

PROJECT BRIEF

1. IDENTIFIERS

PROJECT NUMBER:

PROJECT NAME:

Hungary: Public Sector Energy Efficiency Programme

DURATION:

June 2000 - May 2005 (five years)

IMPLEMENTING AGENCY:

United Nations Development Programme

EXECUTING AGENCY:

Government of Hungary/Ministry for Economic Affairs

REQUESTING COUNTRY:

Hungary

ELIGIBILITY:

Ratified UNFCCC on 24 February 1994

GEF FOCAL AREA:

Climate Change

GEF PROGRAMMING FRAMEWORK:

Operational Programme #5: Removal of Barriers to Energy Efficiency and Energy Conservation

2. **SUMMARY:** The proposed project will help Hungary to improve the energy efficiency of its public sector thus mitigating the emissions of greenhouse gases, mainly CO₂. The project seeks to remove the barriers for a sustained market of energy efficiency services and promote the implementation of energy efficiency projects in municipalities, hospitals and other public institutions. It is estimated that the project will directly help generating 60 – 90 projects which result in mitigating carbon emissions between 0.6 – 1.2 MtC during a 20-year lifetime of the projects. Furthermore, it is estimated that conditions to implement a substantial share of the 2.5 MtC medium-term reduction potential in the public sector will be created leading to additional local and global benefits.

3. COST AND FINANCING (MILLION US\$)

GEF: Project	4.200
Sub-Total GEF	4.200

Co-FINANCING:

- UNDP	0.400
- Government	2.800
- Government (in-kind)	0.300
- Private and public investors	9.000 – 13.000 (estimated)
Sub-Total Co-financing	12.100

TOTAL PROJECT COST:	16.300 – 20.700
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4. ASSOCIATED FINANCING (MILLION US\$)

GEF/IFC Hungary Energy Efficiency Co-financing Program (HEECP)	5.000
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5. **OPERATIONAL FOCAL POINT ENDORSEMENT**

Dr. Vass Nandor, Deputy State Secretary, Hungarian Ministry for the
Environment
24 February 2000

6. **IMPLEMENTING AGENCY CONTACT**

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List of Acronyms / Abbreviations

CIS	Commonwealth of Independent States
CO ₂	Carbon dioxide, the most important greenhouse gas
EBRD	European Bank For Reconstruction and Development
EE	Energy Efficiency
ELI	Efficient Lighting Initiative
ESAP	Energy Saving Action Plan
ESCO	Energy Service Company
ESCP	Energy Saving Credit Programme
EU	European Union
GCARF	German Coal Aid Revolving Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
HEECP	Hungary Energy Efficiency Co-financing Program
Huf	Hungarian forint (Huf 240 = US\$ 1 ¹)
IEA	International Energy Agency
IFC	International Finance Corporation
Mtoe	Million tonnes of oil equivalent
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Cooperation and Development
PHARE	Poland and Hungary: Assistance for the Reconstruction of the Economy (A European Union technical assistance programme originally designed for Poland and Hungary and currently operating in 14 Central and Eastern European countries)
PJ	Petajoule, energy measurement unit (1 PJ = 1e ¹⁵ J)
PPP	Pilot Panel Programme
PRF	PHARE Revolving Fund
tC	Tons of carbon; measurement of greenhouse gas emissions. 1 tC = 3.66 tCO ₂
TJ	Terajoule, energy measurement unit (1 PJ = 1e ¹² J)
TPES	Total Primary Energy Supply
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Programme

¹ All money amounts expressed in Hungarian Forints are converted to US dollars using exchange rate of Huf 240 = US\$ 1 (based on the exchange rate as of early 2000) if not otherwise mentioned.

1. BACKGROUND AND CONTEXT

1.1 GENERAL

1. Hungary is a landlocked country in the centre of Europe, which borders Austria, Slovenia, Croatia, Yugoslavia, Romania, Slovakia and Ukraine. The country's area amounts to 93,033 km² and its population is about 10.2 million.
2. In the last decade, Hungary has undergone a comprehensive and successful political and economic transition from a centrally planned to a market economy. Fundamental changes in the institutions and the structure of the economy have gradually created the conditions necessary for sustainable economic growth. After a fall in GDP of nearly 20% between 1989 and 1993, Hungary has seen renewed growth since 1994. Real GDP growth was 4.6% in 1997 and 5.1% in 1998.
3. This growth has been accompanied by progress towards stabilisation of public finances, external accounts and inflation. Privatisation and restructuring have gone further in Hungary than in most other transition economies. Apart from privatisation, the private sector has also grown at a spectacular pace through the creation of new businesses. In 1989, the private sector generated about 16% of GDP; today, the private sector's share of GDP has risen to about 80%. In addition, more than \$19 billion in foreign direct investment has entered the Hungarian market since 1989 – the largest amount invested in any Central European country.
4. Hungary became an OECD member state in May 1996. It has started negotiations with the European Union (EU) on the conditions of membership and it aspires to join in 2002. The process of EU accession has put intense pressure on the government to bring national legislation into accordance with EU guidelines on issues such as energy pricing, taxation, and environmental regulation. Hungary has also been a member of the International Energy Agency (IEA) since July 1997.

1.2 ENERGY SECTOR

5. Hungary traditionally depended on countries of the Commonwealth of Independent States (CIS) for much of its energy supply. While Hungary has some domestic oil, gas, and coal resources, 73% of oil, 66% of gas, and 25% of coal are imported.²
6. Total primary energy supply (TPES) increased by 61% between 1971 and 1987, but it fell by 20% over the following decade as a result of Hungary's transition process and fall in economic output. In 1997, TPES stood at 25.31 Mtoe, consisting mostly of natural gas (38.3%), oil (27.6%), coal (17.2%) and nuclear energy (14.4%).
7. The inefficient use of energy in Hungary is a legacy of historically low, subsidised energy prices and a strong emphasis on energy-intensive industries with no incentives for efficiency characteristic of centrally-planned economies. In 1996, primary energy

² All energy data are based on Hungary's 1997 Energy Balance if not otherwise mentioned.

supply per unit of GDP was 0.79 toe/US\$1000, compared with an OECD average of 0.26 toe/US\$ 1000.³

8. Hungary submitted its Second National Communication to the UNFCCC in 1998. According to the inventory presented in the Communication, the largest share of CO₂ emissions (almost 97%) resulted from fuel combustion. Total fuel-related CO₂ emissions in 1995 were 57,567 Gg. The largest sources were the energy sector (46%) and the residential sector (20%), followed by transport and industry.⁴
9. Energy consumption is greatest in the public, commercial, and residential sectors (46% total), followed by industry (31%) and transport (16%). In the public and residential sectors, the most important end uses are individual and district heating and electricity generation; together these three areas comprise more than 75% of total sectoral consumption. Other uses include district heating, hot water for direct use, cooking with individual fuels, and hot water from district heating.⁵ Energy consumption per volume heated is 20 – 30% higher than the typical value for EU member states with a similar climate.

1.3 ENERGY POLICY AND RELATIVE IMPORTANCE OF ENERGY EFFICIENCY

10. The cornerstones of a successful energy efficiency policy are real-cost pricing by energy carriers, the removal of subsidies, and clear rights and responsibilities in ownership. Hungary is systematically moving in this direction, driven primarily by the EU accession process. Privatisation of electricity generation and distribution companies is nearly complete. The Hungarian Power Company (MVM Rt), manages all trade in electricity. It purchases power from electricity generating companies and sells it to smaller distribution companies. District heating remains the responsibility of municipalities.
11. The Hungarian Parliament approved an Energy Policy Concept in 1993 and adapted it to ensure full harmonisation with the ‘*acquis communautaire*’ (European Union laws and regulations) after general elections in May 1998. The concept identifies the following strategic objectives:
 - Security of energy supply through diversification of energy sources;
 - Environmental protection;
 - Modernisation of supply-side energy systems;
 - Increased demand-side energy efficiency;
 - Improvement in public information on energy consumption;
 - Acquisition of foreign capital for investments; and
 - Compatibility with the EU and other international organisations.

³ Source: IEA energy statistics.

⁴ *Hungary: Inventories, Stabilisation and Scenarios of the Greenhouse Gas Emissions and Removals*. 2nd National Communication on the Implementation of Commitments under the UNFCCC. Hungarian Commission on Sustainable Development, Budapest, 1998.

⁵ The end use figures are based on 1995 statistics from the Hungarian Climate Change Action Plan developed within the framework of the U.S. Country Studies Program (see prior reference).

