New Approaches in Municipal Energy Planning. An Action-Orientated Program with a Collaborative Approach in the City of Graz, Austria

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SYNOPSIS

The big challenge in municipal energy planning - inducing action - is addressed by concentrating on instruments, starting concrete projects and by organizing a participatory process.

ABSTRACT

The Municipal Energy Plan of the city of Graz (KEK Graz) aims at a 50% reduction of CO2-emissions by 2010. It is designed as a program for simultaneously improving the environment and stimulating the economy and it has been under preparation since summer 1994. The Energy Plan is intended as an action orientated program which goes beyond traditional concepts. The key question is, how measures can be put into practice successfully:

(a) The effort is not limited to the evaluation of data and of technical energy saving potentials. The focus is rather on the detailed analysis of measures, barriers and instruments to overcome these barriers.
(b) Pilot projects and action programs have been part of the project from the very beginning.
(c) Five teams of representatives from utilities, local authorities, companies, NGOs etc. were formed to organize the process of working out the concept, the projects and the action plan in a collaborative way.

Besides the realization of strong regulatory instruments - such as the compulsory use of district heating and restrictions for the use of fossil fuels in certain areas of Graz - cooperation and development of concrete projects with utilities and important institutions are put in the foreground.

The goals, the regulatory requirements and first results in terms of developed instruments and started projects will be presented in this paper. Special focus will be put on the experiences in the process of developing the energy plan.

1. INTRODUCTION

Since the end of the seventies local energy plans have been developed in Austria in order to assure secured and low cost energy supply and distribution. In these times, the driving forces were predicted shortages of resources and an increase of energy prices. These energy plans focused on the supply side, especially on the expansion of natural gas and district heating systems. The demand side was not integrated in the planning process but taken from independently produced demand-forecasts as mere input data to the (supply side) planning. As a consequence, the energy plans could be basically prepared by the local energy utility and/or external consultants. Many of the energy plans were strongly resembled business plans of the local energy utilities and quite a few of them were not put into practice (e.g. Proksch 1993).

Considering the threatening climate change and the necessity to reduce the emissions of carbon dioxide and other greenhouse gases, real action on the local level to cut down fuel consumption gets more and more important. Energy plans of a new generation, which can be characterized by the principles of climate protection and sustainable development, have been emerging. For the necessary far-reaching actions and fundamental restructuring a broad participation of the people and the relevant institutions is needed.

The substantial measures to increase energy efficiency and the use of renewable energy are quite well known (insulation of buildings, efficient heating systems, fuel-switching, solar energy, efficient appliances, promotion of public transport etc.). However, the following deficiencies in municipal energy planning can be frequently encountered (Hübner and Probst 1994, Papousek et al. 1994):

- constraints and obstructions in implementing the measures are not considered enough,
- it is often neglected that the municipality needs partners to realize projects,

- the officers of the municipality who must act to implement the energy plan are not sufficiently integrated in preparing the plan,
- lack of coordination and cooperation between the municipality and the external consultant,
- lack of quantitative targets and of success verification by the local government,
- municipal energy planning is not combined with a positive understanding of future city development.

The key questions therefore are: How can the proposed measures be implemented successfully? And how can the relevant people, institutions, companies be convinced to participate in the process of municipal energy planning, and ultimately, in implementing the plan in their respective fields of responsibility?

Taking the Municipal Energy Plan of the city of Graz as an example, it shall be shown how some of the above mentioned deficiencies - especially the lack of action-orientation - can be counteracted in practice.

2. ENERGY POLICY IN THE CITY OF GRAZ

Graz is the capital of Styria, one of the nine Austrian provinces. With an average of 368 meter above sea-level, the city is situated in the south-east of Austria. Graz has a population of approximately 240.000 (plus 55.000 students and temporary inhabitants). In addition, about 140.000 people commute into the city for working and shopping purposes every day.

2.1. Energy-profile

The municipal energy utility of Graz, the "Grazer Stadtwerke AG" is an integrated utility, which distributes 70% of the electricity, all of district heating, gas and water and operates the public transport network. The other 30% of electricity are distributed by two other utilities, the "E-Werk Franz" (6%), a private-owned enterprise and the "STEG" (24%), with mainly public shareholders.

