

Global District Energy Climate Awards  
Copenhagen - 3<sup>rd</sup> November 2009

Dalkia Czech Republic presents :

Olomouc City Energy Supply System  
Olomouc, Czech Republic.

## Olomouc City Energy Supply System

Location: Olomouc, Czech Republic

### Partnership:

City of Olomouc

100,000 inhabitants, 5th largest city in the Czech Republic, land area of 10,033 ha

Olomouc is one of Czech Republic's largest and most beautiful cities.



### Dalkia Czech Republic

The Dalkia group, which has been operating in the Czech Republic since 1991, is the leading independent heat and power producer. In Olomouc, it owns the production units and primary district heating distribution systems and co-owns Olterm's distribution system.

### Olterm&TD Olomouc

A joint-venture of the City of Olomouc (34%) and Dalkia Česká republika (66%), which supplies more than 24,000 homes with heat and domestic hot water and has been operating the city swimming pool since 1997.

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## City of Olomouc

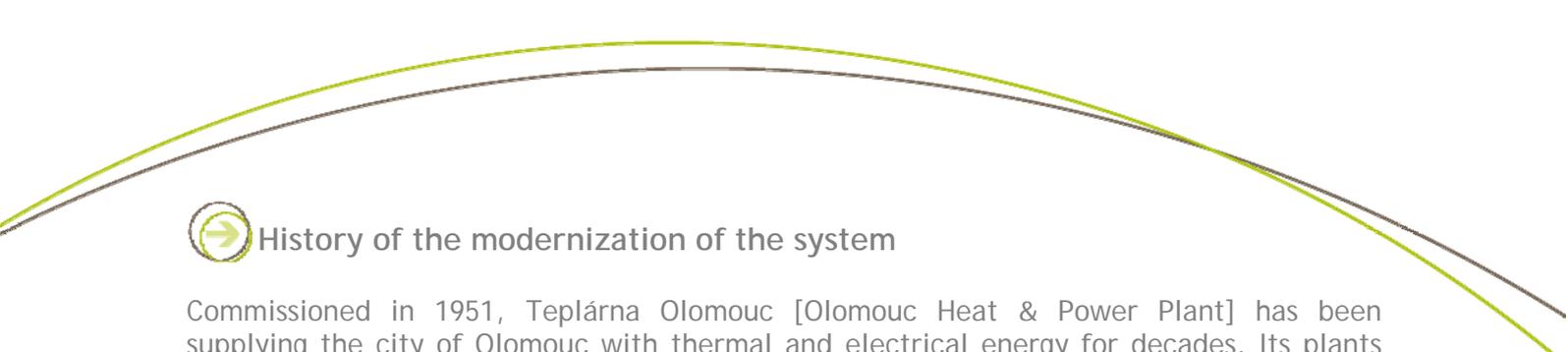


## Dalkia's Heat & Power Plant



## Olterm&TD Olomouc





## History of the modernization of the system

Commissioned in 1951, Teplárna Olomouc [Olomouc Heat & Power Plant] has been supplying the city of Olomouc with thermal and electrical energy for decades. Its plants were built progressively in the 1950s, 1970s and 1990s. The heat & power complex acquired its current appearance thanks to an extensive modernisation effort between 1996 and 1999 and in 2009. The average age of the system is less than 20 years.

### **In 1997 a new investor, the French company Dalkia, came to Olomouc**

Dalkia flexibly responds to demand, and offers the optimum energy solutions tailored to the needs of the city and its residents. In Olomouc, the company is developing a completely new concept of supplying the city with heat, building one of the most modern district heating networks in Europe. Thus, a professional owner, a European leader in energy, has taken over the thermal energy production and distribution in Olomouc.

### **Teplárna Olomouc Modernisation**

Over the past 12 years Dalkia has invested more than € 120m in the city's heat supply system. The key thermal energy generating plant was brought to the highest environmental standards ('greened') and modernized by the erection of two new highly efficient state-of-the-art boilers (a fluidised-bed boiler and a pulverised fuel fired (PPF) dry bottom boiler), which have replaced the original three boilers. The installation of two new steam turbines has made it possible to increase the share of cogeneration, in which Dalkia is number one on the Czech market. Further, a roofed coal storage site, a 120-metre stack, a water management system, dry ash removal systems, substations and electrical energy distributions have been built. Ash disposal sites have been greened and dust and noise proofing systems have been installed.