12. Raising energy prices to reflect market costs is an important step in improving energy efficiency. There has been a fundamental change in pricing policy concerning energy resources in Hungary. Direct central subsidies for energy prices were terminated in 1991. Since 1995, there have been liberalised markets and pricing for solid fuels, oil products, and district heating. In 1995, household electricity prices rose by an average of 65% and gas prices by 53%, thus removing cross subsidies from the industrial to the household sectors. Prices now reflect direct costs, but they are still expected to continue to rise in the future. This is due to government's commitment to include environmental externalities in energy prices in accordance with EU legislation.
13. In addition to market based energy prices, Hungarian energy policy outlines other measures to promote energy efficiency. The National Energy Savings and Energy Efficiency Improvement Programme, which was based on the Energy Policy Concept, was developed in 1994, followed by the Energy Saving Action Plan (ESAP) in 1995. ESAP consists of four sets of measures:
 - Penetration of renewables;
 - Energy efficiency improvement;
 - Energy efficiency labelling; and
 - Education, information and promotion of technology innovation.
14. In July 1999, the government approved the "Principles of the Hungarian Energy Policy and the New Business Model of the Energy Sector." The document defines the near-term principles of the Hungarian energy policy leading up to EU accession. A new energy efficiency program was developed based on that document: "Government Resolution No. 1107/ 1999 on the strategy to increase energy saving and energy efficiency until 2010." This strategy was adopted by the government on 10 October 1999. The program seeks to create a solid legal, financial and institutional background for energy efficiency.

1.4 BARRIERS TO ENERGY EFFICIENCY IN HUNGARY

15. The economic potential for cost-effective energy efficiency investments in Hungary over the next ten years has been estimated at US\$ 1.4 – 2.1 billion. Up to US\$ 4 billion will be needed over the same period to raise Hungary's energy efficiency to OECD standards.⁶ Recently, investments in energy efficiency have been made at rate of less than US\$ 20 million annually. This untapped potential indicates the presence of barriers in the energy efficiency market.
16. In order to realise the full potential of cost-effective energy efficiency measures, Hungary must overcome several barriers. In an improved environment for energy efficiency, municipal clients would be aware of the benefits of improved efficiency and have access to the necessary know-how and financial instruments to identify and implement cost-efficient energy efficiency measures.
17. There are more than 3,100 municipalities in Hungary. Only 23 municipalities are considered major metropolitan areas; more than 2,900 are villages. This size distribution presents a challenge to energy efficiency at the municipality level. Many

⁶ Source: Former Ministry of Industry and Trade

municipalities do not have energy managers, and they lack both the technical and the financial capacity to identify and implement energy efficiency measures.

18. The four supporting pillars of a sustainable energy efficiency market are as follows: 1) Institutional and policy framework for energy efficiency; 2) Access to sufficient finance for energy efficiency; 3) Supply of energy efficiency services and; 4) Demand for energy efficiency services. Each of these elements and the related barriers are analysed below.

1.4.1 Barriers Related to the Institutional and Policy Framework for Energy Efficiency

19. The Ministry of Economic Affairs is responsible for energy policy and energy efficiency policy. As mentioned above, Hungarian energy policy promotes a shift toward real energy prices, use of renewable energy sources, energy efficiency improvement, energy efficiency labelling and education, information and technology innovation.
20. Energy efficiency is currently a top priority on the government's policy agenda, and the government has taken concrete steps to put an effective institutional framework in place. In the October 1999 resolution on energy savings, the government announced its intention to establish a new agency for energy efficiency policy and programs by merging the Energy Centre, the Energy Information Agency, and the responsibilities of the Energy Conservation Department of the Hungarian Energy Office. The Energy Efficiency Agency envisaged in the programme would co-ordinate all energy efficiency-related activities.
21. Capacity building at the national Energy Efficiency Agency should address information and motivation barriers and assist in identifying, developing, managing and financing energy efficiency projects. Capacity building could also help to create a business climate that is attractive to foreign investors and facilitate technology transfer. The Energy Efficiency Agency will be established on the basis of the Energy Centre, which co-ordinates energy efficiency and renewable energy programmes from both EU funding sources such as PHARE and JOULE-THERMIE and from bilateral sources, such as the Dutch-funded SCORE programme.
22. The Hungarian government has already appropriated funding as of 1 January 2000 for the new agency and its activities. Preliminary plans include programs in district heating, renewable energy, local energy concepts and energy planning, transportation planning, and residential energy efficiency. However, increased support will be necessary in order to bring about a sustainable market for energy efficiency at the municipal level.
23. The legal status of energy efficiency agencies in the EU Member States varies considerably. Examples include agencies under direct ministerial central government control (ADEME, France, IDAE, Spain); non-profit institutes in which national and regional government, and utilities all participate (EVA – Austria); non-profit agencies which are legally part of larger Agencies or institutes set up for technology promotion (Motiva – Finland, Irish Energy Agency – Ireland); non-profit companies in which national government and utilities participate (Energy Saving Trust, UK); and private

(privatised) companies funded under contracts with the government, on a profit making basis (ETSU, BRECSU – UK). Evaluations of programs indicate that legal status is less important than what the agency does, and how well it does it. Funding, motivation, organisation, and a degree of independence are all necessary for success.

1.4.2 *Barriers Related to the Access to Finance for Energy Efficiency*

24. Supply of financing in a way that may be used favourably for energy efficiency projects is another essential need. There are at present various programmes aimed at financing energy efficiency projects. The German Coal Aid Revolving Fund was established in 1991 to finance energy efficiency investments in private and public sectors. Between 1991 – 1998 it financed 391 projects with total investment of approximately US\$ 43 million. 68% of the debt financing of the projects supported were supported by soft loans from the programme, and 32% were at commercial rates. The estimated energy savings from these projects total almost 5.7 GJ annually.
25. The Hungarian government launched its own Energy Saving Credit Programme in 1996 based on a decree. It is implemented by a commercial bank determined each year by a competitive bidding procedure. In 1997–1998, a total of 166 energy efficiency projects with an investment of Huf 2.4 billion (US\$ 9.8 million) were implemented. 75% of the financing comes from soft loans with a 50% interest rate subsidy, and 25% is commercial financing. The estimated annual energy savings resulting from these projects are 528 TJ.
26. The EU-PHARE Energy Efficiency Revolving Fund finances small and medium-size enterprises from both the private and public sectors. The EU supports the scheme with approximately US\$ 4.8 million for the revolving fund, the Hungarian government appoints the fund manager, and two participating banks administer the fund. The first funding tranche amounted to approximately US\$ 2.9 million, and banks have begun the process to request the second tranche of the funds.
27. The IFC/GEF Energy Efficiency Co-financing Fund aims at leveraging US\$ 25 - 30 million in five years by giving partial guarantees for energy efficiency projects.

Table I. Funding for Energy Efficiency in Hungary

Credit Facilities	Source	Funding (million US\$)
German Coal Aid Revolving Fund	German Govt.	30 + 13 comm.
Energy Saving Credit Program	Hungarian Govt.	2.36
Phare Revolving Fund	Phare	4.9
Pilot Panel Program	Hungarian Govt.	1.25
Hungarian EE Co-Financing Program	IFC	4.25

Source: Hungarian Commission on Sustainable Development, 1998. Note that the Energy Saving Credit Program contribution has been updated according to figures provided by the Ministry of

Economic Affairs and that the Hungarian Co-Financing Program is expecting to be replenished.

28. As seen above, there are various funds available to promote energy efficiency investments. Nevertheless, considering the total financial needs for energy efficiency (see §15 above) these funds are insufficient if they do not succeed in leveraging substantial co-financing from commercial banks. Currently, there is neither centralised information of, nor sufficient co-ordination among the energy efficiency funds to allow for “one-stop shopping” for the potential client in a need of financing. Cities are often unaware of the financing options available, or they are unsure as to which programs are most appropriate for their particular needs. While the new agency does not anticipate serving as a source of financing for project implementation, it will be in a position to facilitate information on existing commercial and grant resources for project funding.

1.4.3 Barriers Related to the Demand for Energy Efficiency Services

29. The public sector is very heterogeneous, with many different levels of energy efficiency awareness among different communities. The awareness of the benefits of energy efficiency measures is a necessary first step to create demand for energy efficiency services and therefore it is important to raise awareness among the less-informed communities. However, in many cases the potential clients (e.g. municipalities, hospitals and other public institutions) are increasingly aware of the possibility of improving energy efficiency, yet there is little demand for energy audits or energy efficiency projects. This stems in part from scarce resources, a lack of experience in energy efficiency projects, higher priorities of other investments, and a lack of flexibility in making funding decisions for multi-year projects.

1.4.3 Barriers Related to the Supply of Energy Efficiency Services

30. Apart from the financing facilities for energy efficiency investments mentioned above, few Energy Service Companies (ESCOs),⁷ consulting companies, and individual consultants specialised in energy efficiency exist. A wide range of services is needed in order to respond to the energy efficiency needs of the clients, from feasibility studies and simple energy audits to turn-key energy efficiency projects with performance contracting, long-term financing, monitoring and maintenance. Existing companies will need training and support in order to be able to offer products that satisfy the market. There is a demand for different types of alliances among consultants, equipment installation firms, suppliers of equipment and instrumentation, and financial institutions.

⁷ ESCOs are companies with both the technical expertise and the financial capacity to identify and implement energy-saving measures. They sign a performance contract with the client and receive revenues from actual energy savings. In that way, the client only pays when there are real savings and the costs are never more than the direct benefit obtained from the energy savings. In an ideal case, the ESCO eliminates the need for the client to assume the financial risk or to tie its assets as collateral. However, it should also be noted that there are also other means of managing risks in energy performance.

