

The Integrated Action Program for Climate Protection in Munich (IHKM)

Current developments in our global climate clearly show that there is now way around fast and efficient climate protection any more: politicians and climate experts largely agree that the rise in average temperatures caused by anthropogenic influences must be limited to 2° C, in order to reduce the resulting risks for the world's population and to limit the scope of consequential damages. In order for that to be achieved, a significant reduction of worldwide greenhouse gas emissions is paramount. This especially calls for the commitment of big cities and metropolises because that's where the bulk of greenhouse gases is emitted. At the same time, these cities have the best chances of finding a way to reduce CO₂ emissions sustainably.

Following a basic decision of its City Council on December 17, 2008, the City of Munich has adopted the climate protection targets defined by the European local network *Klimabündnis* e.V. These targets are: a reduction in carbon emissions by 10% every 5 years and a 50% reduction in carbon emissions per capita compared to the reference year 1990 to be achieved by 2030. The latter corresponds to carbon emissions decreasing to 3.15 tons per inhabitant per year. The same Council decision charged the City administration with developing an "Integrated Action Program for Climate Protection in Munich" [abbreviation IHKM following the German title "Integriertes Handlungsprogramm Klimaschutz für München"] to make sure that the climate protection targets set for Munich are met.

In Munich, several City Departments have responsibilities with respect to climate protection. The basic decision on the IHKM program lead to the creation of an interdepartmental management of the City's climate protection measures. The objective is to increase the efficiency of measures taken and to make better use of the resulting synergies. The Department of Health and the Environment (DHE) is responsible for developing the IHKM program in close cooperation with all other City Departments and Offices. To that end, the DHE pools the climate protection measures and strategies developed by interdepartmental working groups. The first package of measures developed in the framework of the IHKM program – the "Climate Protection Program 2010" includes measures for the period of 2010-2012 and was submitted to the City Council for resolution in May 2010. The IHKM program is to be renewed every two years.

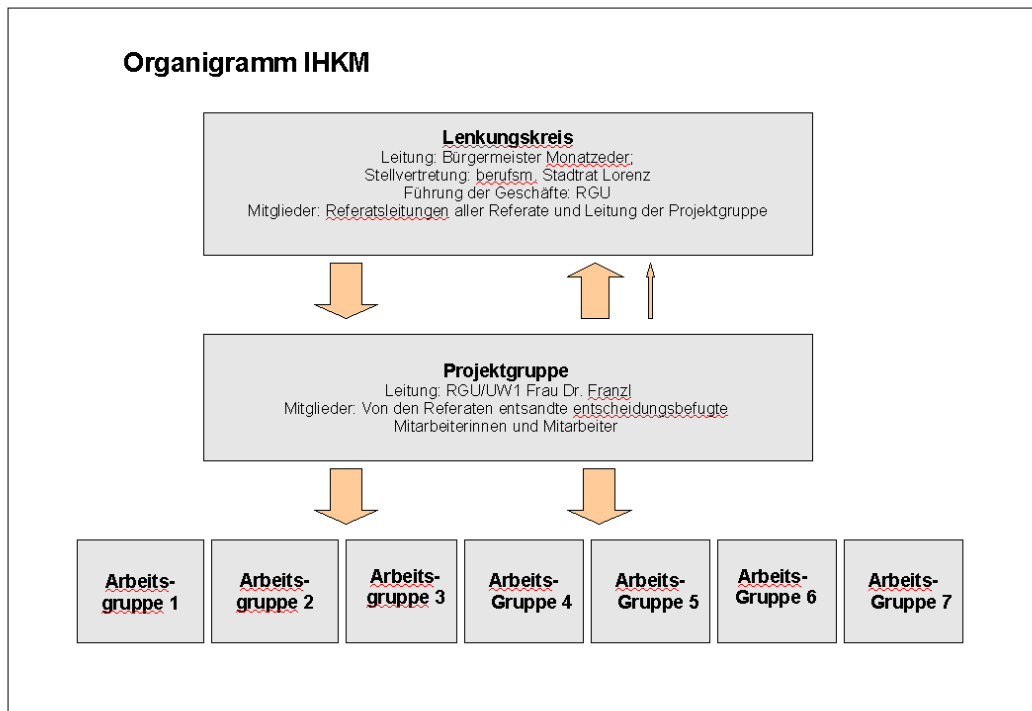
The IHKM program is based an expert opinion of the *Öko-Institut* entitled "Local Strategies for Reducing Carbon Emissions by 50%, using the example of the City of Munich" published in 2004. In total, the expert opinion defines around 40 different fields of activity which can be influenced by the City in order to reduce greenhouse gas emissions and it also quantifies the possible reductions.