There is hardly any power production by the Grazer Stadtwerke AG. The energy for the district heating system comes from two cogeneration power plants, one (gas-fired) situated within the city, the other (coal-fired) some 20 kilometers south of Graz. They are owned by the regional utility, STEWEAG.

In 1993 the demand for end-use energy was 23.200 TJ in total (Ahamer, Lesch 1995). Figure 1 shows the end-use energy consumption by fuel and by sector, respectively. Traffic is included and is responsible for more than half of the oil consumption. As one can see, about one third of the energy is used in the residential sector, more than one fifth in the traffic sector and the rest is shared among the public sector, the commercial sector and the industry. Industrial energy demand is low due to the small amount of heavy industry within the city territory.

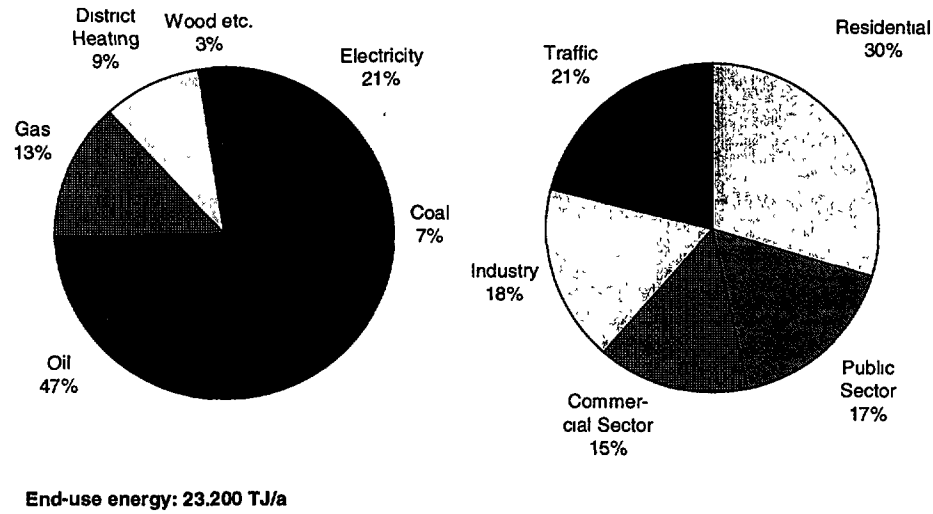

Figure 1. End-Use Energy Consumption By Fuel and by Sector i the City of Graz (1993)

The total municipal CO2-emissions of Graz are ca. 1,46 million tons per year (1993). The emissions from power and district heat production are included regardless of the actual site of the converting plants inside or outside the city boundaries. However, no further emissions related to "upstream" processes and products are incorporated. In the traffic sector only the emissions within the city territory are taken into account. This yields per capita CO2-emissions of approx. 4,9 tons per year (6,1 tons, when taking only the inhabitants), which is very low compared to other areas in Europe.

2.2. Legislative Framework

In the late eighties the inhabitants of Graz had to suffer from two smog-winters and therefore politicians had to look for successful approaches to minimize local air pollution and to increase life quality. The *Styrian Land-Use Regulation Law* was changed in 1990. Since then, municipalities which are situated in a so called "air-sanitary-restore-area", have to work out a municipal energy plan with measures against the bad air quality. In summer 1993 the Styrian government published the map which shows these areas. The entire city-area of Graz falls under that category. This means that in the municipal energy plan district-heating-supply-areas must be defined where *district heating is under obligation* (for new as well as for existing buildings).

The city of Graz was the first Austrian member to join the *"Climate Alliance"* between European cities and the people of Amazonia. Its main goal is the reduction of the CO2-emissions in the city by the year 2010 to 50% of its 1987 level. In addition, the members agree to an immediate stop for production and use of CFCs. They will no longer use wood of tropical rain forests and, on the other hand, they support peoples of these territories and their sustainable projects. The city council adopted the resolution on the 8th of November 1990. On the 22nd of April 1991the 22 founding members of the alliance signed the charter in Graz.