Teplárna Olomouc has gradually changed its parameters from a total installed thermal capacity of 385.5 MW<sub>t</sub> to 415 MW<sub>t</sub> and from a total installed electrical capacity of 6.8 MW<sub>e</sub> to 49 MW<sub>e</sub>. Annual heat sales amount to 1,896 TJ and annual electricity sales are 210 GWh. The heat & power complex also provides ancillary services for the transmission system operator.

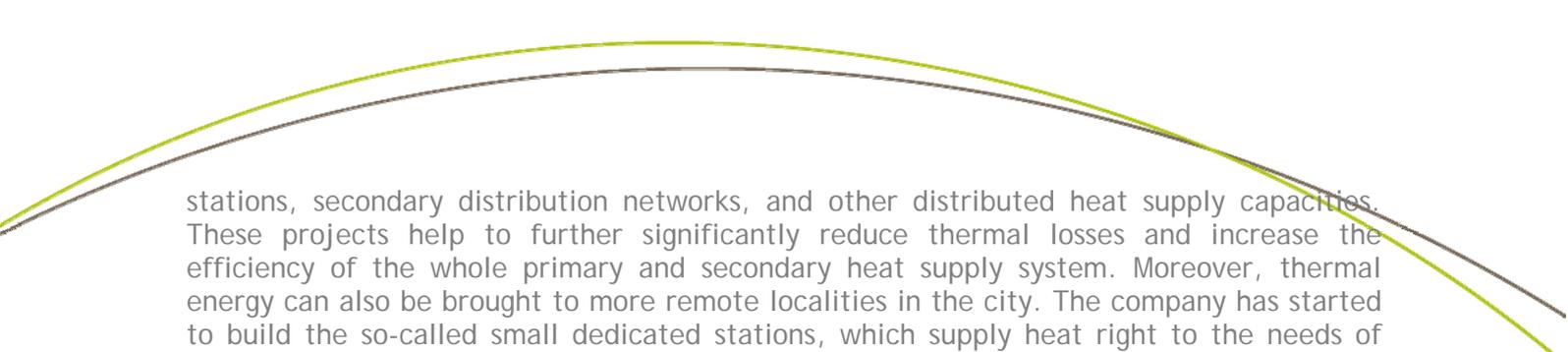
Between 1998 and 2009 the company invested more than € 26m in the upgrades, which also include the connection of old coal and gas fired boiler rooms and houses. In the western part of the city, the original obsolete steam network has been replaced by a new, safer and modern hot water network using factory-coated pipes, supplying heat to the bases of buildings. As the city develops, the length of the networks has increased from 50 km to more than 100 km, with the hot water network accounting for more than 50% of these networks. In the eastern part of the city, the steam network has been preserved because of steam consumption for industrial processes. These two networks supply 603 transfer stations.

### **The city expands its cooperation with Dalkia**

OIterm & TD Olomouc, a distribution company, has been mainly responsible for heat transformation and heat supplies to end users in Olomouc since 1994. In 1999 the city, which until then held 100% of OIterm, took a key strategic decision and sold a majority stake in this company (66%) to Dalkia. Thus, Dalkia has become a partner of the city of Olomouc; hand in hand, these two partners carry out a number of projects for the benefit of the citizens and the city.

### **OIterm modernizes facilities**

Since its establishment, OIterm has invested more than € 20m in the city's heat supply services. The company has extensively upgraded its energy assets, refurbishing transfer



stations, secondary distribution networks, and other distributed heat supply capacities. These projects help to further significantly reduce thermal losses and increase the efficiency of the whole primary and secondary heat supply system. Moreover, thermal energy can also be brought to more remote localities in the city. The company has started to build the so-called small dedicated stations, which supply heat right to the needs of houses and their residents. Two up-to-date dispatch control centres continuously manage the city's complex modern energy systems; one of them controls the thermal energy system, including heat storage, while the other controls heat transfer stations. All of the latest ICT options are used for managing and controlling the whole system, including cable, radio-wave and GSM transmission. Continuous round-the-clock monitoring makes it possible to respond almost immediately to the heat customers' current needs, and guarantees safe and reliable heat supply to households and other clients in the city.

#### **Olterm operates the city's swimming pool**

But Olterm is more than a heat supplier. Since 1997 it has also been the operator of the Plavecký stadion [Swimming Pool] in Olomouc, which has gradually received a profound facelift over the past 15 years. Olterm has directed the revamping of the indoor and outdoor areas, and the quality of the services provided to members of the Olomouc public has been improved. Perhaps the most outstanding proof of this is Aquacentrum Delfinek [Little Dolphin aqua park], the largest and most modern facility in Olomouc, where toddlers learn to swim, and which has been built in cooperation between Olterm, Dalkia and the city of Olomouc. Swimming Pool and Little Dolphin are currently the most visited leisure facilities in the city.