31. Although several large multinational ESCOs are already active in the Hungarian municipal market, their operations are still small in size and only capable of covering a small part of the potential market. Existing barriers make it difficult for smaller municipalities or municipalities with low revenues to access the ESCO services which are available. Furthermore, many of the smaller ESCOs or would-be ESCOs lack the capital needed to access credit financing from the commercial banks. Small municipalities without energy managers also have encountered difficulties in identifying qualified auditors and ESCOs, because there is no official process for certifying energy auditors or ESCOs to operate in Hungary.
32. The market for feasibility studies and energy audits is another problematic issue. Since these studies themselves do not provide any savings, municipalities and other customers are unwilling to pay for them. On the other hand, a provider of energy efficiency services is only willing to undertake these audits if it is convinced that the audit will lead to actual implementation, and a subsequent service contract. The problem is further complicated by Hungarian law, which forces cities to conduct a bidding process on public procurements with a value of more than US\$ 140,000 and accept the least-cost bid. Because of these rules, an unqualified auditor offering a low bid must be selected over an established ESCO. As a result, cities may decide that it is too risky to contract for these services. A further and related problem is that there is no clearly accepted standard for energy audits.

2. RATIONALE AND OBJECTIVES

2.1 RATIONALE

33. The slow progress made in improving energy efficiency indicates the existence of different barriers. Despite the government's commitment and various initiatives in this field, energy efficiency would improve slowly in the absence of the proposed project and many opportunities could remain unharnessed. GEF support is requested to support the incremental costs related to overcoming these barriers.
34. The public sector focus of the proposed project is justified by two facts. First, energy consumption and the potential for efficiency are both significant in the public sector. Second, private enterprises are more likely to improve efficiency unilaterally because of competitiveness and impending EU integration. In addition, many large Hungarian enterprises are now owned by multinational companies and thus have access to commercial, bilateral, and in-house financing instruments. The barriers to energy efficiency are strongest in the public sector, which has the least availability of awareness, information, and finance to implement energy efficiency projects.
35. Public sector consumption (more than 135 PJ in 1995) is mainly composed of coal (87.3 PJ), natural gas (74.8 PJ), fuel oil (22.4 PJ), and gasoline (4.0 PJ). According to the Hungarian Climate Change Action Plan, annual energy saving potential totals 28 – 41 PJ in the public sector depending on the measures selected. Table II summarises these results.

Table II. Energy Efficiency Potential in the Public Sector⁸

Units		Investments with short payback time (less than 5 years)	<i>Including</i> investments with medium payback time (5-10 years)	<i>Including</i> investments with longer payback time (more than 10 years)
Retrofit scenario				
Investment	Mn US\$	51	157	1,965
As % of total investment potential	%	2.5	8.0	100.0
Energy saving	TJ/year	3,420	6,415	28,068
Reduction of carbon emissions	TC/year	60,283	124,055	525,593
% of total energy demand of the sector	%	2.5	4.7	20.7
Replacement scenario				
Investment	Mn US\$	50	155	3,504
As % of total investment potential	%	1.4	4.4	100.0
Energy saving	TJ/year	3,400	6,388	40,755
Reduction of carbon emissions	tC/year	59,857	123,480	796,310
% of total energy demand of the sector	%	2.5	4.7	30.0

36. The investment needed to realise the energy saving potential for the projects with short to medium payback time (less than 10 years) is approximately US\$ 160 million (see paragraph 60). This includes projects such as fuel-switching from coal or oil to gas in central heating boilers, reduction of outflows in electrical water heating, utilisation of industrial waste for heat for district heating, installation of water saving traps, changing luminaires for lighting, alternating mass current in district heating distribution and renovation of district heating boilers.

2.2 COMPLEMENTARITY TO OTHER GEF-FINANCED PROJECTS IN HUNGARY

37. There are two other GEF energy efficiency initiatives in Hungary, both executed by the International Finance Corporation (IFC). The Hungary Energy Efficiency Co-financing Program (HEECP) is currently being implemented; it focuses on providing partial guarantees and technical assistance for eligible energy efficiency financing transactions. From the US\$ 5 million GEF financing, US\$ 4.25 million is used for guarantees, US\$300,000 for technical assistance and US\$450,000 for program operations and administration. The majority of the existing resources from this funding have been deployed in sub-project guarantees via existing relationships with commercial banks and leasing companies. A parallel investment of \$8-10 million from

⁸ Hungarian Climate Change Action Plan. U.S. Country Studies Program, Hungarian Country Study Team. Systemexpert Consulting Ltd, Budapest, 1998. The carbon emissions are calculated based on average emission data.

IFC regular funds is under consideration but has not yet been approved by IFC management. The project focuses almost exclusively on the financial barriers to energy efficiency. The project is also limited to private sector applicants (because of its mandate, the IFC can only work with public institutions indirectly through private ESCOs).

38. The multi-country Efficient Lighting Initiative (ELI) will start work in Hungary in 2000. The ELI will initially concentrate on residential lighting market and it may also address public sector lighting. This project was submitted to the GEF Council in January 2000. In the case that ELI decides to enter the public sector market, coordination between this project and ELI will be established to leverage resources and avoid overlap in the area of public lighting.
39. HEECP can guarantee up to 50% of investments in a given project. Banks normally desire 100% guarantees; the other half can be secured by the collateral value of the equipment to be installed or guarantees against the equity of the ESCO developing the project. This is not a problem for large ESCOs with multinational companies as shareholders. However, small Hungarian ESCOs with limited capital have found that their equity is quickly tied up as collateral, and they are no longer able to get bank financing for further projects even when they hold partial guarantees from HEECP. Because of this, IFC is also interested in equity financing for ESCOs to increase their financial capacity.
40. It is envisaged that the proposed UNDP project and the HEECP will complement each other in the following ways:
 - Public sector EE projects identified within the HEECP framework can benefit from the technical assistance provided by the UNDP project (e.g. training, strengthening of strategic partnerships, EE information system, assistance in feasibility studies);
 - Projects identified within UNDP framework needing financial assistance for investments will be assisted by HEECP whenever they are eligible for such assistance. Only in those cases, where HEECP cannot become involved (e.g. the client is a public sector entity, the credit limits of the client do not permit financing, or the client works with a bank that does not work with HEECP) would the UNDP project consider financial support. Financial support may be given if the defined selection criteria are met in order to minimise the risk of default.

Table III. Comparison of the proposed project with other GEF initiatives

Project Component	UNDP/GEF Public Sector Energy Efficiency Programme	IFC/GEF HEECP	IFC/GEF Efficient Lighting Initiative
Private sector EE measures (includes industry and residential sectors)		Approach Guarantees and limited technical assistance	Approach Financial incentives, public education, transaction support, market aggregation, utility programmes
		Technologies Efficient lighting, building and district heating, boiler and control systems, motors and industrial processes	Technologies Efficient lighting
Public Sector EE measures	Approach Technical assistance and limited financial support (Support for EE policy and co-ordination, training and capacity building, EE information system, technical assistance, support to public EE finance)	Approach Guarantees and limited technical assistance through private firms	Approach Market Transformation (model contracts, information to decision-makers, etc.)
	Technologies Building and district heating, water heating, public lighting, fuel-switching, boiler and control systems, waste water treatment	Technologies Efficient lighting, building and district heating, boiler and control systems	Technologies Efficient lighting (eventually)

41. The UNDP and the IFC will jointly design a detailed agreement that takes into account the different mandates of both organisations. The objective of this agreement is to avoid overlap and ensure that maximum benefits are derived from the use of GEF resources. Table III compares the three GEF projects.
42. The project team will establish close co-ordination with the Hungarian Energy Efficiency Credit Program and with ELI. An agreement similar to the one established between the Hungarian Energy Efficiency Credit Program and PHARE to avoid co-

mingling GEF guarantees with subsidised interest rates will be established in the eventual case that the proposed project subsidises project investments. The capacity of IFC credit program to provide technical assistance and work directly with the public sector institutions is limited, so the proposed project will complement existing efforts in a synergistic way. Finally, a formalized agreement between the IFC and UNDP will be signed before the financing component of the project is initiated.

2.3 OBJECTIVES

43. The global objective of the proposed project is to mitigate Hungary's greenhouse gas emissions by improving the efficiency of energy use in public sector buildings and installations. This will be achieved by addressing the relevant institutional, financial, technical and capacity barriers for energy efficiency, thus contributing to the creation of a sustainable market for energy efficiency services in Hungary. The elimination of both demand and supply side barriers for energy efficiency in the public sector is expected to result in significant and sustainable annual reductions of carbon emissions in the future.
44. Investments in energy efficiency directly related to the project could reduce carbon emissions by at least 300,000 tC over the 20-year lifetime of the investment projects. The economic potential for energy savings in the public sector – considering projects with a payback time of less than 10 years – is 124,000 tC annually or 2.48 MtC in 20 years. It is expected that because of the project's barrier removal activities, a significant part of these opportunities can be captured indirectly.
45. The development objective of the project is to help Hungary improve its energy efficiency and thus contribute to various national objectives. These objectives include reduced air pollution, more efficient use of financial and natural resources and facilitation of Hungary's integration into the European Union.