Moreover, the city of Graz has been preparing the implementation of a *City Development Program* which also contains a series of energy relevant sections such as the traffic concept. The *environmental program "eco-city 2000"* has been worked out, addressing the major environmental problems of the next century (Niederl et al. 1994). This analysis of municipal options resulted in seven action plans covering virtually all important fields of environmental policy. What is new there is the definition of 15 sustainability parameters with quantitative targets for the year 2000 (e.g. reducing pollutants by 30%, reducing the length of streets with more than 65 dB(a) noise by 10%, stabilizing the amount of cars, increasing the driven kilometers of public transport by 10%, reducing dangerous waste by 50%). They will be evaluated by independent experts every three years. The program is about to be passed by the city council.

2.3. Preliminary work

Quite a few energy saving projects were initiated during the last 10 years by the city of Graz. A few of them should be shortly mentioned, to show the fundaments the Municipal Energy Plan is built on:

- The city selected about 70 city-owned objects to modernize the heating system and to switch from coal and oil to district heating and natural gas. So far, the improvement of the 70 objects (mainly administration buildings and schools) has resulted in an energy conservation of 46 % and in a considerable reduction of air pollutants and greenhouse gases (- 60% CO2). The "Grazer Stadtwerke AG" took the role of a contractor and planned, prefinanced, and guaranteed the entire program. Over the next ten years the city's energy bill will be about the same it was before the modernization, but the bill includes the repayment of the investments. In the long run there will even be financial benefits. (Niederl, Lesch and Tritthart 1994)
- Monthly controlling of the heating systems of large municipal buildings results in an annual energy costs conservation rate of about 80.000 ECU.
- For the inhabitants of Graz energy consulting is offered free of charge.
- The methane gas from the landfill in Graz is collected and used for the district heating system.
- Ecological and energy saving questions are important criteria in the procurement decisions in the city administration.
- People in Graz get subsidies from the city of Graz for the installation of solar systems (hot water and space heating) and for changing their actual heating system to district heating (the latter only for people with low income).

- Measures to reduce traffic by individual vehicles and to favour public transport: In the whole city there is a 30 km/h speed limit (except main streets). Free parking is reduced in the inner city. Furthermore, the city of Graz gives subsidies to support the regional public transport system.

A short survey of 38 innovative energy projects in Graz within the last few years has been published recently (Kirchpal 1995). The high amount of energy saving projects was also the reason that the city of Graz won the Greenpeace Austria award 1993 for the city with the most climate-friendly energy policy in Austria (in the category with more than 10.000 inhabitants). However, in moving towards sustainability in urban development, still greater efforts must be made to reduce greenhouse gas emissions and to maximize the benefits for the people and the economy in Graz. The development of the Municipal Energy Plan of the city of Graz ("KEK Graz" is the German abbreviation) is a further step in this direction.

2.4. Targets for the Municipal Energy Plan

The Municipal Energy Plan of Graz was designed not only as an energy efficiency program, but also as a program for improving the environment and stimulating the economy. The distinct targets were already adopted by the city council before the actual planning process started. This turned out to be an important advantage because the discussions could be concentrated on "how" to reach these goals, and not on the goals themselves.

Quantitative targets of the Municipal Energy Plan (based on 1987 values, target year: 2010):
- CO2-Emissions: - 50 %
- Emission of pollutants (NOx, SO2, CxHy, CO, dust): - 60 %
- Electricity Consumption (symbolic contribution to phase out nuclear power): - 18 %
- Increase of the share of renewable energies from 16 % to 40 %

Qualitative targets:
- Using energy services rather than energy quantities as starting point for analyzing the local energy system;
- Minimizing fossil fuels and the emissions of pollutants and greenhouse gases through improvement of energy and exergy efficiency and the increased use of renewables (sustainability);
- Improving cost-effectiveness of energy service supply;
- Achieving social compatibility regarding the impacts of the local energy system;
- Applying integrated resource planning to combine demand-side and supply-side options in the optimization procedure;
- Strengthening of municipal energy policy;
- Improving acceptance of measures and instruments and enhancing the success of the plan through a collaborative planning process.

