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Promoting Energy efficiency to Local Organisations  
through dissemination Partnerships in Europe  
Best Actions for Collaboration in Countries  
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# Energetic Optimization of Large Residential Buildings - Vienna, Graz - Austria

(project supported by SAVE)

**Innovative instruments, integral services and quality standards for improving energy efficiency in multi-family residential buildings.**

Target Groups	Sector	Field
<ul style="list-style-type: none"> <li>- Local authority</li> <li>- Regional authorities</li> <li>- Domestic consumers</li> </ul>	<ul style="list-style-type: none"> <li>- Buildings (including municipal properties)</li> </ul>	<ul style="list-style-type: none"> <li>- Third Party Financing</li> <li>- Contracting</li> </ul>

## ANALYSIS

The objective of this project was to develop new instruments for and improve the quality of the energetic optimization of large residential buildings. These developments of new integrated services are based on an energy performance contracting (EPC) or energy supply contracting (ESC) concept, already practiced successfully in the housing sector.

### THE CONCEPT

An energy service company (ESCO) finances, plans and builds heat and power supply facilities in a housing structure and supplies heat, hot water and, if required, power to the housing company, being its customer, at an agreed price and at its own risk.

Including a third party is advantageous for the housing company in several respects, as opposed to managing a project on its own: risk transfer, a reduced number of tasks, less of its staff involved, focusing on its core business, a reduced effort of co-ordination due to task concentration with the contracting partner, as well as optimized planning, execution and operation, thanks to the ESCO's own interest in a maximum efficiency of facility operation.

## THE ESSENTIAL CHARACTERISTICS OF INTEGRATED ENERGY SERVICES

- Integrating external partners (ESCO) to optimise residential building energy supply comprehensively;
- Integrating construction / technical, commercial and infrastructure services;
- Long-term character of the projects in order to achieve sustainable optimisation effects;
- Stipulating a performance and success related remuneration.

Energy service agreements between the owner of the building (and/or the tenants) and the ESCO are a relatively new legal area and turn out to be more complex than classic energy supply agreements.

## PILOT PROJECTS

Pilot projects in Austria and other countries were set up and case-specific energy service agreements were created. With this experience uniform regulations regarding quality guarantees, property, agreement expiration, liability, pricing and price adjustment were aimed at.

Besides that further instruments were developed: check lists for project design, planning instruments, instruments to carry out invitations to tender as well as controlling and monitoring instruments.



MARGARETENGÜRTEL, VIENNA



OSTMARKGASSE, VIENNA

## COST AND BENEFITS

Pilot projects in Vienna and Graz have shown that energy performance contracting (EPC) proves to be a promising model also for large residential buildings. In summer 2002 implementation has been completed in two cases.

The results of the tendering procedures are quite encouraging: according to the renovation concept the bidders offered guaranteed energy cost reductions that result from comprehensive rehabilitation by about 50 to 60% (example for a target heat demand less than 40 kWh/m<sup>2</sup>a).

## EXAMPLE GUARANTEE SPECIFICATIONS

- The contractor guarantees a maximum limit for all investment costs (fixed price), for the total annual heating costs as well as the energy prices for hot-water supply during the entire contractual period of 15 years;
- Guaranteed reaction time (e.g. 4 hours) for technical faults and the time in which the faults will be repaired (e.g. 24 hours);
- In case the contractor cannot meet the guarantee specifications the contractor's annual fee for routine services (operation, maintenance and servicing) will be reduced by the degree of non-fulfilment of the guarantee specifications.

## PARTNERSHIP

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The project was carried out together with the energy agencies of Berlin and Graz as well as the SEVEN energy efficiency centre in Prague lasting from 2000 - 2002. Every agency analysed the legal situation and framework conditions the respective country and tried to find the most suitable approach.

Within the project several expert workshops and conferences were organized in Vienna, Graz and Berlin:

- Expert workshops with ESCOs for exchange of experience, discussion of quality standards legal framework and aspects of the energy service agreements.
- Expert workshops with housing companies evaluating their needs and requirements.

Workshops and conferences with ESCOs, housing companies and administrative bodies presenting the concept of „guarantee models“ and experiences from the pilot projects.

## RECOMMENDATIONS

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The following important conclusions may be drawn from project management and the actual development of pilot projects:

- Integrated energy services are a suitable instrument to improve the implementation and planning quality of building refurbishment and to optimise the maintenance and operation management of energy relevant facilities in the long run;
- Integrated energy services are particularly suitable for a comprehensive and complex modernization of residential buildings and allow a long-term cost optimisation in this case;
- Integrated energy services may contribute to a fast implementation of refurbishment projects, if housing companies encounter absolute bottlenecks in financing;
- The housing company's attitude to this innovative implementation model of integrated energy services is still reserved. People in responsible positions show only very limited readiness to deviate from the classic way of building refurbishment with trade-related responsibilities. Moreover missing know-how is not perceived, or the problem of poor modernization quality is rarely recognized;
- There is no standard of evaluation for remunerating planning and consulting services for an invitation to tender for integrated energy services;
- Substantial market penetration of integrated energy services in the area of complex refurbishment will be considerably promoted, if governments provide incentives and/or establish rules. Including control mechanisms regarding modernization success in construction regulations, laws or promotion directives would provide a start.

## TO KNOW MORE

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Name organisation: [Energieverwertungsagentur, the Austrian Energy Agency \(E.V.A.\)](#)  
Phone number : + 43 1 586 15 24  
E-mail : [huettler@eva.ac.at](mailto:huettler@eva.ac.at)  
Website : <http://www.eva.ac.at/>

Name organisation: [Grazer Energieagentur](#)  
Phone number : + 43 316 811848  
E-mail : [office@grazer-ea.at](mailto:office@grazer-ea.at)  
Website : <http://www.grazer-ea.at/>

## USEFUL INFORMATION

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List of Internet sites

[Project Information at E.V.A. Website \(German\) / http://www.eva.ac.at/projekte/althaus.htm](http://www.eva.ac.at/projekte/althaus.htm)

[Project information at the website of Graz Energy Agency \(German\) / http://www.grazer-ea.at/thermo\\_contracing\\_wohngebaeude.html](http://www.grazer-ea.at/thermo_contracing_wohngebaeude.html)

## THIS CASE HAS BEEN REALISED BY

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Organisation	<a href="#">Energieverwertungsagentur, the Austrian Energy Agency (E.V.A.)</a>	E-mail	<a href="mailto:eva@eva.ac.at">eva@eva.ac.at</a>	Internet	<a href="http://www.eva.ac.at/">http://www.eva.ac.at/</a>	Published	24/7/2002
:		:		:		:	

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