Business Plan

ESCO - Rivne

Rivne 2005

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Abbreviations and Acronyms

AOA – Apartment-Owners Association
CIS – Commonwealth of Independent states
CO_2 – Carbonic Acid Gas
CO – Community Organization
EPC – Energy-Performance Contract
ESCO – Energy Service Company
FG – Functional Group
GEF – Global Ecology Facility
GDP – Gross Domestic Product
GHG – Green House Gas
NGO – Non-Governmental Organization
PR – Public Relations
UNDP – United Nations Development Programme

Appendixes

APPENDIX 1: ***Drafts of the Energy Performance Contracts***

APPENDIX 2: ***Financial Plan for the years 2005-2008***

APPENDIX 3: ***Scheme of Work with Budget Institutions***

APPENDIX 4: ***Company Management 3D Structure***

1. EXECUTIVE SUMMARY

1.1 Background

Ukraine is one of the least energy efficient countries in the world and has the greatest emissions level per unit of GDP among CIS countries. A recent inventory of the total emissions from Ukraine showed the figures that significantly exceeds the levels in most European countries and is also one of the highest in the world. An inventory estimated that total emissions from Ukraine in 2002 were 487 million tons of CO_2 equivalent (the corresponding figure for 2001 was 482 million tons). This results in a per capita emission of 10 tons of CO_2 equivalent per year. Heat supply in the buildings sector accounts for approximately 25% of all fuel consumed in Ukraine, and, therefore, there is a huge potential for energy efficiency improvement in this sector, which Ukraine wants to actively pursue.

Problems in Ukrainian district heating are similar to those facing other countries of the former Soviet Union. Sharp increase in fuel prices up to the world level with heat tariffs lagging behind considerably worsened the financial state of all district-heating companies. Lack of the funds for modernization of generating capacities and heat networks impacted the level of service, which in combination with consumers' lower ability to pay significantly reduced the level of payment collection. Heat supply infrastructure is operated beyond the service life and requires large investments for maintaining it in operating condition and covering existing heat demand.

At the same time, it is this inefficiency of existing heat supply and consumption systems that creates significant potential for fuel and energy saving. Heat supply in the buildings sector accounts for approximately 15% of all fuel consumed in Ukraine, and there is a huge potential for energy efficiency improvement in this sector illustrated by the following figures: Specific fuel consumption for heat generation in communal energy sector of Ukraine is 0.180-0.200 t.c.e. per 1 Gcal compared to 0.150-0.160 t.c.e. in Western countries. Specific heat consumption for heating and hot water supply of Ukrainian buildings is 1.5-2 times higher than in Western countries with similar climate conditions.

There exist a number of barriers that hinder supply and demand side energy efficiency improvement in district heating systems. These include: macro-economic conditions such as high taxes and unstable taxation policy, unstable local currency, inconsistency of regulatory and legal policies, non-payment crisis, imperfect pricing policy, institutional weaknesses, ownership questions, lack of information about existing opportunities for energy efficiency and relevant experiences, high transaction costs for relatively small energy efficiency projects, unsatisfactory financial state of district heating companies and consumers, difficulties in arranging financing for energy efficiency projects, lack of capacity and experience in preparing, implementing and managing energy efficiency projects, technical deficiencies of heat supplier and consumer systems, and the absence of incentives to energy saving for the majority of heat consumers.

Energy service company (ESCO) can design, implement and finance all necessary energy efficiency investments in municipal buildings, the district heating networks and other energy consuming local facilities through energy performance contracts (EPC) or other suitable contractual arrangements. This approach aims at providing up-front investment through a portion of the savings actually realised. The ESCO concept represents an excellent vehicle for systematic energy efficiency as it deals with numerous clients, it is flexible in the decision-making process and - based on its business orientation – it is interested in multiplying energy efficiency activities through expansion of its customer base.

Community involvement through social mobilisation to the energy efficiency activities is very promising. Accordingly, all beneficiary households and other stakeholders in selected residential areas should participate fully in implementing energy saving initiatives. Through social mobilisation, communities should be sensitised and become aware of the benefits of energy efficiency measures through the ESCO approach - in terms of energy and cost savings, as well as in terms of the environmental impact (reduction of GHG emissions).

1.2 Objectives

ESCO-Rivne has doubled aim:

(1) Support the energy efficiency development in communal sector of Rivne with further replication on other regions of Ukraine

(2) Promotion of energy saving among the Rivne inhabitants.

The first aim - support should be done through cooperation with local communal enterprises and local authorities, budget institutions etc. ESCO-Rivne has already established the necessary contacts and now in the phase of working out the projects.

The second - universal experience shows that well-coordinated efforts are needed for convincing local communities in energy efficiency necessity.

The major goal of ESCO-Rivne is to contribute through its initiatives to the reduction of greenhouse gas emissions through large-scale improvements in energy efficiency in the communal heat supply sector in Rivne.

These improvements will result from a four-part approach:

(1) Capacity building to create the basis for systematic energy efficiency activities at the local level;

(2) An integrated approach of supply and demand-side improvements to achieve maximum fuel savings and emissions reduction;

(3) Attraction of external investment resources for an energy efficiency program in Rivne; and,

(4) Public awareness-raising through the involvement of communities and NGO's, in particular those concerned with environmental and energy efficiency problems.

ESCO-Rivne does not limit its business activities by the municipal frames only. Company is prepared to develop and implement energy saving projects in other areas (the industrial sector and in non-manufacturing business).

1.3 Mission

Our mission is to provide clients across Rivne region and Ukraine with comprehensive energy saving services for all types of buildings, regardless of their ownership, - from concept planning and design works to turn key completion. All the works are done by highly skilled professional team working together, using common sense and practical experience.

1.4 Keys to Success

(a) Provide professional quality services on time and budget;
(b) Guarantee the calculated energy savings;

(c) Develop a follow-up strategy to gauge performance with all clients;
(d) Implement and maintain a quality control and assurance policy

2. COMPANY SUMMARY

2.1 Justification

The ESCO business approach presents the most effective way for systematic energy efficiency activities for both supply and demand-sides and works at municipal level because it is oriented towards operation with numerous clients of various types, it reduces transaction costs and can tackle a large number of similar and relatively small-scale projects that could not be financed separately using traditional approaches. ESCO Rivne possesses the necessary expertise for project preparation and implementation; performs design works, building and assembly jobs balancing and commissioning; it is quick and flexible in making decisions about financing of projects and is intrinsically interested in multiplying energy efficiency activities through expansion of its customer base.

2.2 Ownership

The Municipal Energy Service Company was legally registered in the City of Rivne on November 12, 2003 as closed joint-stock company with the official name "ESCO-Rivne".

The shareholders are the Oblast Administration and City government (municipality). Due to the fact that Oblast Administration and City Government (municipality) are not legal entities ESCO-Rivne's founders and stockowners are:

- The District Heating Compamy "KomunEnergia" (controlled by and reporting to Oblast Administration), 49.53% of stock shares and
- The Municipal Enterprise "Misksvitlo" (controlled by and reporting to Rivne municipality), 50.47% of stock shares.