3. STRATEGIC CONCEPTION OF THE MUNICIPAL ENERGY PLAN

Previously, local energy plans were often limited to data evaluation and the technical-economical analysis of energy saving potentials. The Municipal Energy Plan of Graz is intended as an integration of theoretical papers and the realization of concrete projects. With this approach, it represents a novel approach which goes beyond traditional concepts:

(1) The focus is put on *working out detailed instruments* to mobilize the existing energy saving potentials.

The technical-economical evaluation is seen as a necessary basis, not as a goal. The analysis is completed by the evaluation of action possibilities and of barriers (structural barriers, information and motivation deficiencies), the results of which should lead to effective instruments for implementation (e.g. financing models, energy certification of buildings, information programs, better construction controlling, subsidies etc.). The main task therefore is to develop precise recommendations for a local action plan to be passed as a resolution by the city council.

(2) The *implementation of actual* projects will be part of the process from the very beginning.

This is to ensure that not only paper but action is produced. The city can thus visibly demonstrate to the public that the achievements of the goals is taken seriously. And last but not least, this is a way to gain the willingness from the utilities and institutions in Graz to participate in the process in their own interest.

(3) *Five teams* (the so called *"KEK-teams"*) with representatives from utilities, local authorities, companies etc. were formed to *organize the process of working out the concept, the projects and programs in a collaborative way.* Each of the teams focuses on one of the major impact areas (see Figure 2).

The integration of all relevant institutions in the KEK-Teams should ensure, that the results will be broadly accepted and actively promoted by the relevant institutions. Many instruments and projects cannot be implemented by the Department of Environmental Protection itself but only in cooperation with, or by other partners. To enhance the chances of the actual implementation of the instruments, they must be developed by, or in close cooperation with those who will feel responsible for their implementation in their respective business environment, within the next years. In addition, it is also better to integrate those into a rational discourse who otherwise would intervene in the decision process anyway, at the latest after results would have been presented.

In these "KEK-Teams" practical experiences and different interests can be taken into consideration already during the development of the KEK Graz. In particular, the five KEK-teams form a platform for developing ready-to-go projects and to discuss and modify the proposed measures and instruments. By that a cooperative and durable dialogue shall be started to support the realization of the projects and instruments in the long run.

Some more implicit goals are associated with this collaborative approach in the KEK-teams, as well: to initiate learning processes on all sides, to gradually remove barriers between the participants, to act as a catalyst bringing people together for concrete projects, to support a long-term process for a sustainable energy policy in Graz.

4. ORGANIZING THE PROCESS

The Municipal Energy Plan KEK Graz is under preparation since summer 1994. The Department of Environmental Protection (Amt für Umweltschutz) of the municipality of Graz is responsible for the preparation of the Municipal Energy Plan. The Energieverwertungsagentur (E.V.A.), the Vienna based Austrian energy agency, is under contract as a consultant and is supervising, moderating and coordinating the project. Two members of the E.V.A.-staff are permanently working right in the office of the Department of Environmental Protection for the duration of the project. This makes a very close cooperation, which is fundamental for the chosen approach, possible.

The budget for the whole KEK-project is approx. 3,2 million ATS (230.000 ECU). Not included in this sum are the contributions from the Department of Environmental Protection (one person: 80%, several persons partly, whole infrastructure). The money is divided into:

- consulting and moderation of the process: 1,6 mill. ATS
- incentive financing of projects: 1 mill. ATS
- external experts: 0,6 mill. ATS

4.1. Organizational Structure

Essential for the collaborative process are the working groups, the "KEK-Teams". They have been installed for five areas of interest (see Figure 2). About 70 institutions with more than 140 persons are involved. About 70 to 80 persons attend the KEK-Team meetings regularly. After a few meetings KEK-Team 4 and 5 have been combined because they were working in similar fields.

