be recharged every 300 km. This road performance is facilitated by Li-Ion-rechargeable batteries, which were originally developed for laptop computers.

The large automobile manufacturers’ series models will not be run on laptop batteries, but will certainly use Li-Ion technology with improved life length and lower production costs. It is already clear that the battery technology currently available provides a usable cruising range for electric vehicles. A range of 100 km is already more than sufficient for over 90% of all car journeys within Europe. For long-distance travel, it is generally much more comfortable to take the train. However, should one particularly want to travel by car, it will be possible to recharge electric vehicles within minutes at special fast-loading stations equivalent to today’s petrol stations. For now, those travelling longer distances more frequently can opt for an electric vehicle fitted with a small additional combustion engine, which recharges the vehicle’s battery when it is running low by means of an electric generator.

Shai Agassi who was once next in line to lead the German software company SAP is pursuing another concept. With “Project Better Place” he strives to bypass the problem of long-distance travel by implementing area-wide battery-changing stations. At these stations, empty batteries can be exchanged for charged ones in just a few minutes. To date, Renault-Nissan is the only automobile manufacturer building a car suited to this concept. Agassi has already signed agreements with Israel, Denmark, Portugal and the Canadian province of Ontario to implement his infrastructure. However, automobile experts doubt that changing batteries will be a sustainable technological option as a manufacturer-wide standard would have to be created for a relatively complex component – something that is not likely to happen.

For climate protection, it is a stroke of luck that the passenger car’s technological evolution is now following the path of electric mobility. Despite Germany’s fairly CO₂-intensive electricity mix of about 600 g CO₂/ kWh, reorientation from combustion to electric engines leads to a reduction in CO₂ emissions. The reason for this is the considerably greater energy efficiency of electric engines in comparison to combustion engines, which is also why electric vehicles are sometimes referred to as the ‘energy-saving lamp amongst the modes of transport’.

Indeed, electric cars will only become a truly green technology when the electricity is obtained from a renewable source. Doing so will mean reductions in CO₂ emissions to a single digit figure, a drastic



QUICC! DiVa (DistributionVan) - electrically powered light-weight plastic car by DuraCar (www.quicc.eu)

decrease in comparison to the widely discussed 120 g CO₂/ km threshold. Electric vehicles also fit into the world of tomorrow in which energy is supplied entirely by renewable energies very well. In this second solar age, electricity is the dominant secondary form of energy being produced in most facilities. In today’s fossil/ nuclear age, heat currently still fills this role. Moreover, a widespread increase in electric vehicles means their electric storage capabilities can be used for grid load management. The renewable energies’ fluctuating production capacities can be harmonised with imbalances in demand. This approach, which was first developed in the US, is known as Vehicle to Grid (V2G).

The comparatively high contribution of battery-powered vehicles to environmental and climate protection stems from a combination of the renewable energies with the energy efficiency of the entire technological chain. Renewable hydrogen fares significantly worse with regards to energy



efficiency, as the hydrogen must first be extracted via electrolysis with the aid of electricity. Further losses occur in fuel cell cars when this is then converted into electricity. The battery scores better here, in a ratio of 2 to 3. Even more inefficient than fuel cells is the combustion of hydrogen in a combustion engine. In comparison, batteries only require one fourth of the amount of energy.

Another important factor in the solar age is the use of land resources for energy production. Electric vehicles also rate very well when supplied with energy from solar and wind power plants in comparison to agro-fuels. Just 1/50th of the surface area is required for energy supply. Given that solar panels can be installed on rooftops or on streets, and wind plants require very little space, it is possible to refrain from using vast expanses of land for energy production almost entirely, thus avoiding competition for food production. The emission-free nature of the electric cars and their hushed engines are additional environmental benefits of particular relevance in urban centres.

In comparison to the large amount of media coverage that electric vehicles have enjoyed over the past few months, the range of products is small.

At present, not a single mass-producer is offering an electric vehicle. This will change in the course of the year when Mitsubishi releases its i-MiEV onto the market. However, production for 2009 is planned at just 4,000 cars. Due to the fact that these vehicles are right-hand drive, their suitability for the European market is limited.