3. PROJECT ACTIVITIES AND EXPECTED RESULTS

46. The proposed project consists of three components designed to overcome market barriers and to reach the objectives envisaged. These objectives, which are summarised in Table IV, are as follows:
 - Support for Energy Efficiency Policy, Awareness, and Co-ordination;
 - Support for Project Identification, Development, and Financing; and
 - Training (related to the above support)

Table IV. Project Components and Barriers

Barriers	Project Components			Parallel/related projects
	Support for EE policy, awareness, coordination, and financing	Support for project identification, development, and financing	Training	
<u>Institutional and Policy Framework</u> *Poor institutional capacity *Lack of co-ordination	*Support to establish government’s new Energy Efficiency Agency *Technical assistance in evaluation and implementation of EE policies and regulations *Support to new agency to identify individual or shared energy managers for all municipalities	*Gaining and systematising practical experience in EE project evaluation from a national perspective (macroeconomic impacts, GHG reductions etc.)	*Identification of training needs of and training for the new Energy Efficiency Agency personnel	Government Action Program to Increase Energy Saving and Energy Efficiency
<u>Financial</u> *Lack of co-ordination among different programmes *Perception by munis. that audits are too risky to fund without cost-sharing	*Support for governmental EE financing mechanisms * Co-ordinating information on EE financing (“One Stop Shopping” for EE financing)	*Facilitating financial arrangements between public sector clients, project developers and commercial banks and other financial institutions *Cost-sharing for audits and feasibility studies	*Training for municipal decision-makers on how to prepare energy plans and identify EE projects. *Training for municipal energy managers on how to finance EE projects (emphasising ESCOs, existing financing mechanisms)	GEF/IFC HEECP GCARF PRF PPP ESCP
<u>Supply of EE Services</u> *Lack of integrated services *Lack of quality control	*Mechanisms for better communication and information sharing among EE service providers *Support for a governmental certification program for ESCOs and auditors	*Providing experience for project developers in project implementation	* Training in energy services marketing and implementation (performance contracting, business planning, strategic partnerships, etc.)	EBRD
<u>Demand for EE Services</u> *Lack of awareness *Lack of capacity	*EE Information System *Improved communication with municipalities on efficiency issues	*Outreach activities to promote awareness of energy efficiency potential *Generating awareness and demand by support for audits and feasibility studies	*Workshops to disseminate project outcomes and lessons-learned for potential public sector clients	PHARE projects Regional Centres and networks

3.1 SUPPORT FOR ENERGY EFFICIENCY POLICY, AWARENESS, AND CO-ORDINATION

47. This component will assist the government in establishing the new National Energy Efficiency Agency (\$300,000), creating an integrated information system on energy efficiency (\$200,000), and strengthening its outreach to municipalities (\$500,000).
48. The project team will draw upon experience from the Energy Centre, the Energy Office, the Energy Information Agency, and other relevant institutions will be used together with experiences from other countries to create an effective and modern body that will oversee energy efficiency activities at the national level. This co-ordination can foster a business climate that is conducive to foreign investment and technology transfer.
49. The project will also support the new agency in strengthening the capacity of municipalities and regional networks. Specifically, the project will support the national agency in identifying energy focal points for all municipalities, leveraging the energy managers currently working in larger municipalities and the regional advice centres covering small cities and villages. Strong ties with municipalities will raise awareness of energy issues and ensure maximum penetration of national energy saving initiatives.
50. Finally, this project component will explore the potential role for the agency to certify auditors and ESCOs and thus address the related barriers of knowledge and confidence which are factors behind the reluctance of municipalities to commission energy audits.
51. Due attention will be paid to the financial sustainability of the Agency and the information system after the completion of the project. This will be achieved by generating auto-financing mechanisms through sale of products and services. Also, the Agency will demonstrate the benefits of energy efficiency measures for the national economy in general and for the public sector in particular. The Agency should demonstrate the cost/benefit of continued public support from the national budget for energy efficiency, and at the same time it should create the conditions where energy efficiency financing from private sources will be easier to obtain.
52. Feedback gained from monitoring and evaluation during the GEF project will be used to provide recommendations for improvement to the new agency. In addition, the project team will survey existing municipal outreach programs administered by energy efficiency agencies in Europe and use these results to inform the design of the final work plan for this project component.

3.2 SUPPORT FOR PROJECT IDENTIFICATION, DEVELOPMENT, AND FINANCING

53. The project will provide direct support in the form of cost-sharing for at least 100 audits to leverage investment in the municipal sector. The project will coordinate with the new Energy Efficiency Agency to identify promising sites for audits, bearing in mind that previous audits financed by PHARE and the World Bank can provide

extensive information on opportunities in the municipal sector. This strategy will be especially useful for small municipalities that lack up-front capital to fund an audit.

54. The project will also provide contingent grants for cost-sharing feasibility studies. This strategy will support larger energy efficiency projects, and it is expected that costs can be recovered from a relatively high percentage of the projects. The results of both the audit and feasibility study initiatives will be disseminated through workshops, written materials and site visits to participating municipalities.
55. Audits and feasibility studies will provide the critical link to financing that municipalities currently lack. Both proposed mechanisms will focus on the public sector, defined as public institutions, publicly-owned companies, and mixed utilities (with the exception of gas and electricity distribution companies). However, these mechanisms could also support private project developers working with the public sector. In all cases, the mechanisms will support a shift towards projects with substantial, cost-effective energy savings rather than projects with credit-worthy, preferred customers of the banks.
56. As a preliminary measure, the project will study the beneficiaries of the four existing programs and determine which characteristics have enabled them to take advantage of the programs. This will enable the project team to target outreach to needy cities that have not been assisted to date because of size, revenues, lack of network linkages, lack of an energy manager, or lack of contact and/or negative experience with auditors. This study will distinguish between the approximately 300 municipalities with DH systems and the remaining municipalities—villages—which have different resources and needs. One of the outputs of this study will be a menu of different financing mechanisms to meet the needs of different cities. This will enable careful targeting of projects to specific financing arrangements and sources right from the approval of the feasibility studies to implementation.
57. As explained in section 2.2, the financing mechanisms will complement the government's energy efficiency credit program in such a way that the benefits from the use of GEF resources are maximised. For example, GEF support could cover the incremental risk of energy efficiency financing through contingent grants for feasibility studies and energy audits (to be repaid if and when project is actually implemented).
58. In addition, the focus on audits and other project preparatory services rather than on concessional financing for municipalities is designed to preserve a strong role for commercial financiers and private ESCOs. This will promote the development of a financing market for municipal energy efficiency projects that is sustainable.
59. The funds returned will be fully invested in other audits and feasibility studies until the funds are exhausted or the project has met its broad development objectives completely. These terms and an exit strategy for the funding mechanism will be defined fully in the Project Document in terms that are consistent with UNDP and GEF policy in this area.

3.3 TRAINING

60. Training activities will be built upon the lessons learned from the implemented projects, rather than on academic knowledge. The most important target groups for the training activities and the proposed level of GEF support are as follows: engineering firms, ESCOs, utilities and other possible providers of energy efficiency services (\$200,000); energy managers and other administrators at the municipal level, hospitals and other institutions (\$400,000); and the personnel of the Energy Efficiency Agency and other organisations working with energy efficiency (\$300,000).
61. The emphasis of the training will be in energy services marketing, finance and project implementation instead of technical issues. Separate training modules will be developed for each target group. In the case of the providers (or potential providers) of energy services, for instance, issues like performance contracting, business planning and strategic partnerships will be dealt with. Training for municipal decision-makers will focus on building awareness of the benefits of energy efficiency and on how to select a qualified auditor or ESCO and how to conclude a performance contract. Municipal training will incorporate lessons learned from successful municipalities.

4. RISKS AND SUSTAINABILITY

62. This project assumes that the energy efficiency activities to be included in this project will remain a high priority as Hungary continues the EU accession process. If this process is slowed or delayed in some way, these activities may be given a lower political priority. This risk has been considered during project preparation and is considered to have little impact on the project. Delays or setbacks in the accession process are likely to only be temporary. Nevertheless, the Steering Committee will monitor progress in the EU accession process and its impact on intensified support for the type of energy efficiency activities included in this project closely.
63. There are several other risks, but they have been mitigated, to the extent possible, during project design. The first risk is that audits supported under the project might not result in bankable projects. Extensive discussions with stakeholders and financiers indicate that municipalities have many incentives to pursue projects once they are identified. The cost-sharing component of the audits and feasibility studies will increase the “buy-in” or ownership of the municipality in the proposed projects, increasing their commitment to follow through with identified projects. In addition, the risk that the financial mechanism(s) developed under the auspices of the project would not be sustained beyond the project is minor. One piece of evidence in this respect is that existing funds offering support for municipal projects are all oversubscribed, indicating a large unmet need in this sector. The challenge for the project is to propose a set of mechanisms that can continue to match this growing demand with new and existing supplies of financing. As long as the requirements of existing financial entities are met, the supply of financing available to this sector should continue to grow. Finally, management risks are considerable, but are mitigated by the experienced staff found in the federal energy agency. This new agency already houses personnel with significant experience in the management of financial programs involving municipalities (see section on related efforts).

