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EVALUATION OF BUSINESS OPPORTUNITIES IN ENERGY INDUSTRY
IN NORTHWEST RUSSIA

Case: CTS Engtec Oy

Bachelor's Thesis 2012

ABSTRACT

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VYSLOVSKA, NATALIA EVALUATION OF BUSINESS OPPORTUNITIES IN
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The research was commissioned by CTS Engtec Oy, a Finnish engineering, consulting and project management company with international operations. The research focused on 5 regions of the Northwest Russia, namely, Arkhangelsk region, Kaliningrad region, the Republic of Komi, the Republic of Karelia and Murmansk region.

The objectives of the research were to describe the factors influencing CTS Engtec's opportunities in energy industry of the specified regions, evaluate the company's business opportunities in the energy industry in the regions of interest, and identify potential projects for CTS Engtec in the energy industry of the regions in the Northwest Russia.

The basis of the research was a case study. In this research the case study was the search for energy business opportunities for CTS Engtec Oy in Arkhangelsk region, Kaliningrad region, Republic of Karelia, Republic of Komi, Murmansk region in the northwest of the Russian Federation. The case study was based on the mix of qualitative and quantitative evidence. Qualitative evidence was collected based on the criteria for potential investments selection, defined and approved in agreement with CTS Engtec. Quantitative evidence used in the research comprised statistics data in terms of social and economic development, energy production and consumption figures of each region. As a result, a classification of potential projects for CTS Engtec was made based on the above specified qualitative and quantitative data.

After a thorough evaluation CTS Engtec's opportunities in the Northwest Russia energy industry it was possible to conclude that there are business opportunities for the company in the specified regions. This could be explained with the fact that Russia's energy demand is forecasted a continuous growth while the majority of the energy facilities in the country are obsolescent. A list of concrete projects for CTS Engtec in the regions of the Northwest Russia was made, and suggestions for further research were defined.

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1 INTRODUCTION

1.1 Global energy business

It is impossible to underestimate the role of energy sector in a modern life. In fact, it has always been an important tool, even an instrument of industrial development. A vivid proof of that are the industrial revolutions, started in the 18th century in the UK and further spread to other countries of the world (Wrigley 2010). Energy has always been recognized as one of the driving forces of the greatest changes.

Whether we wish it or not, energy is an indispensable part of our life nowadays, as well. It has direct impact on our wellbeing and convenience of life by setting the costs of our living, in particular, transport, living expenses and heating. Energy industry and its developments are and probably always will be a current issue in the world news. Regularly, reports on energy related issues are published revealing the demand and supply of the energy in the world. Thus, recently issued by Enerdata report on the world energy consumption in 2010 (Enerdata 2011) proves that in all G20 countries there was a growth in energy consumption. Notable is the fact that energy consumption has almost constantly been in an upward trend all the way since the 1990s till nowadays. At the same time, the biggest consumers of energy have been China, followed by the USA, then India, Russia and Japan. Industry accounts for 1/3 of the world's energy demand, 60% of this demand comes from developing countries (Enerdata & the Economist Intelligence Unit 2011). Such statistics prove with growing energy use importance of energy business on the global arena continues to grow as well.

Not only the importance of energy itself, but also certain trends in the global energy strategy are highlighted. Global climate change as well as resources scarcity spurred the necessity to start re-thinking the whole concept of energy production. This development of the thinking found its reflection the "Global Trends 2025" by the National Intelligence Council and has been vigorously discussed by leading world news portals, e.g. The Guardian (Evans & Steven 2008), BBC (Reynolds 2008), The Washington Post (Finn & Pincus 2008), etc.

And with the flow of time and evolution of technology up-to-date topics within the framework of energy are being discussed, as ever new and innovative energy

requirements are being set. Activities in energy market dictate new demands, i.e. more and more importance is attributed to energy efficiency. Renewable energy sources, “green energy”, and environmentally friendly energy are probably the hottest trends in the energy business.

Nowadays, requirements towards energy production and distribution are set on the legislative level. Strategic development plans for 2020 are designed with ten-twenty years perspective of energy efficiency improvement (European Commission 2010). The latter is a complex and evolving, time- and cost-consuming process. The process finds its reflection in the modernizations of power plants, their equipment and technological processes, as well change in the choice of fuel towards more environmentally friendly. It is also due the inevitable climate change and ever growing energy consumption that energy enterprises require improvements.

Undoubtedly, when the topic of energy is raised, Russia cannot be left out of from the discussion. It is not by chance that Russia is called “an energy giant” when talking about its energy resources (Kuorsalo, Susiluoto & Valkonen 2007). The Russian Federation is rich in enormous number and variety of natural resources, in particular, oil and gas. It is oil and gas that equaled to a third of all government revenues of the country in 2008 (The Economist 2011) and usually provide one fourth of the GDP in the country (Putin 2012).