The Statutory fund (authorized initial capital) is approximately US$ 50'000.00 (see table below):

ESCO-Rivne Founders/shareholders	No of Stocks	Capital, UAH	Shares
DHC "KomunEnergia"	53	132500,00	49.53%
CE "Misksvitlo"	54	135000,00	50.47%,
Total	107	267500,00	100.00%

With the purpose of increasing the ESCO-Rivne employees' personal commitment in Company's potency and success the shareholders decided to hand over 10% of the shares to the ESCO-Rivne staff. Thus the shares ratio will change:

ESCO-Rivne Shareholders	No of Stocks	Capital, UAH	Shares
DHC "KomunEnergia"	48	120000.00	44.53%
CE "Misksvitlo"	49	122500.00	45.47%
ESCO-Rivne staff	10	25000.00	10%
Total	107	267500,00	100.00%

2.3 Company Location and facilities

The ESCO-Rivne home office was established in the city of Rivne, North-West Ukraine. The office space is estimated to be 150 square meters. The office rooms are equipped with two telephone lines and high-speed Internet connection. Under the current UNDP cooperation the office has been fully renovated and equipped with computers and office equipment, telephone switchboard, etc. and will be transferred to ESCO-Rivne for once the project comes to an end. Similarly all other investments made by UNDP such as energy auditing equipment as well as the vehicle, etc. will be handed over to ESCO-Rivne. Company's web-site is being developing and it is already used as a marketing tool. The domain name of "**esco-rivne.com**" has already been reserved. ESCO-Rivne Internet address is http://www.esco-rivne.com

2.4 Business Concept

The role of the ESCO Rivne is to design, realise and finance all necessary and cost effective investments in the municipal buildings, the district heating network or other energy consuming local facilities through energy performance contracts (EPC) or other applicable contracts, aimed at providing up-front investments, reducing the facilities' energy, operation and maintenance costs, and reimbursing the investments through a portion of the savings actually realized.

2.4.1 Energy performance contracts (EPC)

Energy performance contracting is a relative newcomer to the energy management industry in Ukraine, but it has been well established worldwide (particularly in the US and Canada) for over 10 years. An energy performance contract (EPC) is, in effect, an outsourcing arrangement for energy efficiency, where an external contractor takes total responsibility for achieving outcomes. This is the only form of energy management consultancy where it is possible to obtain a guarantee that energy savings will be achieved. You can performance contract a single savings measure, a whole building, or a whole organization. Bigger contracts are more cost effective.

There are a number of different types of energy performance contract, but all share the following common features:

- The EPC contractor enters into a long term (5-10 year) relationship with you.
- Benchmark energy performance levels are defined and energy efficiency upgrades are identified and implemented by the EPC contractor.
- Risk of non-performance of energy efficiency upgrades is carried by the EPC contractor rather than you.

Thus EPCs are a means of achieving energy efficiency that allows the risks and responsibilities of implementation and maintenance of savings to be passed onto the EPC contractor. This is in contrast with traditional energy management techniques which produce recommendations for efficiency improvement which you have to act on at your own risk.

2.4.2 The process

An Energy Performance Contract (EPC) is an agreement between an Energy Service Company (ESCO-Rivne) and its Client to provide energy services to a particular facility of the Client. This agreement includes a facility survey, as well as the design, installation, financing, and maintenance or management of the facility's energy systems or equipment in order to improve its energy efficiency. The energy savings are guaranteed and are used to repay the cost of the project. This comprehensive approach combines several of the project stages which traditionally have been done one step at a time.

A preliminary project scope should be included in the Request For Proposals so that a more effective comparison can be made of proposals used in selecting an ESCO. The project scope must be directly related to energy savings. Projects that do not reduce energy use are not appropriate. Projects that replace, repair, or maintain systems and equipment that are covered by previous EPCs are not acceptable. For example, repair or replacement of lighting fixtures or temperature control systems that were installed by a previous EPC, water conservation plumbing fixture replacement, replacement of paper towels in toilet rooms with electric hand dryers, fire alarm systems, security systems, telephone systems, technology cabling, etc. and any work in new construction are not appropriate for EPCs.

An energy performance contract commences with a detailed feasibility study, from which a performance contract proposal is produced. This normally consists of both a technical report on the potential energy savings on site but also a proposed form of contract, plus details of how the results of the performance contract will be identified and measured.

From the other hand for the Client the process is much simpler. Instead, the stages of feasibility, design, installation or construction, maintenance and training can now be done with one procurement process - the Energy Performance Contract. Additionally, through EPC, results are guaranteed and financing is provided allowing ESCO to get complete project, financing, installation, and guaranteed results simultaneously.

Once this is accepted, the energy performance contractor implements the energy savings measures, along with a monitoring regime that enables the levels of savings achieved to be explicitly identified. The energy performance contractor guarantees the level of savings to be achieved, and if this level is not met then the contractor pays the difference.

In an Energy Performance Contract, there is no up-front capital requirement. The upgrades and energy efficient improvements can be made immediately with savings guaranteed by the contractor to cover all project costs. If these savings are not achieved, the agency receives a check for the cost difference from the contractor.

The chosen contractor will perform a comprehensive energy analysis on the facility to identify the most cost effective energy conservation measures. The contractor and facility staff, in collaboration, then select the specific projects. Installation, maintenance and appropriate staff training are completed by the contractor.

In a typical Energy Performance Contract, the contractor (ESCO-Rivne) provides the financing directly to the Client. Since vendor financing does not always provide the lowest cost, the ESCO-Rivne have developed and implemented a procedures of open tender process for supply. This includes:

- supply of goods (equipment),

- services (design, installation works, commissioning etc.), and
- contracts of supply on turn-key basis.

Vendor financing rate and terms are compared to the rate and terms of the EPC Master Lease in order to ensure the lowest cost of financing.

For its clients ESCO-Rivne uses different types of EPC:

- sale contract, when the ownership is being transfer to client at the moment of contact completion and the payment is based on long term basis;
- Rent agreement when the Client provide rent payments during preliminary calculated pay-back period;
- Leasing contract the Client provide lease payments during preliminary calculated pay-back period and the transfer of ownership is foreseen by the contract.

To secure its business and funds allocation ESCO-Rivne concludes Pledge agreement (Collateral) with its Client.

2.4.3 Defining the Scope

The EPC project scope must be complete and designed to be independent of any and all other projects that may be proposed or underway and all construction and administrative costs necessary to install EPC work must be the responsibility of the ESCO-Rivne. If the EPC work includes multiple buildings, each building requires a separate project submission and project costs must be separated by building. "Phasing" whereby different parts of work in the same building in the same year are submitted separately and do not constitute a fully functioning system or complete elements of work is not allowed. Since EPCs represent guaranteed installed cost installations with a defined payback period, change orders to EPCs are not acceptable and any additional segments of work will be processed as new, separate project submissions, each requiring a building permit. Each project must stand on its own as a complete, fully operational, code compliant project. Each project submission must individually meet all the requirements for submission of final plans and specifications, including the payback provision. It is not appropriate for an EPC to be dependent upon the school district or other contract to perform work necessary for its installation. For example, turning over materials or equipment for installation by another contractor is not appropriate and demolition or removal of existing equipment, final connections to heating equipment or electric fixtures, lintels, louvers, curbs, equipment pads, construction or reconstruction of space necessary to install EPC equipment, etc. need to be included in the EPC agreement.

2.4.4 Benefits

An EPC provides the ESCO-Rivne Client with energy savings immediately, as well as equipment upgrades, building enhancements, and increased comfort and reliability. It meets statutory requirements, buys needed energy efficient equipment, frees monies to meet other Clients needs, and uses future energy savings which can improve the aging building stock.

Energy Performance Contracting is practical, efficient, and flexible.

2.5 Start-up Plan

The start-up plan is determined by the terms of Cooperation Agreement between UNDP, State Committee for Energy Conservation, Rivne state oblast administration, Rivne Municipality and the shareholders – DHC KomunEnergia and CE MiskSvitlo.

3. PRODUCTS AND SERVICES

3.1 Service Description

ESCO-Rivne provides all services related to the implementation of energy efficiency and saving measures, which the client cannot or does not wish to do by itself, the include:

1. Conducting energy audits;
2. Preparation of proposals for energy saving projects;
3. Developing and providing financing arrangements;
4. Development of full procurement package (contracts, technical specifications);
5. Procurement of all equipment and services;
6. Supervision of contractors' works during construction and installation phase;
7. Monitoring and verification of the contract performance during further operation;
8. Taking all the risks during project implementation and further operation;
9. Guaranteeing of the energy savings to the client.