5. STAKEHOLDER PARTICIPATION AND IMPLEMENTATION ARRANGEMENTS

64. The proposed project is fully consistent with national policies and has been endorsed by the Government of Hungary. The Executing Agency of the project will be the Ministry for Economic Affairs, which may delegate the implementation of the project or parts of it to other suitable institutions. A Steering Committee will be formed consisting of the Ministry of Economic Affairs, the Ministry for Environment, UNDP, a non-governmental organization (NGO) with expertise in energy issues, and other relevant institutions.
65. The Steering Committee will oversee project implementation and will meet at least quarterly or at the request of any of its members. A detailed terms of reference for the Steering Committee will be elaborated before initiating the project activities. The Steering Committee will also guide the implementation arrangements to achieve two important goals: meaningful participation by all stakeholders and efficient work within specified deadlines.
66. A large number of stakeholders have been consulted during the formulation of this proposal. These include government agencies (Ministry for Environment, Ministry of Economic Affairs, Ministry of Agriculture and Regional Development), the Energy Centre, the Energy Information Agency, the Hungarian Energy Office, the EBRD, the World Bank, the IFC, the European Commission (PHARE programme), several private engineering firms and project developers working with energy efficiency, and several NGOs. To continue with broad consulting, the project will draw upon an Advisory Board consisting of representatives from relevant government agencies, NGOs, the EE industry, and other stakeholders.

6. INCREMENTAL COSTS AND PROJECT FINANCING

67. The potential for medium-term energy efficiency investments in Hungarian public sector is around US\$ 160 million.⁹ Of this, approximately US\$ 50 million are investments with a payback time of less than 5 years. These investments are being realised slowly due to the existence of different market barriers. In the absence of this project, these potential investments would not be realised within the next years.
68. The proposed project intends to remove the identified barriers and to catalyse between 60-90 new and additional energy efficiency projects within the public sector during the next 5 years. The projects will be spread across the more than 3,100 municipalities of Hungary and the required investment is estimated at US\$ 9-13 million with a payback time of less than 10 years. Three-stage approach to achieve this is envisaged as explained above.
69. The Government of Hungary has already budgeted US\$ 500,000 for financing these investments during the first year of its new energy saving program, and it has requested additional funds for subsequent years. The GEF is asked to provide US\$

⁹ Projects with a payback time of less than 10 years. Based on the Hungarian Climate Change Action Plan. (U.S. Country Studies Program, Hungarian Country Study Team. Budapest, 1998.)

2.1 million during the five-year period of the project (2000 –2005) to finance the incremental costs related to perceived or real risks of these types of investments and to address barriers related to the risks of audits and feasibility studies. It is expected that the government and GEF contribution of US\$ 2.1 million together with the other barrier removal activities of the project will leverage US\$ 9–13 million¹⁰ of additional financing from the private and public sector.

70. Detailed criteria and rules for the use of the GEF financial mechanism will be developed during the the advanced stages of project preparation that are consistent with GEF Operational Strategy and other guidelines. The mechanism will utilize lessons learned from the Hungarian government’s Energy Saving Credit Programme, the IFC/GEF guarantee fund, the German Coal Aid Revolving Fund, and the PHARE Revolving Fund. The design will include at least partial cost recovery, with funds returned to the GEF Trust Fund unless another approach is justified.
71. Any financial mechanisms adopted will leverage existing mechanisms in order to keep transaction costs and the ratio of operating costs to portfolio size as low as possible. The mechanism will also be monitored to ensure that improvements in financing terms are passed on to municipal customers.
72. In addition to the \$2.1 million in support for project development and financing, GEF is requested to provide US\$ 1 million for barrier removal activities related to the establishment of a national co-ordination mechanism for energy efficiency, \$ 0.9 million for training, and \$ 0.2 million for monitoring and evaluation. These funds will be complemented by a US\$ 400,000 technical assistance package provided by UNDP, including \$180,000 in support of project development and financing, \$170,000 for support of the new agency, and \$50,000 towards the cost of monitoring and evaluation. Finally, the Hungarian government will provide US\$ 3 million in cost-sharing. The government money will be used especially for energy efficiency policy development, coordination of energy efficiency policy implementation, and identifying training needs for the new federal energy efficiency agency. The total budget for these activities is US\$ 4.6 million. Apart from this, the government will provide in-kind contributions in the form of office space, staff time and logistical and information support.
73. The total estimated project cost is US\$ 20–25 million. Of this, US\$ 11.78–18.78 million is used for actual investments and US\$ 4.87 million for barrier removal activities. The GEF is requested to provide US\$ 4.2 million for the incremental costs of the project. Of this, US\$ 2.1 million is intended for removing barriers related to lack of awareness, experience and capacity in EE project development. It will also address barriers related to lack of financing, and it will be used to leverage investment. US\$ 0.9 million will fund the training component to remove capacity-related barriers. US\$ 1.0 million will be used to remove institutional barriers, and US\$ 0.2 will support the incremental monitoring and evaluation costs of the project. Table V summarises the project costs.

¹⁰ This amount of leverage was extrapolated from existing data on the market for audits and feasibility studies in the municipal sector from prior grant or contingent grant programs.

Table V. Project Costs (\$US)

PROJECT COMPONENT	GEF	UNDP	Gov. of Hungary	Other	TOTAL
Support for EE Project Development and Financing	2,100,000	180,000	500,000	9,000,000 to 13,000,000	11,780,000 to 15,780,000
Training of Energy Efficiency Agency, municipal clients, and EE service providers	900,000	0	200,000 (in-kind)	0	1,100,000
Support for EE Policy, Awareness, and Coordination	1,000,000	170,000	2,300,000	0	3,470,000
Monitoring and Evaluation	200,000	50,000	50,000 (in-kind)		300,000
TOTAL	!Syntax Error, (!Syntax Error, (3,050,000 (incl. in-kind)	9,000,000 to 13,000,000	20,650,000

74. Based on calculations from ongoing projects and from the Climate Change Action Plan figures, it is estimated that US\$ 20–40 must be invested in order to reduce carbon emissions by 1 ton over a 20-year period. The project description illustrates that an investment of US\$ 11.78-15.78 million could mitigate an estimated 294,500–789,000 to cover a 20-year period. Thus, the unit abatement cost to GEF would be US\$ 5–14 per ton of carbon. If the barrier removal activities of the project catalysed the implementation of 50% of all the potential medium-term EE projects in the public sector, 20-year emissions reductions would reach 1.24 MtC, with a GEF cost-effectiveness ratio of US\$ 3.4 /tC.

7. MONITORING, EVALUATION AND DISSEMINATION

Monitoring, evaluation and dissemination form an integral part of the project. The project team will place special importance on the inclusion of indicators in the project monitoring framework that focus on impact. In addition, the team will design a monitoring plan that will consider the project's impact on the market for municipal energy efficiency products and services.

75. The project team will guarantee continuous feedback from monitoring implementation of project activities to the design of later project components. From a global environmental perspective, it is essential to monitor real, achieved energy savings and related reductions in GHG emissions. To achieve this, it may be necessary to collect real-time information on the use of the efficient equipment. The project team will identify an appropriate, cost-effective mix of direct and indirect measurements that will be appropriate for monitoring activities and outcomes.

76. The project will monitor both the implementation of project activities and management and the progress of individual projects that receive funding under the financial component. The results of all monitoring and evaluation activities for both management and specific activities will be used by the project team as feedback during the project lifetime.
77. The results and lessons learned from the project will be disseminated in the training sessions organised by the project and also to the general public. The details of the dissemination plan will be designed during the later stages of project preparation.
78. The Project Steering Committee will be responsible for the general monitoring and supervision of the project implementation. The project will be subject to tripartite review (a review by representatives of the government and UNDP) at least once every 12 months, the first such meeting to be held within the first 12 months of the start of full implementation. The national project coordinator shall prepare and submit to each tripartite review meeting a Project Performance Evaluation Report (PPER). Additional PPERs may be requested during the project when deemed necessary.
79. A Project Terminal Report will be prepared for consideration at the terminal tripartite review meeting. The draft shall be prepared sufficiently in advance to allow review and technical clearance by the executing agency at least four months prior to the terminal tripartite review.
80. The government will provide UNDP with certified periodic financial statements relating to the status of UNDP/GEF funds, including an annual audit of these financial statements, according to procedures set out in section 30503 of the UNDP Policies and Procedures Manual (PPM) and Section 10404 of the UNDP Finance Manual. The audit will be conducted by the legally recognised auditor of the government, or by a commercial auditor engaged by the government.

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ANNEX A

Incremental Costs

Broad Development Goal

The broad development goal of this project is to help Hungary improve the energy efficiency of its public sector, which will bring about several economical and environmental benefits.

Baseline

In the absence of GEF support to overcome the identified barriers to improved energy efficiency in public sector, energy efficiency will improve slowly and several economically interesting opportunities will remain unrealized. Current investments in energy efficiency happen at a rate of less than US\$ 20 million annually. The estimated potential for cost-effective energy efficiency investments is between US\$ 1.4 and 2.1 million. In the public sector, the potential for short- and medium-term investments (payback time less than 10 years) is estimated at US\$ 156 million annually. In the absence of the proposed project it is estimated that the government funding for energy efficiency (US\$ 1.5 – 2.5 million) leverages 25% additional resources, as has been the case with its ESCP programme. The energy efficiency investments would then be between US\$ 1.875 and 3.125 million in the baseline case and the resulting reduction of carbon emissions can be estimated at 47,000 – 156,000 tC over a 20-year period (see investment costs for carbon abatement in Figure 1).