In the Energy strategy of Russia for the period till 2020 (Ministry of Energy of the Russian Federation) in the problems section it states that among the factors holding back development of fuel and energy complex, the first one is obsolescence of more than 50% of the main industrial funds. Moreover, the country’s energy industry is lagging behind the world scientific and technological achievements. It is then vital to upgrade industrial assets since energy is closely linked to other industries, such as metal and mining, pulp and paper, chemical and petrochemical, oil and gas. Consequently, modernization of energy objects will not only improve the energy industry production indicators but also stimulate development of other energy intensive industries.

1.2 Profile of CTS Engtec Oy

Finnish company CTS Engtec Oy is an expert in engineering, consulting and project management services for process industries. Founded in 1973, the company started its operations mainly for forest industry. It came to the Russian market in the 1980s, and since then has been successfully implementing projects in various industries in Russia. Expertise acquired in the forest industry has been widely utilized, developed and applied by the company in other process industries. Russia has become one of the main markets for the company. And in November 2011 a new subsidiary in St. Petersburg was inaugurated.

It is notable that CTS Engtec's service concept in Russia focuses on two industries: forest industry and energy. The company offers a full range of project services for the industries: pre-feasibility and feasibility studies, basic and detailed engineering, project management, environmental technology services and maintenance services. The company is dealing with all types of projects: greenfield, brownfield, refurbishments, on all levels: municipal investments and industrial projects. Combined heat and power plants (CHP), utilization of bioenergy and energy efficiency – these are the key words describing the services CTS Engtec is specializing in (CTS Engtec Oy 2012).

CTS Engtec has been very active in the Russian market. Now the scope of this work is placed on five regions of the Northwest Federal district of Russia, namely, Arkhangelsk region (1), Kaliningrad region (2), Republic of Karelia (3), Republic of Komi (4), Murmansk region (5) (see Figure 1). It is by initiative of CTS Engtec that these regions are chosen to be researched.



Figure 1 Map of the Northwest Russia (modified from PartnerSearch.Ru 2007)

Outlined in red are the regions of this research interest. The whole Northwestern Federal District of Russia is shown in pink.

The Northwest Federal District of Russia is one of the seven federal districts Russia consists of. Officially the district was formed in 2000 with a respective Decree of the President of the Russian Federation. In the European part of Russia it is the biggest district, with its almost 1680 thousand sq.km area. The district can be characterized with substantial raw material resources (e.g. oil, gas, ferrous and non-ferrous metal ores, wood), industrial assets and infrastructure, which is considered to be inherited along with skilled human capital, favourable geographic position, i.e. close to the Western markets, and finally, an important logistics area with St. Petersburg, Murmansk and Arkhangelsk as gateways (Dudarev, Hernesniemi & Filippov 2002).

2 RESEARCH OBJECTIVES AND METHODS

2.1 Research objectives

The research provides analysis of the business opportunities of CTS Engtec in the energy industry in the Northwest Russia. Critically assessed and analyzed data will provide a summary of the potentially identified projects for CTS Engtec.

The objectives of the thesis are:

- 1) to describe the factors influencing CTS Engtec's opportunities in energy industry of the five regions of the Northwest Russia, namely, Arkhangelsk, Murmansk, Kaliningrad regions, the Republic of Karelia and the Republic of Komi;
- 2) to evaluate business opportunities of CTS Engtec Oy in the energy industry in Northwestern Federal District of the Russian Federation based on the criteria defined and approved in consent with the commissioning company, i.e. CTS Engtec (see Appendix 1);
- 3) to identify potential projects for CTS Engtec in the energy industry of Arkhangelsk, Murmansk, Kaliningrad regions, the Republic of Karelia and the Republic of Komi.

2.2 Research methods

The basis of the research is a case study. Case study was chosen as a method of the research since it is believed to accurately reflect the reality through the collection, understanding, explanation and interpretation of obtained data. Case study allows investigation of a contemporary phenomenon within a real life context, which proves that the obtained results can be further applied in reality (Woodside 2010).

In this research the case study is the search for energy business opportunities for CTS Engtec Oy in Arkhangelsk region, Kaliningrad region, Republic of Karelia, Republic of Komi, Murmansk region in the northwest of the Russian Federation.

The case study will be based on the mix of qualitative and quantitative evidence. Qualitative evidence will be collected based on the criteria for potential investments selection, defined and approved in agreement with CTS Engtec (see Appendix 1). Quantitative evidence used in the research will comprise statistics data in terms of social and economic development, energy production and consumption figures of each region. In the long run, a classification of potential projects for CTS Engtec will be made based on the above specified qualitative and quantitative data.