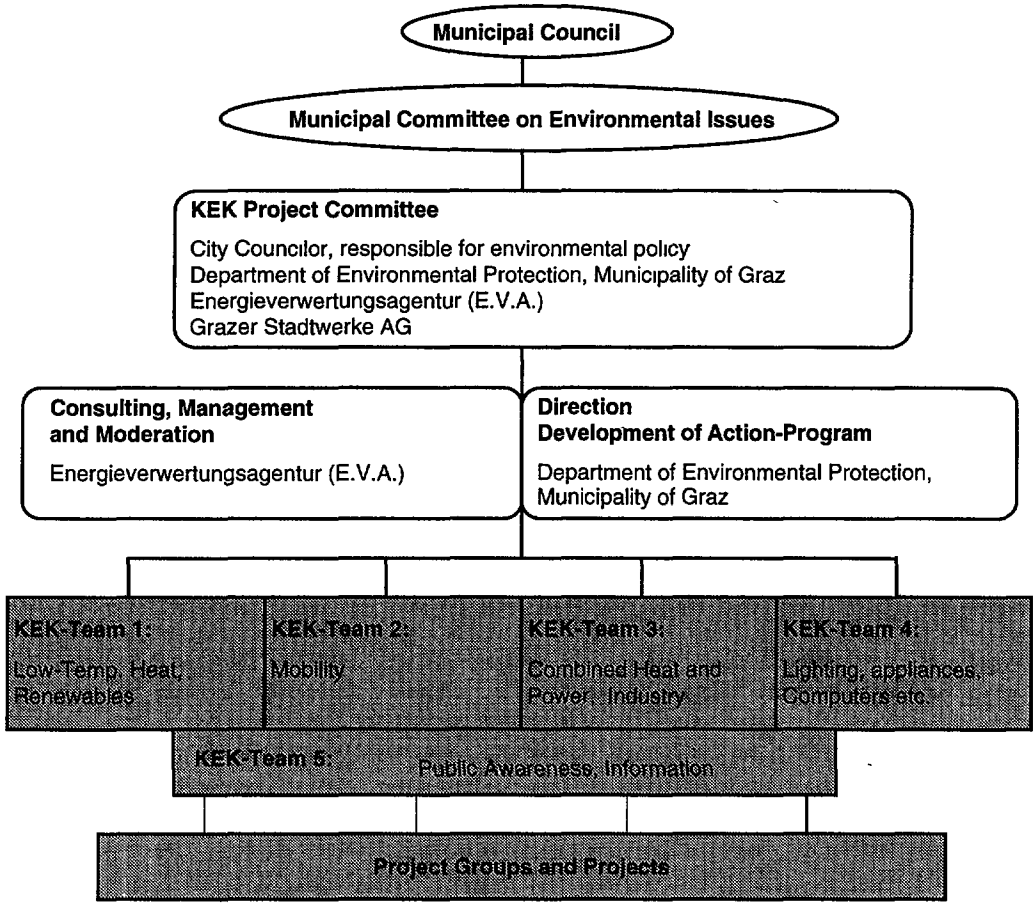

Figure 2. Organizational Structure of Developing the Municipal Energy Plan KEK Graz

The meetings are organized as small workshops of half a day and they take place every one or two months. Every KEK-Team meeting consists basically of three parts:

- *Information*: papers on different KEK-related topics - energy profile, reference projections, instruments portfolio etc. - are provided and discussed;
- *Instruments* and action plan: proposals from the Department of Environmental Protection are presented and comments are made by the participants;
- *Projects*: concrete projects and programs are initiated, planned and presented.

Beside the KEK-Teams some special meetings were organized to discuss some topics in more detail, e.g. the basic data of energy consumption and emissions. The E.V.A. takes care of the management and moderation of the KEK-Team meetings, of the coordination of the whole process and is responsible for the quality assurance procedure. The Department of Environmental Protection is responsible for the analytical work and for developing the action plan. It is supported by external experts, members of the KEK-Teams and by the E.V.A. The results are published in a series, the KEK-reports, and made available to the interested public.

The KEK Project Committee - where the responsible City Councilor, the Department of Environmental Protection, the E.V.A. and the Grazer Stadtwerke AG are represented - accompanies the work of the KEK-Teams and of the people running the project and makes all substantial decisions. The proposal for the Communal Energy Plan, i.e. the paper version of the KEK Graz and all practical projects, will finally be presented to the Municipal Committee on Environmental Issues (which prepares the ultimate decision by the City Council), other bodies of the city administration and to the public.

4.2. Initial Phase

During an intensive period of discussion at the beginning of the project in mid 1994, the strategic orientation, the organization of the process, the topics of the work and the mutual commitments were fixed (Papousek et al. 1994).