## A clean, safe and affordable heat supply system

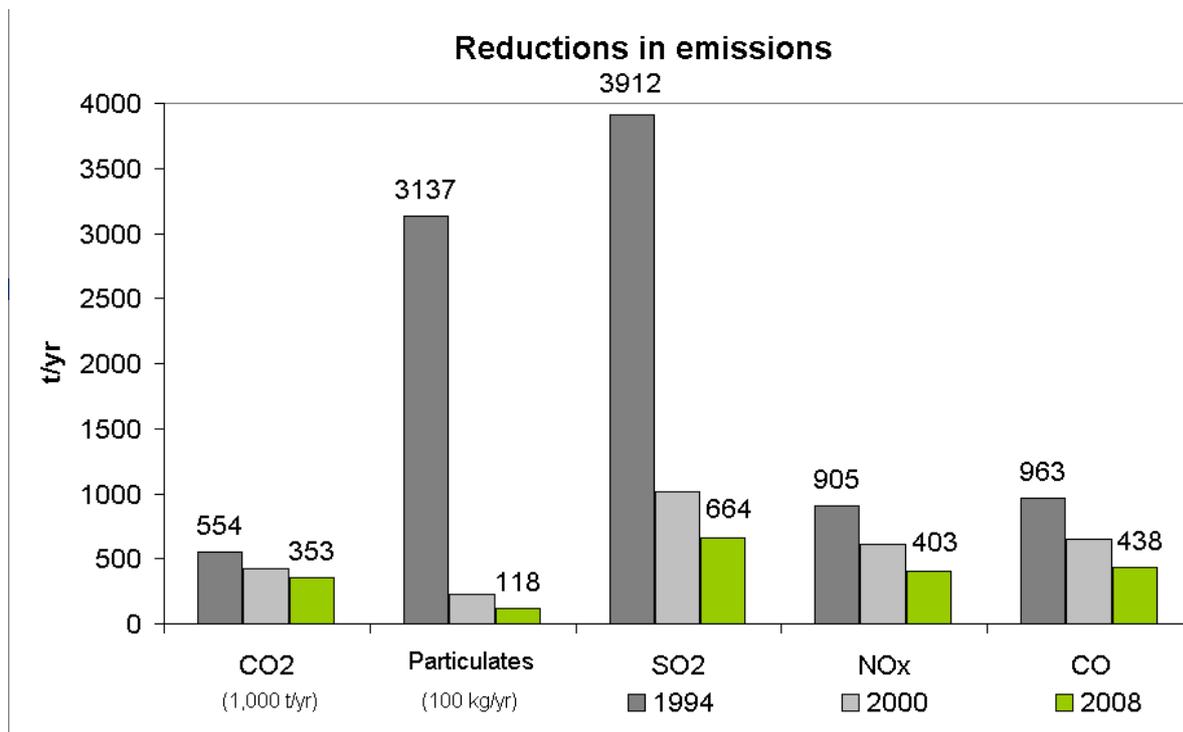
Together, Dalkia, Olterm and the city of Olomouc have developed an energy system that ranks among the most modern, most environmentally friendly, and most economical in the Czech Republic. The city and its inhabitants, industrial companies, and tertiary businesses receive clean, safe and affordable heat supplies.

### Benefits of the upgrades

Environmental protection is one of the Dalkia group's main priorities, which it demonstrates by pursuing its Sustainable Development Policy in its everyday practice.

The upgrade of Teplárna, which is situated close to the centre of Olomouc, has helped to increase the efficiency of heat generation by 31.7%, resulting in a reduction in CO<sub>2</sub> emissions by 162,162 tonnes every year. Part of this greening upgrade was also a project for reducing NO<sub>x</sub> emissions from a peak-shaving emergency heat generating plant located in the eastern part of the city, which has cost about € 0.5m. Another major step towards environmental improvements in the city was the erection of two new electrical dust separators and a 120-metre stack, which is tall enough to ensure that flue gases do not have any impact on ambient air pollution in Olomouc.