Our Company offers innovative and economic design services, unusual financial schemes, and state-of-the art design technology.

3.2 Competitive Comparison

ESCO-Rivne offers their clients superior service accompanied with state-of-the-art analysis and design capabilities. We will offer cost-effective approaches of reducing the energy consumption of client's installation.

Our Company will implement a quality assurance, control and monitoring program for all projects undertaken. This document will serve to focus on the standards which will be achieved and means of measuring performance.

3.3 Fulfilment

ESCO-Rivne has qualified professionals to supplement computer aided design and drafting services, analysis support services which are areas that we can afford to contract out without risking the core values provided to the clients.

We have fostered several alliances with suppliers of equipment and services, including heat meters, pre-insulated pipes boilers etc. as well as with subcontractors – specializing design and installation companies.

3.4 Expected Results and Comparative Advantage

Successful operations of ESCO-Rivne will promote the solving of different problems:

- **Technical**
- **Organizational**

- **Economical**
- **Ecological**
- **Social**

Comparative advantages of ESCO-Rivne projects implementation consist in quick problem-solving of heating within peculiar buildings / apartment house / residential district; ESCO-Rivne is not limited by the organizational or municipal budget and can attract funds from the outside; community involvement into the decision-making raises local self-governance and participation between the inhabitants and authorities.

3.5 Sourcing

The major sources of ESCO-Rivne funding are:

(1) **Company profit.** Revenue from the performing commercial contracts by ESCO-Rivne (there is the decision of current shareholders to revert all ESCO-Rivne profit during first three years of operation into the new projects).
(2) **Direct investments to Company. C**ontributions to the ESCO Statutory Fund by the Company shareholders.
(3) **Commercial loans** from local and foreign banks, funds, other financial institutions;
(4) Repayment from the completed demonstration project contracts, financed by UNDP
(5) Grants

3.6 Financial Plan

The UNDP / GEF project foresees that ESCO-Rivne will get the income from pay-back. This income will be received in the form of rent and percent from energy saving. Prospective pay-back period is 4 years. The ESCO-Rivne Financial Plan for the years 2005-2008 is provided as APPENDIX 2.

4. MARKET AND CLIENTS

4.1 Situational Analysis

Rivne region is situated in the North-Western part of Ukraine. Its territory is about 20’000.00 square kilometres and amounts to 3.3% of the whole territory of Ukraine. Population of Rivne region is 1’200’000 of people (2.3% of the whole population of Ukraine). The region has 14 rayons.

Small and medium enterprises are mostly concentrated on trade (41.8%), industry (18.8%) and civil works (8.5%).

Rivne region has business import / export relations with 71 countries in the world. The major partners are: Russian Federation, Germany, Italy, Byelorussia, the Netherlands, Czech Republic, Slovak Republic, France, Hungary and Poland.

Rivne region has developed and approved “Sustainable Development Plan for the years 2001 - 2010”. The Plan consists of 132 projects with the total amount of investments about US$ K 113.00 One of the top-priority development lines is the energy constituent / energy consumption reduction.

The industrial market for energy efficiency projects' implementation in the region is very attractive. There are a number of large enterprises with huge energy consumption: JSC RivneAzot, Kostopyl Basalt and Heat-Insulating Materials Plant, Berezno Match Plant, Flax Plant and Bonded Fabric Plant in the city of Rivne. Taking into account that now ESCO-Rivne has no accurate data about the actual energy consumption on the abovementioned enterprises, we can estimate the energy saving potential as 50-60%, which is the average figure for Ukraine.

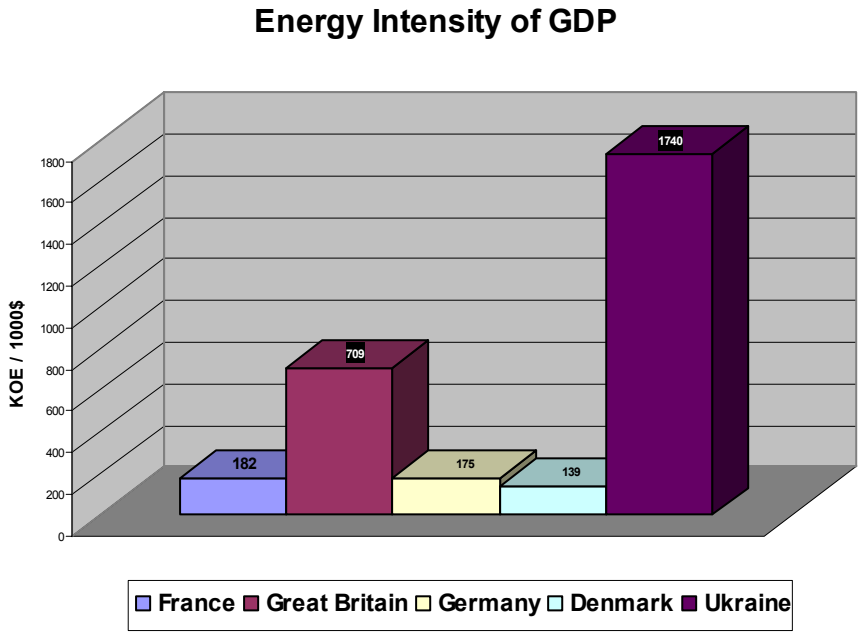
State / municipal sector of Rivne region is typical for Ukraine. That is why the lessons learnt here are very important and worth broad dissemination.

The region has 1055 educational institutions. In Rivne there are 29 schools, 33 kindergartens and 7 grammar schools. The city has about 50 municipal (office) buildings. In the region there are 880 health care institutions, about 20 of them are situated in Rivne. The region also has 438 gyms and sport schools, including 11 covered swimming pools.

Thus, the potential market capacity for energy saving projects implementation is big enough for successful operation of ESCO-Rivne.

4.2 Market Summary

Specific energy consumption in Rivne oblast is 3321 KOE per capita, GDP per capita is 3282$, energy consuming GDP - 1012 KOE/1000 $ (Ukraine at all consumes of fuel and energy resources 4600 kg of Oil Equivalent (KOE) per capita, while GDP per capita in Ukraine is only 2500 $). These parameters in France comparable to Ukraine on territory and a population are accordingly 3845 KOE and 21113 $. The energy intensity of GDP of Ukraine is 1740 KOE/1000 $. That in 10 times exceeds a level of France - 182 KOE/1000 $.



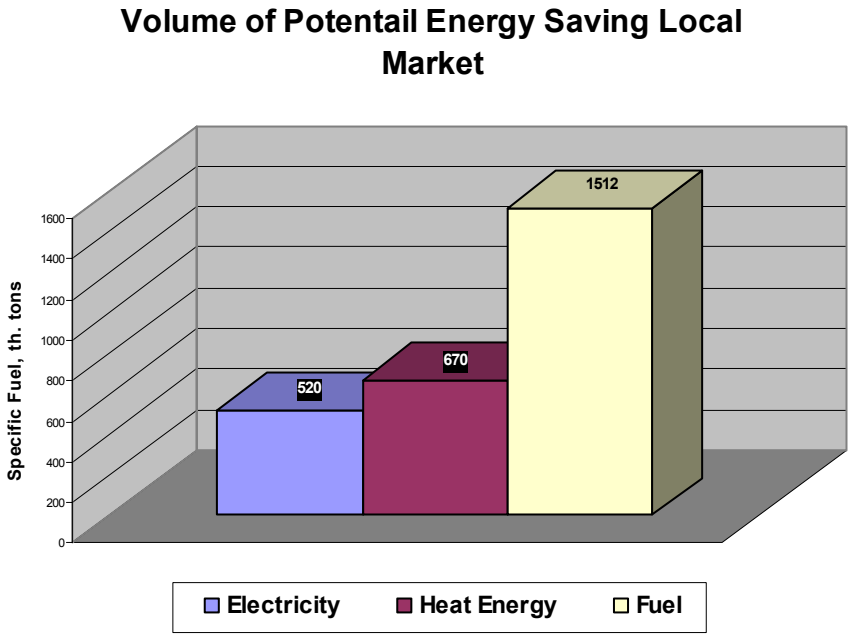
4.2.1 Energy saving market indications:

1. Local market exists as a territorial segment of definite volume at the Ukraine energy saving market;

2. Real demand and proposal on the technologies and equipment at the given market segment;
3. Existence of systematic purchases and sales of technologies, equipment or services, which provide real energy resources economy (natural gas, fuel oil, light oil-products) or power bearers (electricity, heat power, compressed air) for buyers or promote this;
4. Existence of Energy Saving infrastructure.