In contrast, small-scale manufacturers are already able to deliver. Offerings range from light electric vehicles to sports cars to vans, some of which are converted conventional vehicles. pro-EE brings together municipal requests for electric vehicles with the aim of a joint Europe-wide call for tenders by several municipalities in the coming year. Until then, demand amongst the municipalities must be identified, along with other aspects. To date, for example, it has not been determined whether a tender should be issued for passenger cars, vans, electric trucks or several categories of vehicles.

Please contact us if you are interested in a corporate call for tender and advise us of your estimated demand in each specific category.

Dr. Dag Schulze

Innovative Joint Public Procurement in Upper Austria

The Central Purchasing Department of the Upper Austrian government administration and the Academy for the Environment are working together in the pro-EE project.

The co-operation's goal is to provide customers with two advantages. The first is a financial one, achieved by bundling the demands of several municipalities. The second involves implementing ecological criteria as well as fostering innovation in the field of energy efficiency. For municipalities as a new target group, the Academy provides grants to counterbalance economic disadvantages caused by innovative products.

At present, the Upper Austrian project team assumes responsibility for the following product offers and activities:

1. Office IT – Tender currently in progress
2. Implementing LED technology in Christmas lighting
3. Fostering the installation of standardised bike stands
4. Replacing electrical devices older than 15 years with highly efficient devices (e.g. A++ refrigerators)
5. LED and solar technology

6. Creating an Eco-Product-Compendium which shall form the basis for all Upper Austrian tenders (within the product groups for which the central purchasing department is responsible)

1. Office IT – Tender in Progress

A tender is currently in progress for office computer equipment that considers ecological criteria in particular.



2. LED Technology for Christmas Lighting

LED technology for Christmas lighting is highly efficient, saving up to 90 per cent of energy compared to normal light bulbs. At the same time, prices are actually twice as high compared to other systems. Therefore the project team contacted the light bulb industry and was able to negotiate special prices for Upper Austria's 444 municipalities: discounts of up to 40 per cent on list prices as well as other special discounts from various suppliers. Additionally, the Environment Academy is offering a grant: members of the Climate Alliance network can receive up to 2,000 euros if they buy this new system. This offer is valid for all local authorities in Upper Austria until the end of 2009.



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3. Fostering the Installation of Standardised Bike Stands

Since 2009, the quality of bike stands has been regulated by law. In order to replace outdated equipment in municipalities and to foster bike usage, it is reasonable to organise the purchase of products. Since modern bike stands are often expensive and the central purchasing department strives to achieve the best prices, the Environment Academy co-operated with the bicycle commissioner of Upper Austria to set common standards. Fulfilment of these standards is the precondition for accessing grants offered by the Environment Academy (up to 50% of the total costs up to a maximum of 2,000 euros per municipality). The offer is valid for all Upper Austrian municipalities until the end of 2009.

4. Replacing older Electrical Devices

The energy efficiency of older electrical devices is often very poor, whereas new energy-efficient appliances can save large amounts of energy. Since

the purchase prices of efficient appliances are generally higher, the project team decided to base buying decisions on Total Cost of Ownership (TCO) calculations. Not only the purchase price is taken into consideration in these calculations, but also all aspects of subsequent use, including costs for energy consumption. In the project team's experience, TCO calculations therefore lead to different buying decisions than those made in the past. However, due to restrictive budgets, departments and municipalities do not have additional investment power. Thus the regional environment minister determined to fund these energy efficient purchases with special grants to reduce the payback period on investments. This period was subsequently reduced to 3-5 years, which equates to a maximum of one third of the product's standard lifetime. This offer applies for all Upper Austrian departments over the next 3 years.

5. LED and Solar Technology

The project team is planning a test for solar and LED street lights using 5 different products that will begin at the end of March 2009 and run for 6 months. Based on the results, the project team will recommend the best products, try to obtain special prices for them and offer support for this technology. Furthermore, the team plans to purchase a special outdoor lamp (solar and LED) for lighting a footway in an on-going building project.



6. Creating an Eco-Product-Compendium

The Eco-Product-Compendium comprises 26 product groups for which the Upper Austrian central buying department is responsible. It will form the basis for all future tenders and purchases, and will guarantee the use of eco-friendly products in the Upper Austrian administration.