Organizational Structure

For the process of developing the IHKM program, three decision-making and working levels were established (see figure 1): The Steering Committee (*Lenkungskreis*), consisting of management officials of the relevant administrative bodies, is responsible for coordination. It initiates and manages the entire process of IHKM development and is headed by the full-time Deputy Mayor of the City of Munich.

The practical expert work is coordinated by the Project Group (*Projektgruppe*): it draws up the Integrated Action Program for Climate Protection in Munich and is responsible for adjusting and updating it until the CO₂ reduction targets defined by the City Council are achieved.

The Project Group develops suggestions for the Steering Committee. It consists of managers of all City Departments and is headed by the DHE.



The Project Group has seven subject-specific Working Groups (*Arbeitsgruppen*) working out cross-cutting climate protection measures and standards. These Working Groups consist of clerks working for the relevant City Departments. The contents discussed focus on the key fields of action for CO₂ avoidance defined in the *Öko-Institut's* expert opinion:

1. Housing construction – energy-efficient construction in existing and new buildings
2. Urban development, urban land-use planning, landscape planning
3. Mobility and traffic
4. Energy-efficiency in the industry
5. Energy generation and distribution
6. Energy management in city-owned properties and in infrastructure
7. Procurement, company vehicles and business trips

Each City Department and the DHE in its role as the managing entity are supported by an external expert institution, the *Forschungsgesellschaft für Energiewirtschaft mbH* (FfE). Among other things, the FfE is charged with analyzing the measures developed for the IHKM program with regard to their contribution to achieving the CO₂ reduction targets.

Contents of the IHKM – the Climate Protection Program 2010

The IHKM working groups elaborated a total of 200 operational and strategic measures for climate protection. 55 of these measures were chosen for the Climate Protection Program 2010. The operational part (50 measures) includes all activities resulting in a quantifiable CO₂ reduction effect or – even though not quantifiable – at least have an indirect effect (e.g. public

relations measures). The operational measures can be grouped into 14 subject categories:

No.	Title of the Package of Measures
1	Energy conservation incentive program (<i>Förderprogramm Energieeinsparung</i> , FES)
2	Energy-efficiency in city-owned buildings
3	Municipal housing associations
4	Climate protection strategies of Munich's utility company Stadtwerke München GmbH
5	Increasing use of renewables in city-owned buildings
6	Incentives, training courses and environmental education for energy-efficient consumption habits
7	Developing energy concepts
8	Sustainable forestry and promotion of timber construction
9	Procurement of energy-efficient vehicles for the City's vehicle fleet
10	Further development of subway and tramway infrastructure and acceleration of bus and tramway connections
11	Implementation of the bicycle traffic concept
12	Low-energy equipment, computer systems and lighting in the City administration
13	Low-energy street lighting and traffic signals
14	Technical and construction measures of different municipal investment companies

The strategic part of the Climate Protection Program 2010 includes five measures which are the indispensable basis for developing further operational measures, even though their own carbon reduction effect cannot be quantified (e.g. entrenching climate protection in urban land-use planning, planning principles for settlement development and energy supply).

The climate protection measures chosen were taken down and described according to a standardized evaluation system in a measures sheet specially developed for this purpose. If possible, the corresponding CO₂ reductions, the cost per ton of CO₂ not emitted and qualitative criteria like the practicability and effectiveness were taken down for each measure.

Overall Effectiveness of the Climate Protection Program 2010

In principle, one has to be aware of the fact that a city administration, city-owned companies and the subsidies provided by the city can only influence part of the carbon emissions caused by all sectors of the industry in the municipal area. However, we can assume that the measures taken do have a high impact on other players if the city administration leads by example. In addition, comprehensive consulting services offered by the city can encourage private businesses and individuals to invest in climate protection measures themselves. This has been the successful concept of the City of Munich's municipal construction center, a consulting and event center for anything that has to do with energy-efficient construction and refurbishment and the integration of renewables in existing and new buildings, for years. Naturally, the effectiveness of such consulting services can only be measured indirectly.

The expert opinion published by the *Öko-Institut* in 2004 assumes that the City of Munich can reduce carbon emissions by around 11% in the period from 1990-2030 with the means available at the time of publication. The measures included in the Climate Protection Program

2010 can add another 6% reduction in greenhouse gases to that initial value. The CO₂ reduction target set by Munich's City Council (a 10% reduction in emissions every 5 years and a 50% reduction in emissions compared to the base year of 1990 by 2030) can only be achieved if the Climate Protection Strategy described above is consistently pursued even beyond 2013.