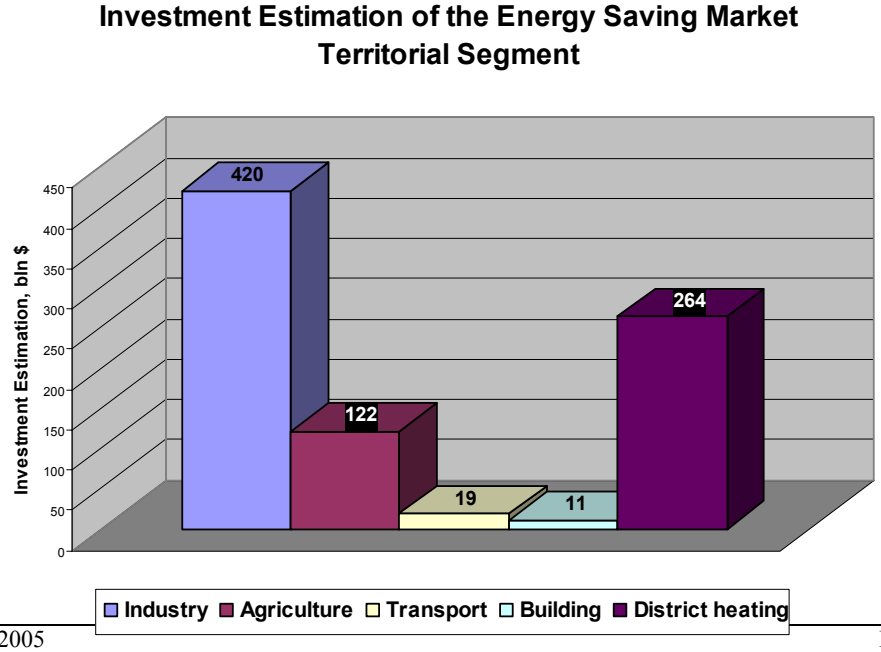
4.2.2 Energy saving potential:

Energy saving potential is estimated with the account of possibility of low cost energy saving



technologies and equipment, for payback period of 3-5 years.

Energy Saving market volume and structure of Energy Saving potential differentiation on types of energy resources and branches of industry are below in natural and cash indexes in chart.



Estimation of investment for the potential volume of the Energy saving market territorial segment of Rivne Oblast is given below.
Investment estimation of the Energy Saving market territorial segment (for implementation energy saving projects for pay-back period of 3 years).

4.2.3 Actual volume of the local energy-saving market

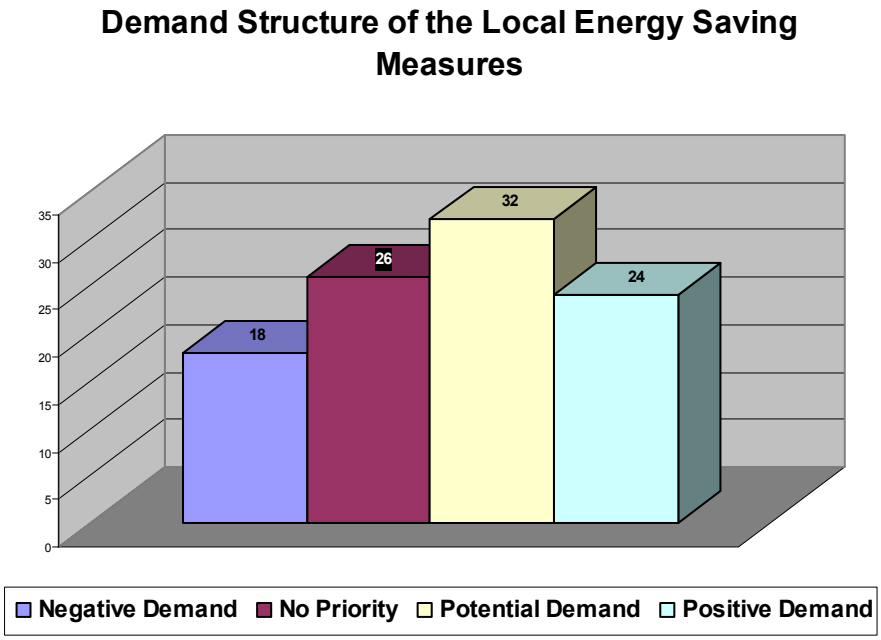
The figures provided reflect Region necessities precede from Region investments possibilities.

In real situation Region resources are limited and energy saving actual market for technologies and equipment is considerably narrowed.

For valuation of real market volume it is important to take into account distribution of character demand at local energy saving market, when positive demand value is only 24%.

4.2.4 Demand structure at local energy saving market

Different groups of potential buyers were interviewed on the valuation demand character on the local energy saving market segment in Rivne Oblast. The following distribution of positive answers received (amount of interviewed - 52).



4.2.5 Market Demographics

All the ESCO-Rivne customers are divided into two big groups: demand-side customers and supply-side customers. The general profile of ESCO-Rivne customer consists of the following geographic, demographic and behavior factors:

Geographic:

- Since ESCO-Rivne is the municipal company, the priority geographic target is the city

of Rivne and Rivne region.
- ESCO-Rivne doesn't limit itself with the Rivne region only. We are open to any customer all over Ukraine.

Demographics:
- Participate in an industry that involves interaction with the energy / environment, generally these companies will participate in the following industries: district heating, hot water supply, sewage systems, city lightening etc.
- Yearly revenues are multi-million dollar amounts.
- ESCO-Rivne investments made in energy efficiency during last year are about 1.5 million of US dollars.

Behavior:
- Have an impact on the environment that is generally viewed as negative (great GHG emission, exceeding fuel consumption etc.).
- Are often interacting with local communities in regards to their work within the environment.

4.2.6 Market Segments

Rivne municipal district heating system is closed, double-piped with direct and indirect schemes of consumers' attaching to the heating and hot water supply.

In the city of Rivne heating is provided from the district, quarter and local boiler-plants.

The rated heat flow provided for consumers (installed load) is 452 GCal / hour (507 gig calories / hour taking into account the losses in heating mains) – according to information of DHC "Komunenergia". On the balance of DHC "Komunenergia" there are 36 boiler-plants with the installed capacity of 784.3 Gcal / hour and the total power among them:
- Up to 3 Gcal / hour – 13 (total installed capacity – 17.9 Gcal / hour);
- From 3 to 20 Gcal / hour – 10 (total installed capacity – 112.9 Gcal / hour);
- More than 20 Gcal / hour – 13 (total installed capacity – 653.5 Gcal / hour).

182 boilers with the different capacity from 0.07 to 30.0 gig calories / hour are installed in the boiler-houses.

The majority of consumers receive heat from the boiler-plants where the steam heating-units (types B-25-15GM, DKVR-10/13, E-1/9 etc.) and the hot-water boilers (types PTVM-30, KVGM-30, GVG-8M, TBG-4P, KBNG-2.5 etc) are installed. 46 boilers have operation period more than 20 years; efficiency of 2 boilers is less than 82%.