Global Environmental Objective

The global environmental objective of the project is to facilitate the reduction of carbon emissions from energy use in Hungarian public sector. The project is consistent with the Operational Programme #5, “Removing Barriers to Improved Energy Efficiency and Conservation”. The project seeks to eliminate the identified institutional, financial, and capacity and awareness -related barriers to improved energy efficiency in the public sector, thereby reducing greenhouse gas emissions.

GEF Alternative Scenario

In the GEF alternative, new mechanisms for energy efficiency co-ordination, information, training and finance will be implemented. The project expects to start 60-90 energy efficiency projects in the public sector using the approach as explained in Section 3.2 of the Project Brief. These projects are estimated to reduce carbon emissions by 294,500-789,000 tC over the 20-year project lifetime. Apart from the direct impact of the project, it is expected that the removal of barriers in the public sector energy efficiency market will lead to project development and investment by ESCOs, other project developers, and providers of financial services for energy efficiency. This market expansion is estimated to bring about significant global benefits.

System Boundary

The project addresses the market for energy efficiency within the public sector in Hungary. This includes municipalities, street lighting, public buildings (schools, kindergartens, offices), hospitals and other public institutions. The types of EE investments are not technically limited (i.e., the project addresses both electricity and heating sub-sectors, including central heating, district heating, water heating and lighting). The estimated potential to reduce emissions in this sector is about 60,000 tC annually for projects with payback times shorter than 5 years and 124,000 tC if projects with medium payback times (5 – 10 years) are included.

Figure 1 shows the investment needed to reduce carbon emissions by 1 tC in 20 years time as a function of the simple payback time of the investments. The figure has been elaborated using information in the Hungarian Climate Change Action Plan. In the Plan, 10 different investment categories with payback times less than 10 years were identified and the corresponding investment potential, energy savings and payback times were calculated. Based on this exercise, it is assumed in this proposal that generally the unit abatement investment needed to reduce the carbon emissions by 1 tC over 20 years is between US\$ 20 – 40 (this corresponds roughly to investments with payback time between 1.5 and 4 years). These results were also compared to actual savings from the German Coal Aid Program and Energy Saving Credit Program projects, and their results are generally similar.

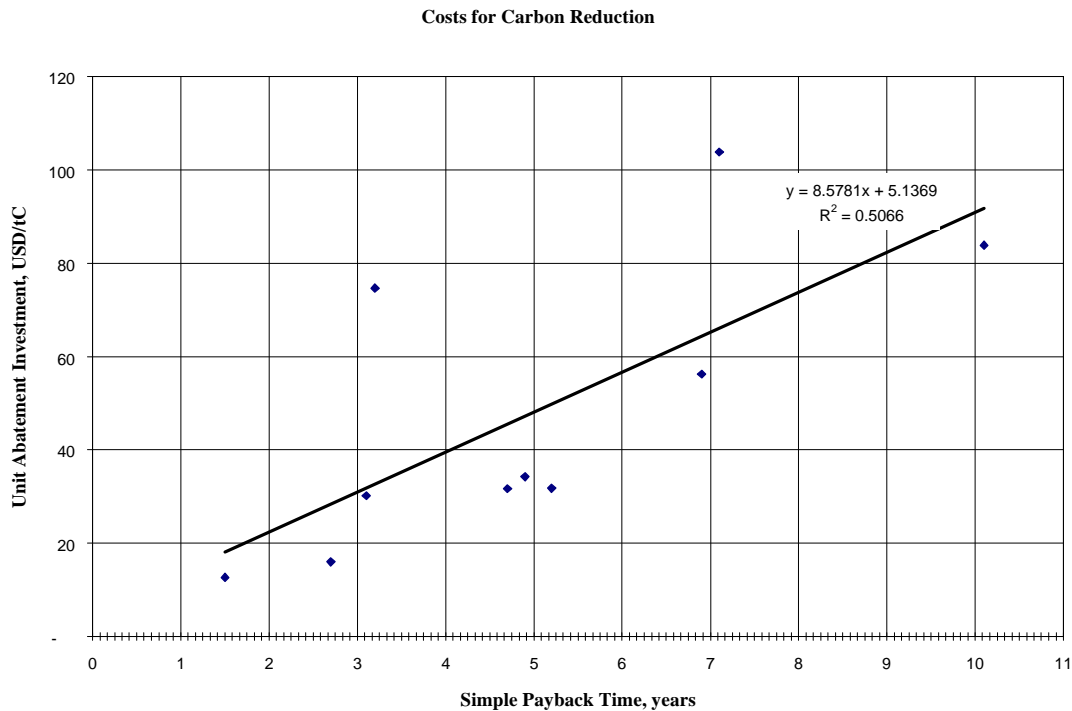


Figure 1. Investment necessary to reduce carbon emissions by 1 tonne over 20 years as a function of the payback time of the investment.

If the proposed project succeeds in leveraging between US\$ 9 and 13 million for public sector energy investments, it would directly abate anywhere from 294,500 to 789,000 tC over 20 years. This increased investment and additional reduction, viewed against the baseline case, means that an additional reduction of 247,625–632,750 tC will be made possible through the efforts of this project. GEF is requested to provide US\$ 4.2 million as support for the incremental costs associated with barrier removal being undertaken through the project. This direct support implies cost-effectiveness of between 6.6 and 17.0 US\$/tC. If the project activities could be replicated in such a way that 50% of the short- and medium-term investment potential in public sector could be implemented, the emission reduction over 20 years would be 1.24 million tC and the cost-effectiveness 3.3 US\$/tC.

Domestic Benefits

Improving energy efficiency brings about several domestic benefits most important being positive economic returns and reduced environmental pollution (particularly NO_x and SO_x). In the incremental cost analysis below, the return to the investments being stimulated by the project is assumed to be at least equal to the costs of the investments. In this way, the value of the resulting benefits is estimated to be significant and positive, while imposing no additional incremental costs on the activities.

Table A-1 Incremental Cost Matrix (Costs in US\$ millions)

<i>Component</i>	<i>Benefits/Costs</i>	<i>Baseline</i>	<i>Alternative</i>	<i>Increment</i>
Support for EE Project Development and Financing	Global Environmental Benefits	No systematic development to improve energy efficiency in public sector	A systematic programme to work with municipalities to identify and support the use of innovative financing for energy efficiency	A systematic programme to work with municipalities to identify and support the use of innovative financing for energy efficiency
	Domestic Benefits	UNDP-funded general study on EE opportunities in public sector Benefits at least equal to a low level of energy-efficiency related investments being made: Gov't: \$0.5m Banks: \$0.375-0.625	UNDP-funded general study on EE opportunities in public sector Benefits at least equal to investments facilitated through project: Gov't: \$2.5m Banks: \$10.9 to 16.9 m	Additional benefits in air quality and additional returns to additional energy efficiency investments Gov't: \$2.0m Banks: \$10.5 to 16.3 m
	Costs	UNDP Contribution 180,000	UNDP + GEF Cont. 2,280,000	GEF Contribution 2,100,000
Training of Energy Efficiency Agency personnel, potential clients, and EE service providers	Global Environmental Benefits	Extremely scarce human resources to deal with EE among government institutions, public sector clients and EE service providers	Efficient training programme to remove training-related barriers for energy efficiency at the municipal level (\$400,000). Training for providers of EE services (\$200,000) More extensive training for Energy Efficiency Agency personnel (\$300,000)	Efficient training programme to remove training-related barriers for energy efficiency at different levels
	Domestic Benefits	Limited training for the Energy Efficiency Agency personnel	Limited training for the Energy Efficiency Agency personnel	None
	Costs	200,000	1,100,000	900,000

Support for EE Policy, Awareness, and Coordination	Global Benefits	Limited capacity to formulate EE policies and to co-ordinate EE issues; acute need for outreach to municipalities is not addressed	Federal government develops the capacity to work closely with municipalities on energy efficiency issues through a stronger agency (\$300,000), an integrated information system (\$200,000), and a targeted outreach program to municipalities in key areas (\$500,000).	Improved policy-making and co-operation capacity; barriers related to the EE policy and co-ordination removed
	Domestic Benefits	Limited capacity to formulate EE policies and to co-ordinate EE issues; acute need for outreach to municipalities is not addressed (\$2,300,000) UNDP-funded study of institutional capacity for energy efficiency in the municipal sector (\$170,000)	UNDP-funded study of institutional capacity for energy efficiency in the municipal sector	None
	Costs	2,470,000	3,470,000	1,000,000
Monitoring and Evaluation	Global Benefits	None	Project is properly monitored and evaluated and thus can reach its objectives	Project is properly monitored and evaluated and thus can reach its objectives
	Domestic Benefits	Monitoring of the baseline –related activities	Monitoring of the baseline-related activities	None
	Costs	50,000	300,000	250,000