Under the new strategy, more than 41 km of heat supply networks have been renovated, resulting in a reduction of losses in heat distributions by about 220 TJ/year and the related significant savings of fuel, in particular brown coal. CO<sub>2</sub> production has therefore dropped by 23,509 tonnes a year. Emissions of some other pollutants, such as NO<sub>x</sub> or CO, have also decreased, and especially SO<sub>2</sub> emissions have dropped by 83% and particulates even by 96%.



The effort to upgrade and green Olterm's thermal installations also includes the closing of 33 solid fuel fired boiler houses, resulting in a significant reduction in local pollution and change in the city's architecture. State-of-the-art materials, featuring a long service life, have been used for refurbishing the secondary networks, which helps to decrease the frequency of repairs and, in turn, interference with the landscape. Energy savings have

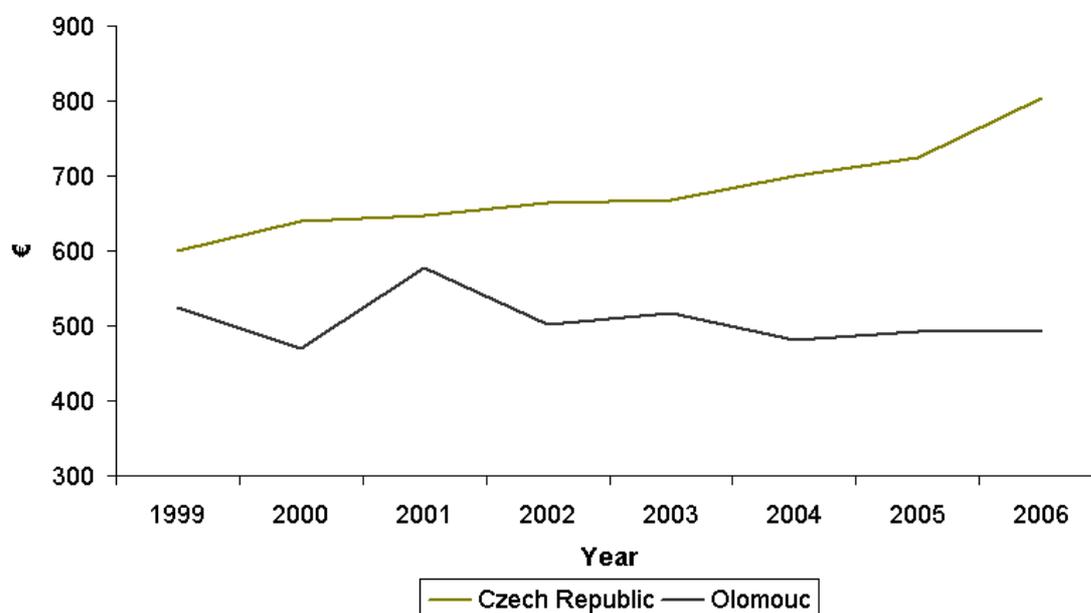
been registered thanks to the new control systems that make it possible to adjust supplies to clients' individual requirements. But citizens themselves contribute to environmental improvements: they economize on energy and heat by installing thermostat valves in their homes, and replacing windows and insulating outer walls.

It is only thanks to these investments that significant energy savings have been achieved and energy efficiency of buildings has improved, which has another direct and favourable influence on the city's environment.

All of these investments have been reflected in the economics of operations - they have made it possible to keep the price of heat for Olomouc residents and other customers at an affordable level.

### Comparison of average annual costs of heat supplied from district heating systems per flat

(50 GJ/yr)



#### Biomass firing

In 2004 the central plant started coal and biomass co-firing, and between 2004 and 2009 the share of co-fired biomass gradually doubled to the current 11%. In the years to come Dalkia plans to increase the share of co-fired biomass up to 25%.

Biomass co-firing helps to reduce CO<sub>2</sub> production by 14,820 tonnes a year. Teplárna fires biomass in the form of pellets from plant production, biomass from energy crops, wood, sunflowers (a Setuza [a Czech company] by-product), and waste wood coming from the maintenance of the city's greenery, which also helps to reduce the level of waste in the city.



## Dalkia and its customers in Olomouc

### Portfolio

Dalkia supplies heat to more than 26,000 homes (Dalkia Česká republika 1,200 and Olterm 24,500) in Olomouc and its environs. In addition to households, Dalkia's customers include many major industrial firms and tertiary entities, whom Dalkia supplies not only with heat but also with electricity, steam at special parameters, operates their heating equipment and provides them with multi-technical services. The City of Olomouc and Dalkia actively cooperate in defining the energy policy and in connecting new buildings to the system. Dalkia also takes part in the drawing up of the energy policy of the Olomouc region. It is worth noting that Olomouc was the first city in which Dalkia gained the trust of a hospital's management - it operates the heating systems of the Teaching Hospital.