Natural gas is used as the main fuel on all the boiler-plants. The heating mains are double-pipe subsurface manifolds in the no-go channels Ø 100…500 mm. The distributive networks from Central Heating Chambers (CHC) are four-pipe subsurface manifolds Ø 32…150 mm in the no-go channels.

According to the information of DHC "Komunenergia" the heating manifolds' extension in the double-pipe calculation is 186.5 kilometers, including those with pre-insulated pipes – 12 kilometers. The nets' extension with expired operation period is 160 kilometers.

The substantial part of the heating mains demands replacement, the manifolds have damaged thermal insulation, and some runs are flooded with the subsoil water. According to the information of DHC "Komunenergia" losses in the heating mains amount to 10-13% (on some runs the losses are even bigger – 30-40%).
Heat supply to the consumers is done by direct-heating systems and indirect systems through Central Heating Chambers there are 79 CHC on the balance of DHC "Komunenergia". Most of CHC have out-of-date technological equipment which demands replacement. The control and automatic units are almost absent in the CHC.

In the city of Rivne there are 1432 high-rise buildings. 78 of them have CHC installed. ¾ of the total heating falls at the apartment houses.

The major problems of municipal district heating in the city of Rivne are the following:
(1) Low efficiency of boilers' heat generating equipment and central heating chambers that causes improper quality of hot water ad heating services;
(2) High level of heat carrier losses in the mains and building connections;
(3) High level of heat energy losses in commercial, budget and apartment buildings.

Electricity for the city of Rivne is transmitted by AES RivneEnergo Company (75% of the Company shares belong to American AES Group).

The total length of transmission and distribution lines in Rivne region is 27 000 kilometers. Electricity is supplied to 403 000 end-users around the region. The average annual consumption rate is 700 gigs Watt.

City lightning is provided by Communal Enterprise MiskSvitlo. This company also builds and services the local power grid.

The water transport and drainage systems of Rivne are pertained to and used by Municipal Communal Enterprise "RivneVoda".

The water transport system is combined – for economic and domestic, industrial and fire-prevention purposes. It consists of:
- Water wells (artesian wells);
- Water-pumps stations;
- Water-pipes;
- Subscriber's drops.

The water wells are situated out of town. The distance between Rivne city and the basic water well is about 17 km. The water transport system of Rivne includes 3 water-tower stations and about 250 km of water-pipes.

The drainage system is combined. It means that the domestic sewage and rain water are drained by the common system of headers.

The municipal sewage system includes 190 km of drainage systems, 14 basin pumping stations, main drainage pump plant and the municipal water purifier station.

Annually the municipal drainage system exports about 30 billion m^3 of sewage. The municipal water purifier station can refine approximately 9 billions m^3 of sewage (about 30%). Other sewage is exported by the main pump plant to the Joint-Stock Company "AZOT" water purifier station, which is situated at a distance of 17 km from the city of Rivne. For pumping over the sewages the basin pumping stations use 11.6 billion KWT/hour annually, and the main pump plant uses 7.5 .6 billion KWT/hour annually. The rate of electricity use for sewage pumping over is the following:

- Drainage system basin pumping stations – 0.56 KWT/hour/m^3;
- Main drainage system pump plant – 0.43 KWT/hour/m^3;
- In general for drainage system – 0.91 KWT/hour/m^3.

Cost of sewage 1 m^3 transportation amounts to 70% of general drainage service tariff.

4.2.7 Target Markets and Clients

The target group of ESCO-Rivne clients consists of two local communal enterprises – DHC KomunEnergia and CE MiskSvitlo. Both Companies are ESCO shareholders and clients in the same time. It determines the specific relations with the Companies and demands well-balanced conduct of all related parties to avoid conflict of interests. While the situation allows a unique opportunity to estimate the energy efficiency both from the supply side point of view and from the demand side position and implement the Comprehensive Resource Planning. The most important issue here is the possibility to perform projects' expenses analysis and choose the best cost-effective variant.

Another group of clients includes Rivne Municipality and Rivne oblast administration (Governor's office). Taking into account that these bodies were the founders of ESCO-Rivne, local authorities provide permanent support to the Company.

The other typical clients of ESCO are the following:

(a) Municipal Clients

- Apartment Houses
  - Apartment Owners Associations
  - Renters' Associations
  - Cooperative Housing
  - Condominiums
- Social and Leisure Institutions
  - Theaters
  - Cinemas
- Education Institutions
  - Universities
  - Secondary / grammar schools
  - Kindergartens
- City lightning
- Water supply and sewage
- City waste treatment system
- Heat supply
- Power stations (co-generation)

(b) Industrial Clients

- Heat consumers

  - Industrial heat
  - Space heating
- Ventilation systems
- Electricity
  - High-voltage systems
  - Low-voltage systems
  - Territory lightning
- Compressed air systems
  - Compressors
  - Piping

4.2.8 ESCO-Rivne Clients' Characteristics

Communal enterprises (like KomunEnergia or MiskSvitlo) are the typical ESCO-Rivne clients. Such companies are looking for fixed charges reduction (standard expenses for fuel) and / or operation / service costs. Usually these are the state or municipal enterprises that provide communal services to the end-users.

The industrial group of clients is characterized by the out-of-date equipment. These clients are interested in energy saving measures implementation on their installations.

The majority of end-users are not aware of the energy saving possibilities. They have low motivation for energy saving.

4.2.9 Market / Clients' Needs

Communal enterprises of Rivne use obsolete and sometimes exhausted equipment. Such equipment demands replacement to reduce operation costs and negative impact on the environment. These enterprises need to implement energy efficiency concept for different types of activity. State institutions are extremely interested in reducing the operation costs because it will allow funds' shifting for other budget lines.
ESCO-Rivne is providing its customers with a selection of different energy-saving activities. While where are many construction / installation firms, none can offer such a comprehensive set of financial and engineering services. ESCO-Rivne seeks to fulfill the following benefits that are important to its customer:

- **Selection:** A reasonable range of energy-efficiency / saving – specific services.
- **Professionalism:** The Company has the best experts in engineering, project financing and management and huge network of suppliers and sub-contractors.
- **Accessibility:** ESCO-Rivne will serve clients at whatever location is best; this is the often outdated sites and buildings.
- **Customer Service:** The client will be impressed with the level of attention that they receive from ESCO-Rivne experts.
- **Competitive Pricing:** ESCO-Rivne's pricing schemes are always competitive within the local Energy Industry due to the basic principle of ESCO-Business financing – short to long term credit payment.

4.2.10 Market Trends

The market trend for the Energy Industry is increasing of energy efficiency with reduction of fuel consumption and, as follows GHG emission. Ukraine to a great extent remains behind the

Western European countries, especially in the effectiveness of energy use and saving. Rivne Oblast as a one of Ukraine regions has its territorial Energy Saving market segment with own characteristics and tendencies. But in many cases they differ a little from the all-Ukrainian.

The majority of competitive companies are under pressure to offer a wider range of services. The reasoning behind this trend is that the engineering firms will be able to capture more energy-related business if they offer a one-stop-shopping solution for many energy-saving services. Because of these current trends, ESCO-Rivne emphasizes on turn-key project's implementation and pro-long credit payment basis, concentrates on their core competencies, flexibly addresses market needs, and ignores the trends that some of the industry is following.

4.2.11 Market Growth

The economic situation in Ukraine has had a major influence on potential energy efficiency investments. The Ukrainian economy has declined each year since independence in 1991 and soon after that energy arrears have also been a major problems, particularly in the state and municipal sectors. When a company doesn't pay for energy, energy efficiency is rarely economical. Inflation, barter and non-payments have driven interest rates up as high as 300%, though they are currently between 25 and 60% for most commercial customers.