<i>TOTAL</i>	Global Benefits	Existing barriers make energy efficiency investments happen slowly; Limited abatement of carbon emissions in 20 years: 46,875 – 156,250 tC	Barriers to energy efficiency in public sector removed; Direct abatement of carbon emissions in 20 years: 294,500-789,500 tC Indirect impact on public sector C emissions potentially up to 124,000 tC annually (2.5 MtC in 20 yrs)	Barriers to energy efficiency in public sector removed; Direct decrease in carbon emissions in 20 years: 247,625-632,750 tC Indirect impact on public sector C emissions potentially up to 124,000 tC annually (2.5 MtC in 20 years)
	Domestic Benefits	Limited improvement of energy efficiency with modest economic and environmental benefits.	Substantial improvement of energy efficiency with significant economic and environmental benefits.	Significant additional improvement of local air quality and significant positive return to leveraged investments.
	Costs	4,275,000 – 5,525,000 less domestic benefits 2,400,000	20,000,000 – 25,000,000 less domestic benefits 6,600,000	4,200,000

Annex B

Project Planning Matrix

Project Strategy	Objectively Verifiable Indicators	Means of Verification	Assumptions
Development Goal: To improve public sector energy efficiency in Hungary	a) Public sector energy consumption/public expenditure (TJ/US\$) b) GHG emissions from energy use in public sector	Official Statistics National Communications to UNFCCC	Consistency with the official government policy, including the EU accession policy
Project Purpose: Create sustainable markets for energy efficiency services in public sector	Number of energy efficiency projects conducted within the public sector	Field surveys, official statistics	Existence of significant potential for EE improvements in the public sector
Output 1: National Energy Efficiency Agency (EEA)	a) EEA established b) Continuation of the operations of EEA after completion of GEF support	Official publications Project Status Reports Reports on the EEA's revenue-generating activities Ex-post Evaluation Report	Receipt of continued support for EEA as it has been established by government decree
Output 2: Strengthened outreach to municipalities through a specific initiative	a) Outreach program designed and implemented b) Number of municipalities with a designated focal point for EE issues	Project Status Reports Government statistics	Support for municipalities as a priority activity area for the federal government
Output 3: Energy Efficiency Audit Cost-Sharing Program	a) Number of audits undertaken b) Number of subsequent projects financed c) Actual savings/emission reductions achieved	Project status reports Energy savings and GHG monitoring reports	Allocation of resources by municipal clients Interest on the part of ESCOs and financial institutions
Output 4: Contingent loans for feasibility studies	a) Number of feasibility studies undertaken b) Number of subsequent projects financed c) Actual savings/emission reductions achieved	Project status reports Energy savings and GHG monitoring reports	Allocation of resources by municipal clients Interest on the part of ESCOs and financial institutions
Output 5: Training courses/events	Number of institutions/individuals participated in training with positive feedback	Project status reports, questionnaires for participants	-

ANNEX C: STAP REVIEW

Peer Review of the Project Concept Document:

HUN/99/G31

Hungary: Public Sector Energy Efficiency Programme

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POPULATION	1

Summary

The submitted project deals with reduction of GHG emissions in Hungarian public sector by leveraging financing from UNDP/GEF. Future development of the project in this area is expected as well as the establishment of an inter-departmental body for supervision of the project's implementation. A strong part of the project is the capacity building component.

The core idea has been derived from the energy efficiency business in the form of energy saving projects undertaken by private entities – energy services companies (ESCo's). The project supports a well designed set of activities, which should help enhance ESCo market in public facilities in Hungary. ESCo business belongs to a very promising and innovative solution of energy efficiency problems in Europe/, especially when combined with a well-prepared contract using third party financing (TPF) or energy contracting (EPC).

The idea of establishing an Energy Efficiency Agency, a co-ordination institution, which will create conditions for and initiate implementation of energy-saving municipal projects, makes sense in principle. There have been established several projects of the similar type in Hungary during this decade. The proposed project has also been designed to make use of this type of projects and amplify results of energy efficiency activities in the public sector through the joint effort.

In general, the project has a well-formulated energy efficiency strategy in the public sector. It is possible to agree without reservations with the general formulation of this strategy. The basic presumptions and ideas are correct. The success of the project depends very much on the ways of implementing the described strategy. The only weakness may be found in the proposed institutional framework, which has been established but is not yet operational. That is why the project is not yet convincing in terms of successful implementation of this useful strategy.

Project Objective

The aim, as formulated in the project, is the reduction of GHG emissions in the public sector in Hungary. Investment directly related to the project should reduce carbon emission by at least 300,000 tC over the 20-year lifetime. Other reductions will be reached through the replicability of other energy efficiency projects. A central point of the implementation strategy is to extend energy efficiency services in Hungary.

Consistency with GEF Program and CAS

A significant reduction of GHG emissions results from the project. The project follows the objectives of GEF.

The Project Brief meets all the requirements of GEF such as:

- The project contributes to global environmental benefits
- Determines a realistic potential market
- Establishes the process of monitoring results
- Complies with Operational Strategy and Programmes of GEF
- Has a clear replicability
- Energy efficiency measures fulfil the requirement of sustainability
- Focus on capacity building aspects
- etc.

Only one requirement could possibly cause future uncertainties: the institutional framework and thus efficient management of the whole programme, which is the base of the project.

The future steps of the national government will influence the effectiveness of the project. The Executing Agency will be the Ministry for Economic Affairs. According to the Project Brief “The project will assist the government in establishing the new National Energy Efficiency Agency... strengthening its outreach to municipalities. ... The project team will be drawn upon experience from Energy Centre, the Energy Office, the Energy Information Agency, and other relevant institutions will be used” (Chapter 3.1)

The project sounds very promising. Nevertheless the capability of the new team which does not exist yet brings other uncertainties. In case the team consists of well-trained and experienced experts the project has high probability to succeed. The results might be worse if the project is managed by inexperienced staff, formal officials or the government bodies with no business experience.

Conclusions

The project has been built on acceptable propositions and the goals specified in the Project Brief can be reached through the project implementation.

Major components of the project are useful and effective activities which should be undertaken in order to reach the goals.

The focus of the project can help in removal of significant barriers to energy efficiency projects in Hungary. The project complies with GEF requirements.

The only weak point in the proposal is an institutional structure which is not yet prepared for immediate project implementation. Thus the following consequence appears: the effective management of the project has not been designed and established yet.

As the project consists of implementing of many (60 to 90) concrete projects and the proposed project is rather a Hungarian program for support of ESCO projects, the following issues has to be taken into account:

- the success of the program depends heavily on how the whole process is managed
- there is almost no experience in such large programs in Central Europe
- some experience, but limited, exists in Western Europe

I would recommend the project described on the Project Brief on condition that it answers the following questions:

- Has the Energy Efficiency Agency been established and does it employ experienced experts and personal qualified enough to implement this project?
- Has the project made use of foreign experience and how ?¹¹
- Is there a plan to elaborate a more detailed description of the concrete steps to be undertaken by the project team and project management? (This very early phase of the work should prove the management has found the way to implement the project).
- In the monitoring and evaluation process is there also component monitoring effectiveness of the project management work and proposing improvements of the management when needed?

After all these questions have been positively answered, the project will fulfil the GEF requirements and can be recommended for implementation.

In case the positive answers on the above-mentioned questions exist I do not see any serious risk in realisation of energy efficiency projects in public sector. I can highly recommend the proposed project for GEF support and implementation.

Jaroslav Marousek
Executive Director
SEVEn – The Energy Efficiency Center

Prague, February 28, 2000

¹¹ Involvement of international business companies and ESCO's, mentioned in the project, does not solve the problem. They are in conflict of interest: all ESCO's operating in Hungary should benefit from the proposed project.

ANNEX C-1: RESPONSE TO STAP REVIEW

The STAP reviewer endorsed the project for approval, but raised 4 concerns that have all resulted in strengthening of the brief. These have been addressed as follows:

1) Institutional Issues: Several measures have already been taken in the design of the brief to ensure that the institutional base for project activities is solid. For example, the design process drew upon input from an in-country alliance of local and international ESCOs and energy-efficient equipment manufacturers and from technical assistance agencies with regional experience in municipal energy efficiency projects. The document also draws upon discussions with several Hungarian agencies that currently implement energy efficiency loan programs. Terminology describing these activities has been strengthened in the last version of the brief being submitted. Prior to final PRODOC approval and implementation, UNDP will ensure that the project document and its accompanying terms of reference reflect the need to employ highly qualified experts in the implementation of the project. UNDP will also ensure that the Hungarian Energy Efficiency Agency is fully operational and capable of serving as the executing agency for the project in terms of staffing and expertise.

2) International Experience: In the formulation of the brief, extensive use has been made of Western and regional experience through research on and consultations with the energy efficiency agencies of several member states of the European Union on institutional design. Section 3.1 has been strengthened to highlight these points. In the finalization of the PRODOC, several precautions will be taken to ensure appropriate revision in project design to ensure the latest lessons are incorporated. Specifically, UNDP will survey existing municipal energy efficiency programs in Central and Eastern Europe, including those funded internally and those funded by foreign technical assistance, and their evaluation reports. Findings relevant to the project will be used in the design of the PRODOC and its accompanying work plan and terms of reference.

3) Plan for Implementation: This is done partially through PRODOC finalisation and (not infrequently) is the first focus of project implementation after PRODOC signature. In this case, the project team has already formulated a draft work plan.