A decision was made to create five KEK-Teams and to invite all relevant institution regarding energy policy in Graz including NGOs and lobbies instead of selecting a few experts for each KEK-Team. It was believed to be better to integrate the important acting persons into the process very early to stimulate learning effects on all sides through a rational and fact-orientated discussion.

Some features were agreed upon to demonstrate the importance of the task, the professionalism of the project team and the support by the city representatives. They were considered essential to achieve the readiness of the invited institutions to participate and that the whole project is taken seriously:

- A special logo was designed which is found on all written KEK-material (letters, reports etc.).
- Special attention was paid to the procedure of inviting the KEK-Team members. The representatives of all four institutions represented in the KEK Project Committee signed the invitation letter. Several preparatory papers were sent with the letters, and quite a few personal talks were made.
- The meetings of the KEK-Teams are held in the council chamber. The responsible City Councilor introduced all five constitutional KEK-Team meetings.
- There was an official opening event with the mayor and the chairmen of the energy utilities.
- A well prepared agenda, sufficient breaks and a small buffet contribute to a pleasant working atmosphere during the KEK-Team meetings.

The targets of the KEK Graz were presented to all KEK-Team participants but not discussed in the beginning although there certainly were and are doubts about the possibility to actually reach the targets (especially approaching a reduction of the CO2-emissions by 50 %). The strategy was found to be useful, to understand the targets as the direction where the energy system should develop and at the same time to make some first real steps in this direction from the very beginning. This indicates the approach of the project, trying to start a long-term process towards climate protection and sustainability in the local energy system.

4.3. Working Procedure towards the Action Plan

The procedure of developing the KEK Graz is illustrated in Figure 3. The contents of the different parts are not discussed here in detail. We concentrate on the process and some experiences.

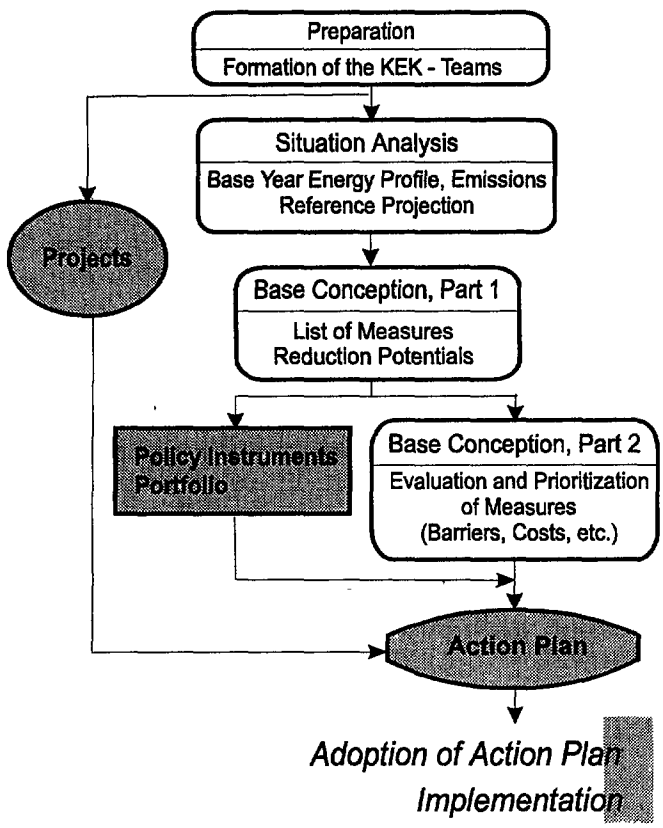

Figure 3. Working Procedure of the Municipal Energy Plan KEK Graz

The KEK-reports, reflecting the necessary data evaluation, scientific analysis and the action program, are worked out in the following way:

- The work is carried out by the Department of Environmental Protection and by external experts.
- The results are reviewed by the E.V.A..
- Drafts of the reports are presented in the KEK-Teams and distributed to all participants. (e.g. energy and emissions profile of Graz, catalogue of municipal instruments etc.). Then they have the opportunity to make written statements on these drafts.
- All of the statements are answered by the Department of Environmental Protection and, if acceptable, integrated in revised versions.
- The final report, ready for printing, is edited by the E.V.A. All statements of the participants with the answers are also published to guarantee as much transparency as possible.