The ESCO industry in Ukraine is quite new. Most energy efficiency companies working in Ukraine do not use performance contracting, nor can they provide financing for projects. Actually, the UkrESCO is the only ESCO in Ukraine with significant financing available specifically foe energy efficiency. Several regional ESCOs have also been created, and foreign ESCOs have also tried to enter the Ukrainian market, though none is able to provide the full range of services of a typical ESCO.

There are also numerous engineering and consulting companies in Ukraine that provide energy efficiency services, but they do not use EPC. Many of these organizations are small and / or associated with Ukrainian technical institutes.

Industry is likely to be the major source of ESCO projects in Ukraine for the next few years because industrial plants can provide collateral and guarantees, private industrial plants have lower energy arrears than most state-owned organizations such as district heating systems, and profitable manufacturers can be found. Municipal market is under-explored despite of significant number of potential projects that can be implemented there.

4.3 SWOT Analysis

The following SWOT analysis captures the key strength and weaknesses within the Company, and describes the opportunities and threats facing ESCO-Rivne.

Scope of Analysis	*Strength*	*Weaknesses*
Organization	• Highly-qualified stuff with strong professional and personal relationships within the industry. • A solid service offering that is currently unmatched in the area in terms of expertise. • Flexibility in non-standard situations and individual approach to the client. • ESCO-Rivne team personal commitment in the business success.	• The lack of brand equality as a result of the newness of the Company. • Low understanding of ESCO-concept by majority of local customers. • Bad command of the English Language. • Low level of special software skills.
Market:	• The energy saving market is highly-grown • ESCO-Rivne is working up the municipal energy saving market	• Low paying capacity of the potential clients.
Services:	• Turn-Key basis of all the energy saving projects • Tender basis for all procurement procedures • Guaranteeing of the energy savings to the client • Licensees for design and civil works	• Complexity of pay-back guarantee. • Complicated financial agreements due to imperfection of the existing legislation.
Finance:	• ESCO-Rivne use its own money or attract them for energy saving projects implementation, so the Client has no need to look for the funds • Short-to-long term credit payment • Comparatively low annual interest (9-10%)	• Absence of project insurance practice against a background of high project risks. • Complexity of actual energy saving reflection in the accounting transactions.
Innovation:	• The ESCO concept is completely new for Ukrainian energy market • Rendering the services on long-term credit or co-finance base • Pay-back period linked to the actual energy saving	• Low understanding of Energy Performance Contracting by the potential clients. • Complexity of pay-back guarantee. • Complexity of linking the Energy Performance Contracts to the existing legislation.

Scope of Analysis	*Strength*	*Weaknesses*
Marketing:	• ESCO-Rivne is the only one energy service company in Western Ukraine • Quality of our services is competitive with other companies, but the prices are lower • Flexibility in project preparation 4) End-user oriented commercial and information campaign	• Low interest of potential clients in energy saving. • ESCO-Rivne is comparatively new company and has no patrons yet.

Factors	*Opportunities*	*Threats*
Demand factors	• The ability to increase marketing efficiencies over time as the company becomes better known. • The energy saving market grows highly - positive demand is about 24%. • The ability to build a strong client base due to ESCO-Rivne's concentration on a market niche.	• Low paying capacity of the potential clients. • Complexity of financial agreements guarantees.
Competition factors	• ESCO-Rivne is the only one municipal energy service company in Western Ukraine. • Fundamentally new approaches to projects' funding and pay-back. • Turn-key basis of projects' implementation (from ToR development to procurement and installation).	• Competition from a number of engineering companies dealing with energy efficiency / heating / hot water supply. • Market is full with energy-efficient equipment offers. • Comparatively high cost of energy saving projects.
Economic factors	• Community-based energy saving projects is easy-to-implement and beneficial for both ESCO and the inhabitants. • Well-established project's funding mechanism.	• Low level of citizens' income and hence, low ability to pay for communal services. • Imperfect tax policy. • Deep setback in production.
Environmental factors	• All ESCO-Rivne projects are oriented on CO_2 emission reduction. All ESCO-Rivne projects are accompanied by information / education campaigns for population awareness increasing.	• Low interest of industrial objects in environment protection. Low population awareness of energy saving.

4.4 Competition

The general competitors of ESCO-Rivne are:

- **Small, local dealer / installation companies:** these companies are small, highly-tailored, typically one principal, and their clients are from the surrounding area.
- **General engineering / consulting companies:** these firms practice a wide range of engineering services from energy audit to energy saving equipment installation. Some of the engineering companies are large and have dedicated departments for different types of clients; others have generalists that do everything.
- **Large national firms:** these companies are quite large and they serve great industrial plants and manufacturers. But mostly these large companies are oriented on big-budget projects and ignore comparatively small municipal projects.

Equipment producers / suppliers still dominate on the Ukrainian energy efficiency market. Sometimes they can provide project financing with attractive credit terms (so called supplier's credit). But the suppliers are interested in promotion of their own equipment and that is why they will never offer a client the optimal decision.

The majority of Ukrainian consulting companies provide energy audit and design works, but have no funds for proposed project's implementation and, thus, can not guarantee the calculated energy saving.

For implementing the energy saving actions an enterprise should use owned assets or attract them from the outside. Usually commercial banks grant loans for a short time and their interest rate is very high (approximately 20-24%).

Other energy service companies can perform the whole scope of technical works (preparation and implementation of the project, install and place the equipment in operation) using their owned assets. In this case the pay-back period can be more enduring and linked with the energy saving. ESCO provides its services with the interest rate of 16-18%.
In comparison with other energy service companies ESCO-Rivne is able to provide energy services with lower interest rate – 12-14%.

	Commercial Bank conditions	**Other Energy Service Companies conditions**	**ESCO-Rivne conditions**
Terms of credit repayment	1-2 years	3-5 years	3-5 years
Annual interest rate on the credit	20-24%	16-18%	12-14%

4.5 Services

ESCO-Rivne offers a wide range of energy efficiency and energy saving services. These services will typically used by district heating companies, electricity / lightening companies, industrial plants, water supply / sewage companies, municipal objects, apartment houses associations / condominiums etc – those companies and organizations who are looking to improve their energy consumption. Specifically, the main services offered are:

1. Conducting energy audits;

2. Preparation of proposals for energy saving projects;
3. Developing and providing financing arrangements;
4. Development of full procurement package (contracts, technical specifications);
5. Procurement of all equipment and services;
6. Supervision of contractors' works during construction and installation phase;
7. Monitoring and verification of the contract performance during further operation;
8. Taking all the risks during project implementation and further operation;
9. Guaranteeing of the energy savings to the client.

ESCO-Rivne distinguishes the energy saving projects by their pay-back period:

- Short term projects: up to 1 year
- Medium term projects: from 1 to 3 years
- Long term projects: from 3 to 5 and more years

Taking into account the current economic situation in Ukraine and recommendations of ESCO-Rivne International consultants the company prefers to implement short-term and medium-term projects. It doesn't mean that ESCO-Rivne refuses from implementation of large long-term project but the preference is dictated by necessity to mitigate the risks of non-payments.

4.6 Keys to Success

The keys to success are:

- Attention to details
- System approach
- Professionalism
- Result-orientation

4.7 Critical Issues

ESCO-Rivne is still in the speculative stages as an energy service provider. Its critical issues are to continue to take a modest fiscal approach; expand the projects undertaken at a reasonable rate, not for the sole purpose of generating revenues, but because they are able to serve the new projects with as much attention as if they had only one project.

5. MARKETING STRATEGY

ESCO-Rivne will use a combination targeted advertising and networking to generate visibility and communicate Company's message that they are premier energy service provider in the Western Ukraine that possesses the ability to offer unprecedented specialized energy services and flexibility to help the customer reduce his energy consumption and increase general efficiency of the site.

The advertising will be done in accordance to the customers' distribution to demand and supply side: in specific industry journals, local newspapers, and web-site.