### Toll-free customer help line

Since September 2007, customers from the Olomouc region have been able to reach Dalkia 24/7 via the toll-free customer help line. The call centre staff are glad to provide customers with information regarding billing for services, assist them with technical issues or explain further avenues of cooperation with Dalkia. Customers can find information about shutdowns on both Dalkia Česká republika's and Olterm's websites.

### Satisfaction surveys

The results of the most recent satisfaction survey carried out in 2009 prove that in Olomouc Dalkia has the most satisfied customers from among all the towns and cities in which it operates. They consider Dalkia to be a reliable partner, appreciate the dependability of supplies as well as the technical expertise and great personal relationships with Dalkia's staff.

### Regular communications

For communication with its customers, both Dalkia and Olterm use the Modrý reportér (*The Blue Reporter*) quarterly magazine as well as a host of communication events. Once a year, a Meeting with customers takes place, where customers can become familiar with all things new and chat with the firm's management. In September this year Olterm organized a special event for its customers, business partners and employees to celebrate its 15<sup>th</sup> anniversary.

*"We are very happy with Olterm. We appreciate having the substations right in our building. Thanks to that we know exactly how much we have consumed and in fact, this has also resulted in significant reductions of heat losses." Jaroslav Šebesta, chairman of the Board of the Karafiátova 18, 20 Homeowners' Association (Modrý reportér 09/2009)*

### To come

Dalkia is committed to continually improving the quality of its services, and a satisfied customer is the goal shared by all of its employees. ISO 9001 certification is scheduled for March 2010. As of 2010, the e-billing service will be implemented, as well as the new "Energie" module that will provide customers with an overview of consumption within a selected period of time.



## Impact the system and its employees on the community

### The Foundation helps to reduce unemployment

Dalkia is fully aware of its role in society. Through its Foundation, by means of financial contributions for start-up businesses, it helps to reduce unemployment in the regions where it operates. Every year, Dalkia contributes € 200,000 to the Foundation, and Olterm contributes € 6,000. Since its inception in 2000, the Dalkia Česká republika Foundation has supported 89 projects in the Olomouc region, thereby helping to create 247 permanent jobs, of which 83 were for the disabled. In doing so, the Foundation cooperates with Job Centres and other local institutions. Every year, the Foundation's trustees, who include Dalkia representatives as well as representatives of the City of Olomouc, hand over donations to beneficiaries at a ceremony at the city hall.

### Outstanding approach to employees

Dalkia shows solidarity with its employees as well. It helps those who are in a difficult situation by supporting them financially through its Dalkia Humain Foundation. Since its inception in 2005, the Foundation has spent a total of € 330,000, of which € 43,000 were for the employees of Dalkia in Olomouc and of Olterm.

Another thing that the city appreciates is that all year round Dalkia takes outstanding care of its employees by providing them with a host of extraordinary benefits. Dalkia has been rewarded for its exceptional approach by the prestigious international certificate Investor in People, which is a symbol of quality human resources management.

Dalkia is also very committed to the occupational health and safety of its employees. That the measures adopted in this area are very efficient is well supported by the fact that since 1998 there has not been a single occupational accident in Olomouc. We also pay great attention to the development and education of our employees; Dalkia actively cooperates with Olomouc-based high schools and universities. Among other things it gives their students the opportunity to do their internship at the firm or to write their bachelor's or master's theses in cooperation with it.

### Involvement in the city's community initiatives

Through partnerships or sponsorships, Dalkia is involved in various social, cultural and sports events for the general public. From among Dalkia's community/public interest activities, we can mention for instance the sponsorship of the breeding of a cheetah at the Svatý Kopeček ZOO or the financial contribution for the founding of bells for the St. Michael church. Dalkia has also contributed to the heating of the local soccer stadium turf.