To enforce a rational and fact-orientated treatment of the topics the participants are asked to make their statements in a written form. Controversial points are discussed in special working meetings with the persons concerned, not in the KEK-Team meetings (e.g. the emission-factors for electricity and district-heating, energy related subsidies).

Another important point is that it was clear from the beginning that it is not necessary to have an action plan at the end which is accepted by all participants in all details. Many examples have shown that with such diverging interests in the working groups it is hardly possible to decide on a by all sides accepted but substantial paper. What will be produced are well documented suggestions and recommendations which will serve as a basis for the decisions of the city council. The institutions giving comments are promised that their comments are either integrated or at least published.

Several KEK-reports have been produced for the different sections shown in Figure 3. Based on the analysis of different measures, their CO2-reduction-potentials and related barriers, a catalogue of municipal action possibilities (instruments portfolio) has been developed. They are divided into different fields of municipal competence:
- legal intervention possibilities (e.g. restrictions for certain energy carriers in certain city areas),
- within the municipality (e.g. improving the control of the thermal quality of newly erected buildings, energy efficient rehabilitation of city owned apartment buildings),
- incentive systems (e.g. third party financing of energy efficiency measures),
- information programs, education (e.g. expansion of energy consulting, further training of energy professionals),
- proposals to the legislation by the city council (e.g. improvements of the building law).

Approx. 40 relevant instruments have been identified. They cannot be described here in detail; giving precise information would probably fill another paper. These instruments are intensively discussed with the KEK-Team participants. They serve as the basis for the development of the action plan, which shall be adopted by the city council.

4.4. Initiating Concrete Energy Projects

In parallel, the work on concrete projects begun in the first KEK-Team meetings. As a result of the second set of meetings the KEK-Teams succeeded in forming 15 subgroups dealing with concrete projects. They center on topics like: third party financing for energy efficiency ("Thermoprofit"), a Solar Initiative for Graz, low energy residential areas, small scale combined heat and power plants, the implementation of the compulsory use of district heating, an information campaign concerning efficient lighting and appliances, shopping opportunities without depending on a car, etc.

These project groups do not only design the projects but they also work on their implementation (including the development of financing plans). It was intended that these groups work to a great extend independently. However, it turned out that they need more support and involvement by the KEK project staff and the Department of Environmental Protection, respectively, than expected. The structure is held flexible. New participants should be able to join the groups, new groups should be formed if necessary and those without progress should dissolve again.

The project groups are encouraged to give priority to those projects which prove profitable to some of the institutions or companies instead of working on the basis of pure idealism. The benefit can be either an economic one or lead to an image improvement etc. This results in better chances for the implementation of the projects and in projects, for which financial support by the municipality is not necessary in all cases. The procedure of initiating these projects is:

- A project group is formed inside or outside the KEK-Team meetings. In the KEK-Team meetings the progress of the project groups is always reported.
- An interim goal is the formulation of a project description. It is evaluated by the E.V.A. whether the project meets the defined criteria for KEK energy projects (especially its contribution to the KEK goals).
- At this stage the project is presented to the KEK Project Committee for a decision on the acknowledgment as a KEK energy project.
- The project can obtain financial means from the city of Graz out of the project budget (not full costs, only incentive financing to overcome problems in the beginning). A positive decision by the KEK Project Committee and concrete steps towards its implementation are required.
- To give additional incentives, the implemented KEK energy projects will be given an award. They will be well documented, presented to the public in a nice booklet and exhibited during an international conference. In addition, they are allowed to use the KEK-logo.

The first projects acknowledged as KEK energy projects are:
- Energy efficiency measures and thermal solar energy systems for two student hostels under construction, resulting in a 30-35% reduction of energy consumption. The additional necessary measures are prefinanced by the Grazer Stadtwerke AG.
- The same model is applied to a school to be renovated (improving the building envelope).
- A low energy residential area in combination with living without an own car is in planning stage.
- A public climate protection program has been started, trying to activate the people in Graz to realize a few very simple energy efficiency measures in their homes.
- In a public school the pupils are going to build a solar system with 30m² collector area.
- A group of prominent people in Graz - including two city councilors, members of the city council, the directors of the Department of Environmental Protection and the E.V.A. and some others - are self-building solar collectors for their private homes. The solar systems will be presented to the public on the day of the sun (june 21).