The networking activities will be quite effective in leveraging the already existing relationships that ESCO-Rivne team members have established through years working in the different industries and through participation in specific events.

5.1 Mission

ESCO-Rivne mission is to provide the customer the highest quality of energy services. We exist to attract and maintain customers. When we adhere to this maximum, everything else will fall into place. Our services will always exceed the expectations of our customers.

5.2 Marketing Objectives

- Maintain positive, steady growth each month.
- Increase visibility and competitiveness of ESCO-Rivne within the industries and the targeted companies / communities.
- Experience at least 25% of new clients attracted to ESCO-Rivne from referrals.

5.3 Financial Objectives

- Stable pay-back from the implemented projects
- Mitigate project risks
- Have access to at least US$ M 20 in the form of combination of open credit line, direct investments, investments into ESCO-Rivne projects and project co-financing from third parties.

5.4 Target Markets

The selected customer segment will be targeted in a specific advertising and networking campaign.

- **Advertising:** This campaign will target each of the prospective customers. The advertisements will generally be placed within appropriate industry trade journal / web-site. The advertisements will be used to communicate the message that ESCO-Rivne is a specialized energy service company that can work hand-in-hand both with the suppliers and consumers of energy, providing them with comprehensive energy saving services. The advertisements will detail the different services ESCO-Rivne provides as well as the rich experience the founders have in this niche.
- **Networking:** Since both of the ESCO-Rivne founders have a long history in energy / electricity market, they have a long list of contacts that have developed over the years. ESCO-Rivne will leverage these contacts to raise visibility regarding the Company and establish relationships with these companies so ESCO-Rivne can begin to serve them. Because this market niche is fairly small and very specific, people in the space tend to know each other and a lot of business is transacted among acquaintances. This nature of the industry will make networking activities all the more effective.

5.5 Positioning

ESCO-Rivne will position itself as the premier energy service provider in the Western Ukraine. District heating companies, water suppliers, communal services, industrial plants and all other energy consumers will appreciate the experience and insight that ESCO-Rivne brings to the table.

ESCO-Rivne will leverage their competitive edges to achieve the proper positioning. The competitive advantages that ESCO-Rivne enjoys are:

- **Specialized skill set:** This competitive edge allows ESCO-Rivne to provide unusually keen insight into the customer's industry and how that applies to actual energy saving.
- **Flexibility:** As a comparatively small company ESCO-Rivne is able to meet the customer's special needs by offering a very flexible service. This flexibility allows ESCO-Rivne to work hand-in-hand with the company and the community to serve their customer and work with him in any capacity required to fulfill the client's needs in the most effective way. Often this means working with the customer and the various hierarchical levels within the company.

5.6. Strategy Pyramids

The single objective for ESCO-Rivne is to be known and recognized as the top-ranked energy service provider. The marketing strategy will seek to first create customer awareness regarding the new firm, develop a customer base, and work toward building customer loyalty and referrals.

The message that ESCO-Rivne seeks to communicate is that ESCO-Rivne offers the most professional, experienced and attractive energy saving services in the region. This message will be communicated through a variety of methods. The first method is various advertising. The advertisements will be launched within the respective industry trade journals, web-sites and exhibitions.

The message will also be communicated through a strategic networking campaign that leverages all of the professional and personal relationships that the shareholders have formed over their years of professional experience.

The last method of communication is through the use of ESCO-Rivne own web-site. The marketing of the web-site will incorporate the following actions:

- Search engine submission. For all the prospective customers / investors that are unaware of ESCO-Rivne and are using the Internet to research the possible service solutions to their problem, ESCO-Rivne will professionally submit their site individually to al of the popular search engines so that ESCO-Rivne's site appears at the top of the search list.
- Advertising of the site through the various written materials that ESCO-Rivne will disseminate to prospective customers / investors. Developing of the Company news' subscription mechanism and automatic press-release distribution among the targeted media on a constant basis.

5.7 Marketing Mix

ESCO-Rivne's marketing mix is comprised of the following approaches to pricing, advertising and promotion, and customer service.

- **Pricing:** The pricing scheme will generally based on a per project estimate that takes into account the complexity of work, provided guarantees for risk mitigation as well as the resources that will need to be expended for successful project completion.
- **Distribution:** The service will be distributed wherever it is needed.
- **Advertising and Promotion:** The most successful promotional activities will be targeted advertising and strategic networking.

- **Customer Service:** Obsessive customer service is the mantra. The customer will be satisfied, regardless of the short-term cost. The very business model recognizes the idea that customer satisfaction will ensure long-term profits.

5.8 Marketing Research

During the initial phases of the marketing plan development, several focus groups were held to gain insight into targeted customer groups and their decision-making process and important variables for that process.

Another source of marketing research is a data compiled by local communities.

6. STRATEGY AND IMPLEMENTATION

6.1 Marketing and Sales Strategies

The overall ESCO Market Development Strategy consists of 10 individual strategies:

Strategy #1: Set Measurable Goals for a Sustainable Industry
The commitment of resources to the promotion of ESCO-Rivne must be tied to measurable goals that relate to the creation of a sustainable industry.

Strategy #2: Establish a Program for Achieving These Goals
A defined program with measurable goals over a set period of time presents a defined challenge to stakeholders and the ESCO industry.

Strategy #3: Creation of Alliances
A concerted and integrated effort is required to achieve these goals. This effort will be driven by a coalition of public and private sector stakeholders established for the express purpose of implementing the program within a limited time period.

Strategy #4: Position the ESCO-Rivne Option
Positioning is aimed at articulating a clear position for energy-efficient technologies compared to other economical and ecological options in the minds of purchase decision makers. ESCO-Rivne proposes integrated technologies which offer unique benefits compared to other options, including heating and hot water supply.

Strategy #5: Reduce Technical Uncertainty
To alleviate technical uncertainty, market influencers must be provided with the information they need to reduce their sense of uncertainty. The strategy would be designed to address the technical advantages of the energy-efficient technologies and equipment. It would also focus on the primary technical problems through initiatives such as an integrated design (co-generation; heating and air conditioning etc.); updated installation guidelines; building design integration manual for architects; and technical resources such as a website, reference sites, and monitored sites.

Strategy #6: Obtaining Certifications and Licensees
Standardized engineering and users manuals for energy-saving equipment and all necessary certificates and licensees will be developed and made available to potential clients and investors.

Strategy #7: Commitment by Government to the Energy Saving
Rivne Oblast State Administration and Rivne Municipality would issue a procurement policy directive to apply uniform energy-saving methods for municipal buildings, social objects and apartment houses.

Strategy # 8: Create Awareness for the Energy Efficient Option
An integrated marketing communications campaign will be designed to make purchase decision makers aware of the energy-efficient options. While this campaign could utilize different media, it would likely include: public relations activities, community mobilization, seminars and workshops, mailings, advertising in trade publications, attendance at trade shows, and a website.

Strategy #9: Develop Service Sales Materials
Creation of a comprehensive and flexible ESCO-Rivne presentation kit directed at non-technical decision makers is an important step. To secure buy-in to the ESCO option, non-technical executives require a basic understanding of energy saving benefits, features, and relative advantage.

Strategy #10: Utilize Innovative Financing
New and innovative financing will foster growth in the energy saving industry. Because of the higher first cost of energy efficient equipment, implementation of different investment strategies can significantly increase the relative advantage of ESCO-Rivne. Some suggested financing schemes include Enrgy Performance Contracts, Leasing Contracts and Energy-Efficient Management Contracts.

6.2 Community Mobilization

There is widespread dissatisfaction amongst clients concerning current levels of heat and hot water supply in Rivne. In particular, residents are hard pressed to pay monthly heating bills that consume 30 - 50% of their average monthly wage. The combined effects of low satisfaction with current service levels and generally low abilities to pay significantly complicate the implementation of sustainable energy efficiency measures in Rivne. Because of this, consumers must increasingly be involved in decision-making processes. Knowledge and awareness should be created amongst beneficiary communities about the immediate impact and the benefits that energy efficiency measures can have - not only on the environment, but more importantly on businesses and personal lives.