- 4) Monitoring and Evaluation: The project will address this point at two levels. First, a detailed use of indicators and benchmarks will be developed during the formulation of the final PRODOC to achieve two objectives: effective project management activities and successful implementation. Effective project management will be ensured by the use of standard UNDP monitoring and evaluation procedures, which feature annual TPR's. These reports are used to address management concerns and ensure that adequate professional management is invested in the project over its lifetime. Successful implementation will be addressed by developing a substantive monitoring plan for each investment project undertaken that will track project progress (including kWh or GJ saved as well as disbursement). The wording of the brief under Section 7 has been changed to reflect this.

ANNEX D: OVERVIEW OF PROPOSED FINANCIAL MECHANISM

Energy audits have proved to be an effective tool for the development of energy efficiency investments. Audits allow users who lack information on the potential for energy efficiency improvements to become aware of the potential, and then to create knowledge of what measures can and should be taken. Energy audits are highly cost effective, with very short payback times (the energy savings from the no and low cost measures identified will in themselves normally more than repay the cost of the energy audit). However, energy users who do not see the potential for energy efficiency will not invest in a preliminary energy audit, and without an energy audit they will not become aware of the potential. The reluctance on the part of municipal decision makers to pre-finance an energy audit is a serious barrier to improving energy efficiency in the institutional building sector in Hungary.

This lack of awareness and lack of confidence in the value of energy audits necessarily also affects the development of feasibility studies (detailed energy audits) and hence investment in energy efficiency. This is a significant barrier to the development of more complex and larger energy efficiency projects.

For this reason contingent grants given on a cost sharing basis for both preliminary or simple energy audits, and for detailed feasibility studies (either developed subsequent to the preliminary audits, or for more complex and larger projects where preliminary analysis of the energy efficiency potential has already been undertaken) would support project identification, development, and their implementation.

The support for the energy audits and feasibility studies would provide partial funding. The degree of support necessary to overcome this barrier (the percentage of the audit cost to be financed through the project) would be determined following detailed analysis of the needs of the municipalities.

Repayment of the support could be based on a similar approach used by the GEF/ IFC Hungary Energy Efficiency Credit Program (HEECP). This provides partial assistance for feasibility studies on a contingent basis, with repayment of 30 % if the project does not proceed to financing, and 80% of the cost (up to pre-defined limits) if the project is successfully financed, to be repaid upon closure of the lease agreement. In the case of the HEECP project assistance is given to, and repayment made from the Escos implementing the project.

For the Hungary Public Sector Energy Efficiency Program the exact implementation mechanism will be determined. Support could be given through an agreement to be signed either between the Implementing Agency and the public sector (local government, public institution, publicly owned local utilities or mixed local utilities, with the exception of gas and electricity distribution companies). The funding support would be given to the public sector body, or to an approved energy auditing service company, who would receive the funding. In this latter case care would be taken to avoid duplication with the support available to private sector project developers under the HEECP. The support given for audits and feasibility studies would be linked to the support to

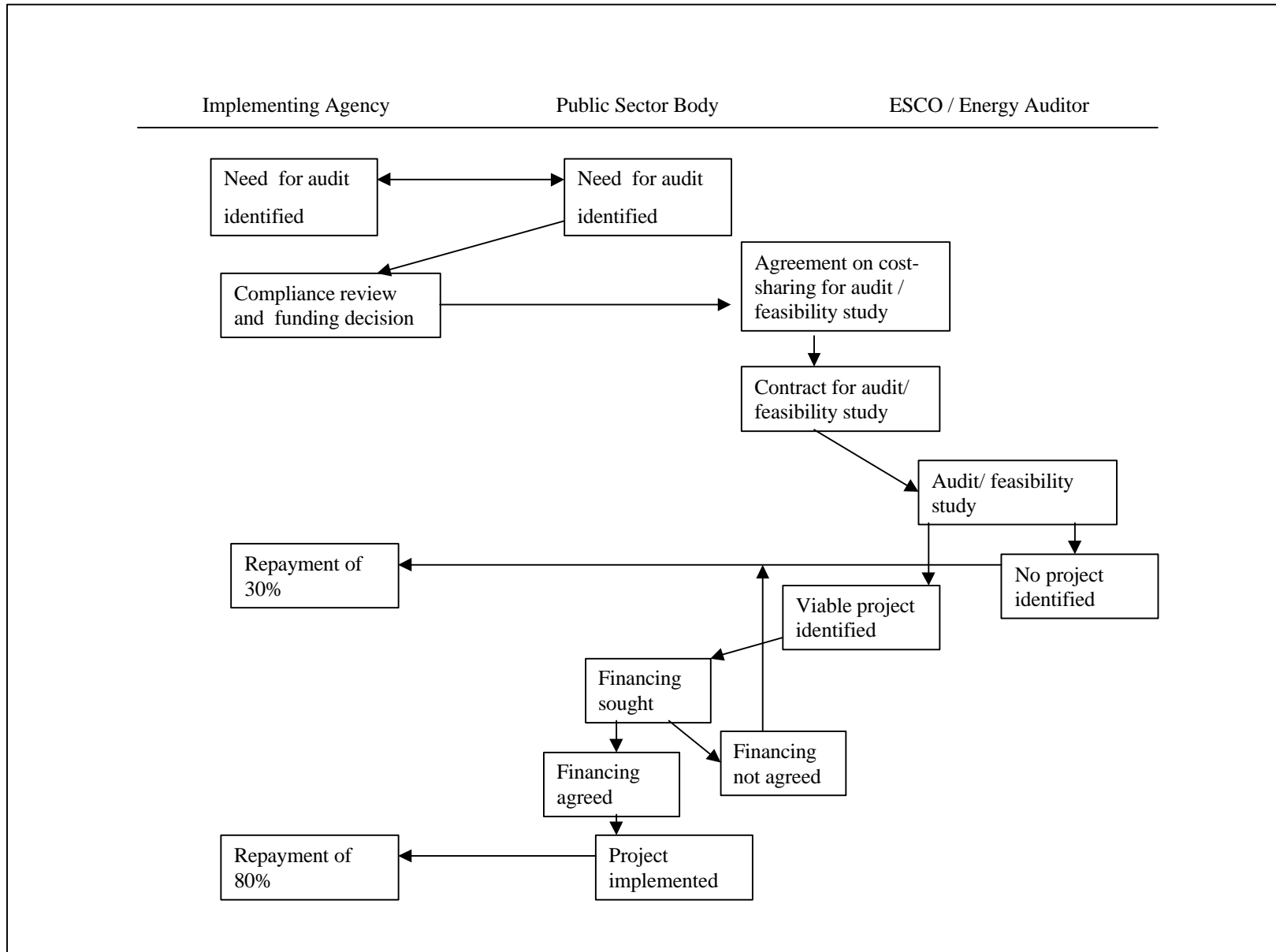
be given under the project for a governmental certification programme for Escos and auditors (which is aimed at addressing the barrier of lack of quality control of energy auditors and energy efficiency consultants). In all cases the support given will offer real additionality, by supporting projects with substantial energy savings where significant barriers exist, rather than supporting projects with credit-worthy preferred customers of existing credit support mechanisms.

The agreement would stipulate that 30% of the funding would be repaid to the Implementing Agency if (a) the energy audit or feasibility study did not identify a viable project to be funded under other credit lines, or through municipal support, or (b) the energy audit did identify a viable project but this could not be implemented within a pre-determined period because of financing difficulties which could not be overcome with the assistance of the implementing agency and/ or the Esco/ energy auditor.

If the energy audit did identify a viable project(s), and the project is financed within a pre-determined period after the completion of the audit and/or feasibility study, then 80% of the support given for energy audit and/ or feasibility study would be repaid at the time of the loan closure, or availability of finance if funded from municipal budget sources.

The Implementing Agency will maintain a separate 'revolving fund' for the support allocated for energy audits and feasibility studies.

ANNEX D1: SCHEMATIC OF PROPOSED FINANCIAL MECHANISM



ANNEX E

The Hungarian Energy Information Agency has compiled a list of 392 municipalities in Hungary (slightly more than 10 percent of all municipalities) that have participated in some type of energy savings program. Of those cities, several have demonstrated a commitment to energy savings by participating in financing and advisory mechanisms. The following tables list cities taking part in recent major initiatives; the number of interested cities is actually larger, demonstrated by the fact that applicants for existing programs offering financial and technical assistance outnumber available slots.

Cities with Energy Advising Centres:

Name of City	Population
Debrecen	206,882
Eger	58,485
Gyor	127,297
Nyiregyhaza	112,998
Pecs	159,632
Szolnok	77,592
Tatbanya	71, 996

Cities participating in the 1999 Phare program on municipal energy efficiency:

Name of City	Population
Baja	37,187
Bekescsaba	64,268
Csurgo	5,753
Eger	58,485
Jaszbereny	28,230
Mako	25,870
Nyergesujfalu	7,788
Szarvas	18,248
Szigetvar	11,314
Tiszavasvari	14,253

Cities participating in the IFC HEECP program:

Name of City	Population
Balatonfured	13,254
Budapest	1,861,383
Kazincbarcika	34,225
Szeged	160,091
Szekesfehervar	106,217
Szombathely	82,517
Szolnok	77,592
Vac	33,694

World Bank User
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