5. CONCLUSIONS

Concrete action at the local level through municipal energy planning is of great importance to protect global climate. The experiences with the Municipal Energy Plan of Graz show, that action-orientation can be reached by paying attention to the following issues:

5.1. Initiating a long-term process with broad participation of the relevant institutions

- To achieve a high level of action-orientation the relevant institutions, utilities, companies, authorities, NGOs etc. should be integrated in the development of the municipal energy plan.

- To start a long-term process and to activate as many people as possible to participate, a good moderation of the whole planning process is essential. Much time must be reserved for communication. Occasions are needed to gain confidence and respect between the participants.

- The great efforts of actively organizing this process cannot be continued for several years. For that reason the process must be established in a way that it is possible for the consultant and the responsible authority to step back again without stopping the whole movement.

- People should be activated through their own benefits. They must have experiences of success (which must be well distributed). Possibilities for politicians to make a mark for themselves in the public should be considered intentionally by the consultant and the responsible authority to obtain his or her support.

5.2. Working on concrete projects already during the development of the Municipal Energy Plan

- The implementation of concrete projects is important to obtain the readiness and interest from the utilities and institutions to participate. Priority should be given to those projects which prove profitable for some of the participants. The benefit can be either an economic one or lead to an image improvement etc.

- The municipal energy planning process should initiate projects as autonomously as possible through creating opportune conditions: information, bringing people together, giving incentives and support from the municipality.

- The experiences show, that at least in the beginning it is necessary that employees of the municipality or the consultant accompany the work of the project groups and moderate, support and push the process.

5.3. Focusing on how to implement measures

- It is not the question any more what to do, but how to do it. Thus, it is important to concentrate on the barriers and instruments in the municipal energy planning process (legal, administrative, information, financing models, subsidies etc.) to implement appropriate measures. These instruments have to be worked out in great detail with clear instructions what must be done, when and by whom.

- On the whole, the instruments should be developed by those who will be responsible for their implementation, and not by external consultants.

- Clear goals and tasks for the Municipal Energy Plan passed by the City Council help to concentrate the work on finding actual steps in the given direction and not to get stuck discussing only the goals.

- Distinct and quantitative targets on the level of measures (e.g. m2 collector area to be installed per year, number of rehabilitated buildings per year etc.) are essential for the evaluation and the adjustment of the instruments in the future.

- For the progress of the work it has proved helpful, that the participants do not need to agree on one single paper. Nevertheless, a fair treatment of the opinions and interests of the KEK-Team members is indispensable for their participation.

5.4. Consulting

- It is of great advantage for the chosen approach to have persons as consultants who know the essential people, the institutional structures and the political situation in the municipality. This helps to bring the right people together and to avoid animosities.

- A continuos and very close communication between consultant, responsible authority and local key persons is of great importance.

- Professional competence in combination with qualifications in the field of moderation, communication and conflict management are very beneficial to initiate a fruitful process in the city.

Last but not least an essential factor should be mentioned: For the success of such a project the choice of the right moment is crucial. Probably, the participation of such a high amount of institutions would not have been possible some years ago. A lot depends on the people involved and their willingness to work for an efficient and sustainable energy system. Such a process requires the readiness from the participants to unconventional cooperation models and to leave well known paths. The KEK Graz can now build on the previous work of many people, who contributed to a climate in Graz which made a project like this possible.

However, it can be noticed, that it would have been probably better to compile more of the analytical work (situation analysis, measure analysis etc.) as a basis before the beginning of the participatory process focusing on the implementation. This is because personnel resources are limited and the discussion of the action plan in such an intensive participatory process as well as supporting and supervising the project groups require great efforts and much time.
In the city of Graz many of the described requirements could be met. It is not yet clear how many and which of the instruments and projects will have success in the long run. But it was shown that a promising process leading to more action-orientation in municipal energy planning could be started with the chosen approach.

6. ACKNOWLEDGMENTS

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