Community / social mobilisation is taken as the first step towards implementation of any initiative by ESCO-Rivne within the community. The main goal of community mobilisation is to harness people's potential to help them. In doing this, people need social guidance to utilise their potential to:

- organise themselves for pooling resources and to achieve economies of scale;
- identify and prioritise what they are able and willing to undertake;
- arrange, secure and facilitate the flow of required resources to the stakeholders;
- monitor, lobby and establish linkages between stakeholders of the community and other agencies, such as local and regional government and non-government organisations and donors.

The above mentioned goals can only be achieved if the actors are organised around their common problems and interests. It is therefore recommended that stakeholders form the following types of organisations:

- Community Organisations (CO): a CO is an organisation of people living in the proximity (neighbourhood, residential buildings) sharing (a) common interest(s) related to their social and economic development in general and to energy efficiency in particular. Residents and other interest groups are assisted by the project to form their own organisation in order to harness their potential to help themselves.
- Functional Groups (FG): FGs are formed from members from within the CO, to participate and represent the community or interest group in specific / specialised tasks - such as planning and monitoring of energy efficiency measures/initiatives.

The organisational structure best suited has to be discussed with the different COs from case to case.

The community development process essentially takes place in four distinct phases:

Phase I: introduce the project and ESCO approach in the communities, identify and establish partnerships with potential (pilot) COs (Interest groups, neighbourhood committee, AOA, etc.);
Phase II: formation of (pilot) CO, identify most suitable organisational set-up;
Phase III: identify communities' needs and formulate (pilot) energy efficiency projects;
Phase IV: planning and implementation (operational and financial resource mobilisation).

At the beginning of the process a stakeholder workshop should be conducted, aiming to:

- Introduce the project and approach (ESCO mechanisms, energy/cost saving potentials, etc.) to as many stakeholders as possible, including regional and municipal authorities, public and private enterprises/businesses, neighbourhood and other interest groups, potential partner NGOs, etc.
- Identify main problem areas in the field of energy efficiency;
- Discuss possible solutions and interventions.

Consumers can only be convinced about the viability of an approach based on their involvement and participation - and potential investors and donors can only be attracted - if the ESCO approach can be made visible through successful examples to a wide public.

6.3 Public Relations Strategy

The ESCO-Rivne public relations concept foresees permanent development in accordance with the company's development stage. It means that PR strategy will change depending on the ESCO's evolution (projects' implementation, attraction of new investors or customers, obtaining of grants, etc.). Since ESCO-Rivne is a relatively new company and the energy service business is not well-developed in Ukraine, the PR concept of or company is based on three critical points:

- **Stage I:** ESCO-Rivne image formation with focus on peculiar market segment (energy efficiency and energy saving technologies);
- **Stage II:** Efforts for the firmly establishing on the gained market;
- **Stage III:** Innovation activity for the market expansion.

The detailed PR-concept of ESCO-Rivne is done in Annex.

6.4 Alliances

In the process of performing energy-saving contracts the following alliances can be concluded:

- Creation of consortiums for large-scaled projects implementation;
- Partnership, twinning program;
- Cooperation with foreign partners engaging them into the projects' funding and investing.

The preliminary scheme of foreign (external) investors attracting is given in the Appendix 5.

6.5 Milestones

In the process of its development ESCO-Rivne can look back on the following main achievements:

(a) Establishing of the ESCO-Rivne;
(b) Formation of the company's Statutory Fund;
(c) Staffing the ESCO-Rivne;
(d) Training of personnel;
(e) Obtaining licensees for different technical works performing;
(f) Purchasing all necessary special equipment;
(g) Signing of agreements securing repayment from the contracts, implemented in the framework of Demonstration Project;
(h) Re-investing of the repaid funds;
(i) External investors' attraction.

The detailed description of each milestone is done in Appendix 4.

6.5 City-wide Energy-saving Program Details:

Energy efficiency measures proposed for the district heating system and its users consist of the following:

- *Supply-side measures for large and medium-size boiler plants:* Retrofitting the existing boilers (making the boiler furnace and gas ducts air-tight; installing high-quality insulation over the boiler surfaces, fittings and heat pipes; improving the air distribution system of the burners; installing modern burners; reconstructing convective shafts and convective surfaces; heat recovery from exhaust gases; re-circulation of exhaust gases; installing automatic controls for combustion processes; installing variable speed drives on boiler fans and ventilators); replacement of boilers (together with installing re-circulation of exhaust gases); measures for the boiler plants as a whole (automated water treatment; anticorrosive make-up water treatment; automatic control of the technological processes at the boiler plant; variable speed drives on circulating pumps; information system for the operation of the boiler plant); and a heating region dispatch management system with a commercial metering subsystem.
- *Supply-side measures for small boiler plants:* Replacing the boilers and heat recovery from exhaust gases; automating the water treatment and information systems for boiler plant operation.
- *Supply-side measures for the heat transportation system (transmission / distribution pipelines and heat substations):* Replacing transmission and distribution pipelines with pre-insulated pipes; retrofitting part of the existing group substations (installing modern

heat exchangers, controls, etc.; creating an information system for group substation operation); decentralizing the hot water supply by eliminating part of the group substations and installing individual building-level substations.

- *Demand-side measures:* installing commercial metering of heat consumption; heating system controls; hot water apartment-level metering; heat insulation of pipes; installation of radiator reflectors.

In evaluating financial returns from the investment program, achievable energy and cost savings were estimated on a conservative basis; cost estimates are based on current quotations of suppliers and include 10% contingency. The following assumptions were used in cash flow analysis: 10% nominal discount rate; 5-year investment period; period of analysis - 20 years; gas price (practically only fuel consumed by the heat supply system) - $47 per 1000 m^3 in the year 2002 with annual growth rate at 4.5%; electricity price at $0.04 per kWh with 3.5% annual growth rate.

7. ORGANISATION

7.1 ESCO-Rivne Activity

ESCO-Rivne like any other energy service company has limited tangible assets, so its major asset is ESCO's staff.

Taking into account the extreme importance of adequate personnel selection for ESCO-Rivne, the Company has developed the recruitment procedure based on the free competition among all candidates.

7.2 ESCO-Rivne Key Staff

The world experience shows that energy service companies hire two types of experts:

- Skeleton Staff
- Supplementary Staff

For today the skeleton staff of ESCO-Rivne consists of:
(i) Director
(ii) Financial Manager
(iii) Commercial Manager
(iv) Lawyer
(v) Project Manager
(vi) Energy Auditor (2 positions)
(vii) PR Assistant
(viii) Marketing Assistant
(ix) Director's Assistant

7.3 Management

The shareholders' assembly is the administration superior body of ESCO-Rivne. The shareholders' assembly terms of references cover the following:

- Determination of the ESCO-Rivne development mainstreams and approving its plans and execution reports;
- Making of alterations and addendum to the Regulations;

- Election and recall of executing agency and inspection commission members;
- Approving of ESCO annual activity results, including branch establishments; approving reports and conclusions of auditing commission; order of profit division; terms and orders of dividends payment; fixing the order of losses cover;
- Approving the procedure rules and other internal documents; fixing the organizational structure of the enterprise;
- Fixing the terms of remuneration of labor for leaders of ESCO, its branch establishments, branch offices etc;
- Settling the questions of terms and orders of dividends payments;
- Decision making of enterprise activity termination and winding up the branch establishments, branch offices etc;
- Settling the questions of enterprise issued shares purchasing.

ESCO-Rivne has developed the comprehensive set of mandatory legal documents necessary for its business.