The additional reduction potential identified in cooperation with the FfE amounts to approximately 540,000 t/a so far, the majority of which can be realized in a few fields. These primarily include the further development of energy generation with renewables pursued by the utility company SWM GmbH, especially through offshore wind farms in the North Sea and large solar power plants in Southern Spain (456,000 t/a). Other great potentials for reducing emissions lie in the increasing usage of deep geothermal energy for heat and power generation (32,000 t/a), the changeover of the district heating system from steam to hot water (37,500 t/a), in stepping up the existing energy conservation incentive programs for private building owners (especially for thermal insulation and solar thermal systems) from 10 to 14 million Euros per year (14,000 t/a), intensified climate protection measures of municipal housing associations in renovation and the construction of new buildings (6,000 t/a), the promotion of bicycle traffic through an increase of the modal share from 14 to 17% (5,000 t/a) and an increase in energy efficiency of city-owned buildings (around 4,000 t/a).

For the apartments of the municipal housing associations, the City of Munich aims at an annual primary energy requirement of 60 kWh/m² for refurbished existing buildings and 40 kWh/m² for new buildings. In some cases, passive houses will be built. These energy standards, which will continuously be implemented according to further developments in the German energy saving regulation, can be considered a compromise between Munich's incredibly high accumulated demand for affordable housing on the one hand and the challenges of climate protection on the other hand. In municipal building construction projects (schools, kindergartens, etc.) the City aims at fulfilling standards 35% above those defined in the German energy saving regulation of 2009, both for refurbishments and new buildings. Some particular cases of municipal building construction will be completed according to passive house standards as well.

Including further Actors of Urban Society

Within the framework of the alliance "Munich for Climate Protection" which has been launched by the City Council already in 2007, many important players from business, academia, politics, associations and the media could be engaged for effective climate protection. Today, the Alliance offers its partners a central platform with information and practical tips and develops innovative role-model projects for local climate protection. During the project development phase, there are four specialist forums on "systematic energy conservation", the "efficient use of energy", "sustainable energy generation" and "sustainable mobility" and a "working group for dissemination". So far, more than 100 people have joined the Alliance and have developed more than 30 projects, e.g. solar covered parking lots with a fuel cell producing heat and power at the same time, a potential analysis for the district cooling system, energy consulting for low-income households, a "Modernization Agreement for Munich" developed in accordance with the tenants association and the association of home and building owners as well as a "Climate Account Book" for Munich's households.

In the meantime, the Alliance headed by the Deputy Mayor of the City of Munich has been distinguished both by the Federal Environment Ministry and the relevant Ministry of the Free State of Bavaria. Since the end of the project development phase on March 25, 2010, the Alliance has entered the project implementation phase in summer 2010 which will see the development of further CO₂ reduction projects.

Reporting and Public Relations

The DHE has reported back to Munich's City Council about the development of carbon emissions in the municipal area on a regular basis since 1990. In the future, these monitoring reports will also include a chapter on the influence of climate protection packages within the framework of the IHKM program. The objective is to have the energy and climate protection reports of City Departments and associations follow standardized calculation models and thus make them comparable.

Furthermore, the individual reports and the results of the CO₂ monitoring process are to be summarized and published in a regular climate protection report of the City of Munich.

In its resolution of October 14, 2008, Munich's City Council decided to join the Covenant of Mayors. This is a process launched by the European Commission with the objective of increasingly including municipalities in the implementation of Europe-wide targets for climate protection. The participating municipalities undertake to submitting a "Sustainable Energy Action Plan (SEAP) one year after joining the Covenant and to report back on the progress made in its implementation on a regular basis. The IHKM program 2010 and the data collected in the monitoring process are part of the City of Munich's report to be submitted to the Covenant of Mayors office.

Outlook

The City Council made its final decision on the Climate Protection Program 2010 in June 2010. Subsequently, the IHKM program is implemented and evaluated. The following will be done:

- Developing a public relations strategy (internet presence, pamphlets in German and English).
- Developing a well-structured reporting system for the IHKM program. This includes any updates of and adjustments to the CO₂ monitoring process.
- Developing new climate protection measures for an adjusted IHKM program – the

Climate Protection Program 2013 – which is to be submitted to the City Council in 2012.

With the development of the Climate Protection Program 2012 within the framework of the IHKM project, the City of Munich sets an important example and can serve as a role model for other municipalities at the same time. Now the measures described in the Climate Protection Program need to be implemented in practice. Further climate protection packages of the same scope must be developed in the future, for that's the only possible way to achieve the objective of halving carbon emissions in the City of Munich by 2030.

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