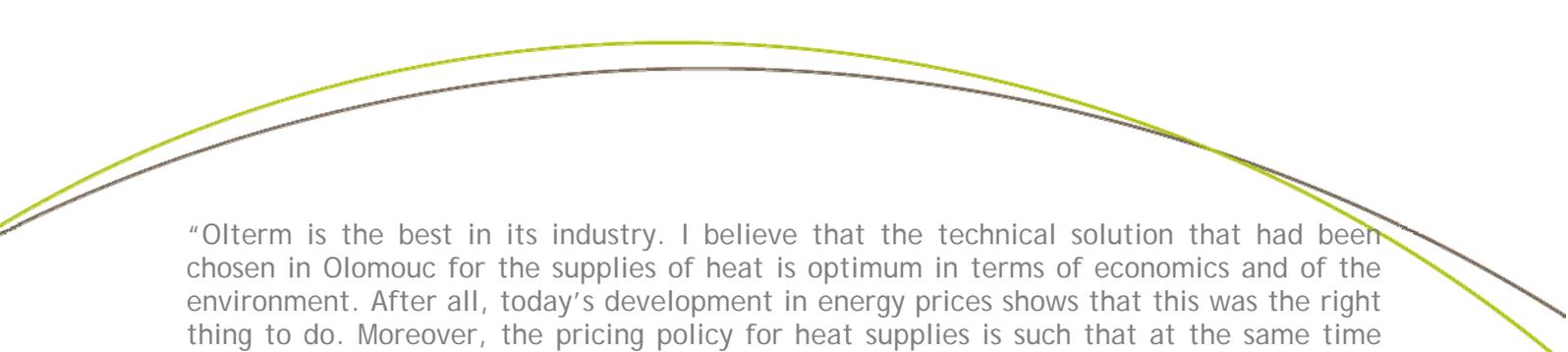
### Awards

In 2002, Dalkia Česká republika received the Business of the Year award for its contributions to the Olomouc region and to its employees as well for the exemplary integration with the city's and region's life.

Dalkia's activities in Olomouc have also been rewarded by the Association for District Heating of the Czech Republic: it ranked the "Electricity and heat from biomass at the Olomouc ZOO" project among the Projects of the Year for 2008.

The company holds ISO 14 001, ISO 18 001 (OHSAS) certification.

The long-term development in prices for end-consumers and gradual modernizations of the city's infrastructure show that we have opted for the right strategy, for which both the press and leading representatives of the local government and state administration have repeatedly shown appreciation:



“Olterm is the best in its industry. I believe that the technical solution that had been chosen in Olomouc for the supplies of heat is optimum in terms of economics and of the environment. After all, today’s development in energy prices shows that this was the right thing to do. Moreover, the pricing policy for heat supplies is such that at the same time Olterm is bolstering social stability.” Chairman of the Olomouc Regional Council, Jan Březina (October 2001)

“The decrepit swimming pool desperately needed repairs, which started progressing fast when Olterm took over the operations. I very much appreciate the long-term partnership with Dalkia, which, together with the City of Olomouc, is a shareholder in Olterm. I can say that today, the swimming pool has become a kind of an exemplar of the mutual cooperation on the Olterm platform. Most of the swimming pool refurbishment work was carried out by firms from Olomouc.” Mayor of Olomouc, Martin Tesařík (January 2002)

“Since the City of Olomouc started to cooperate with Dalkia in 1999, we have walked a long way to the benefit of all the people of our city. Together with Dalkia and Olterm, we have built an energy infrastructure worthy of the 21<sup>st</sup> century in Olomouc.” Mayor of Olomouc, Martin Tesařík (October 2004)

“I wish to thank the management and the staff of Olterm for their work during those 15 years, as well as my predecessors in the city administration for having taken the strategic decision to allow the French Dalkia to enter Olterm. Since 1994 the heating market has radically changed for the city. It is much more developed and environmentally friendly, and the number of consumers has skyrocketed. The customer target group has gone through a significant change, but Olterm has always been able to adjust to the new situation. I trust that the company has a bright future awaiting it.” Mayor of Olomouc, Martin Novotný (September 2009)



P R I M Á T O R  
STATUTÁRNÍHO MĚSTA OLMOUCE

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Olomouc, 6<sup>th</sup> October 2005

To whom it may concern,

In 1999, we concluded an agreement on cooperation with the company Dalkia, pertaining to the heating of our city.

We are partners in the company OLTERM & TD Olomouc (66% Dalkia Czech Republic, 34% Statutory City of Olomouc). This company ensures the distribution of heat for the city of Olomouc and likewise operates the municipal swimming pool.

Within several years, we managed to construct a 21<sup>st</sup> Century-class energy infrastructure. Dalkia is a strong and reliable partner that I can highly recommend.

Martin Tesařík

The Mayor of Statutory City of Olomouc