Hannes Pöcklhofer



Tools for Implementing Green Public Procurement

Are you looking for suitable criteria to bring energy-efficient products to the market? Use the European Commission Training Toolkit on Green Public Procurement (GPP), developed by ICLEI and



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its partners Ecoinstitut Barcelona, SenterNovem and SMK. The toolkit is designed to provide European public authorities with advice and information on the straightforward implementation of GPP.

The pro-EE Project

The aim of pro-EE is to bring together public authorities in 6 European countries to boost energy efficiency in selected product groups. Public authorities are major purchasers of goods and services and can thus influence an immensely significant range of environmental impacts related to technical specifications, purchasing, transportation, use and disposal of goods.

Large-scale joint procurement aims to bundle the purchasing power of public authorities so as to



Meeting of the pro-EE project team in Vienna, November 2008

It consists of 3 independent modules, each designed to overcome a specific problem identified as a barrier to the uptake of GPP within a public organisation:

- A strategic module, which seeks to raise political support for GPP within an organisation, targeting decision makers in particular.
- A legal module, which seeks to clarify legal issues and is designed for both strategic and operational levels.
- An operational module aimed at purchasing officers responsible for the preparation of tender documents. It features concrete examples of environmental criteria for 11 product and service groups including construction, office machinery, transport and electricity for use in public tendering procedures.

The toolkit is a core component of the Commission's strategy for promoting GPP across Europe within its sustainable production and consumption strategy.

Further information:

http://ec.europa.eu/environment/gpp/index_en.htm

bring products fulfilling ambitious energy efficiency criteria to the market. The pro-EE project will work on innovative products for which the economical and technical energy saving potential is high in comparison to actual products available on the market. Examples include more energy efficient office equipment, energy saving streetlights, traffic lights and fuel efficient vehicles.

The project will set up a partnership between market actors in 6 European countries (Spain, Portugal, Italy, Greece, Austria and Germany) to develop innovative approaches for public authorities and, by this, to influence the supplier side of energy efficient products and services.



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Project coordination: Climate Alliance

Project partners and organisations: Climate Alliance Austria (AT), Upper Austrian Academy for the Environment (AT), Alleanza per il Clima onlus (IT), European Partners for the Environment (EU), Ecoinstitut Barcelona (ES), ICLEI - Local Governments for Sustainability (EU), National Institute for Engineering, Technology and Innovation (PT), Centre for Renewable Energy Sources (GR); and the cities of: Cascais (PT), Ferrara (IT), Frankfurt am Main (DE), Mainz (DE), Maroussi (GR), Munich (DE), Murcia (ES), San Sebastian (ES), Torres Vedras (PT)

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The Covenant of Mayors and pro-EE

The Covenant of Mayors is a new initiative by the European Commission in which signatory cities and municipalities commit themselves to go beyond the "3x20" EU energy targets through enhanced energy efficiency and cleaner energy production and use. The pro-EE pilot cities Cascais, Murcia and San Sebastian belong to the first signatories of the Covenant of Mayors.



Covenant of Mayors - signing ceremony in Brussels, 10 February 2009.

Presently more than 1400 cities, municipalities and districts as well as 63 provinces, NGOs and further organisations are members of Climate Alliance. The members are in Austria, Belgium, Bulgaria, Czech Republic, Denmark, France, Germany, Hungary, Italy, Luxembourg, Netherlands, Poland, Slovak Republic, Slovenia, Spain, Sweden and Switzerland.



Climate Alliance

The "Climate Alliance of European Cities with Indigenous Rainforest Peoples / Alianza del Clima" is Europe's largest city network dedicated to climate protection. The member municipalities have entered into a partnership with indigenous rainforest peoples to protect the world's climate. The city network was founded in 1990 with the mission to elaborate and implement local climate protection measures especially in the fields of energy and mobility and to cooperate with indigenous peoples to protect the tropical rainforests. Cooperation partner is COICA, the Coordinating Body for the Indigenous Peoples' Organisations of the Amazon Basin. Climate Alliance represents 50 million citizens in Europe.