2.2.1 Research material and analysis method

In this research I will use primary and secondary information. Namely, information from the following sources will be reviewed and processed:

- 1) information received from contact persons in the energy field in Russia;
- 2) strategic development programmes in energy field of each region and Russia as a whole;
- 3) regional programmes on energy saving and energy efficiency improvement in each region;
- 4) analysis of the main energy companies' projects for implementation in the regions;
- 5) review of the information from the web sites of the regions' administrative bodies, ministries of economic and regional development in each region;
- 6) review of the energy field and data portals, as well as Russian energy news web sites.

Such an approach towards the information collection is aimed at providing as concise and complete data as possible by verifying information from different sources concerning the same issue, i.e. energy industry of earlier defined regions in the Northwest Russia.

Evaluation of CTS Engtec's business opportunities is made based on the analysis of statistical data in terms of region's social and economic as well as energy industry developments, and with regard to the criteria defined in coordination with CTS Engtec (Appendix 1).

2.2.2 Research structure

The research within the scope of the thesis will consist of the following stages:

1. Review of literature on the topic under investigation in order to identify the theoretical propositions for the research.
2. Compilation of the theoretical framework for the research.

3. Description of the factors impacting CTS Engtec's business opportunities in energy industry of the regions.
4. Evaluation of business opportunities of CTS Engtec in the energy industry of the regions of Russia under the investigation.
5. Identification of potential energy industry projects for CTS Engtec in Arkhangelsk region, Kaliningrad region, Republic of Karelia, Republic of Komi, Murmansk region of the Russian Federation.

The structure of the research can be seen in Figure 2.

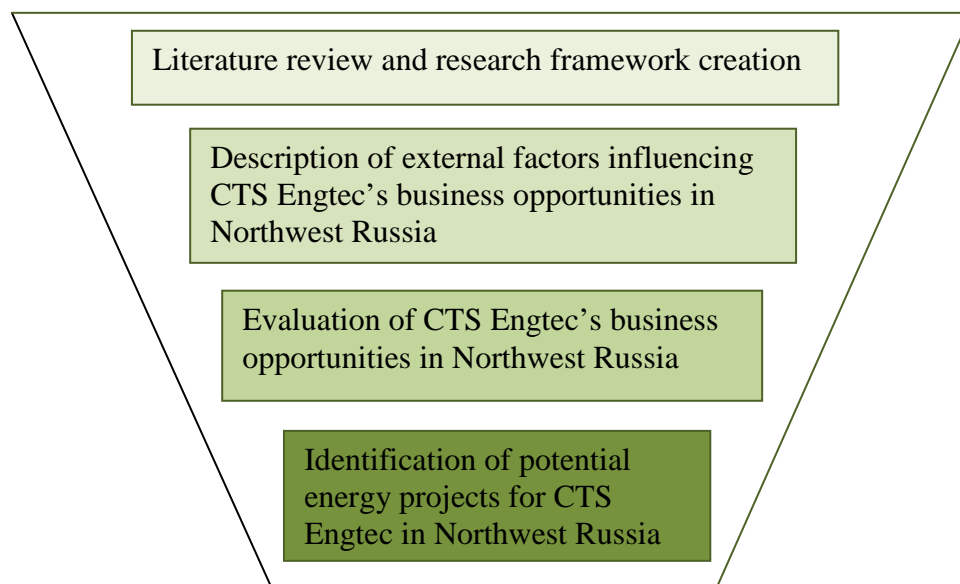


Figure 2 Structure of the research

3 FIRMS' INTERNATIONAL COMPETITIVE ADVANTAGE

Going international is an extremely responsible decision of a firm. In order to succeed in it, the company must clearly identify its competitive advantage in the market. When evaluating a firm's potential in a certain market, in-depth analysis of its resources and competences, as well as challenges and perspectives in the market must be carried out.

In this research I will concentrate on the following theoretical models: resource-based theory, information-based theory, competence-based theory, Porter's theory, and Dunning's eclectic theory. Table 1 presents the most essential theoretical ideas of the used theories (Barney & Clark 2007; Grimm, Lee & Smith 2005; Porter 2004; Dunning 2000).

Table 1 Theories used in the research and their key ideas

Theory	Key ideas	Internal factors	External factors
Resource-based theory	Tangible and intangible resources of a firm create its competitive advantage.	✓	
Information-based theory	Constant information flows within a firm, from the firm and to the firm stipulate its competitive advantage	✓	✓
Competence-based theory	Collective learning and managerial competence lay the base for a firm's competitive advantage	✓	✓
Porter's theory	Identification of a firm's competitive advantage presupposes, in particular, a thorough analysis of the firm's activities, industries and competitors	✓	✓
Dunning's eclectic theory	Interaction of ownership-specific advantages, locational advantages and internationalization advantages formulates a firm's international competitive advantage	✓	✓

From Table 1 it is clear that both internal and external factors, reflected in the listed theories, create a firm's competitive advantage, thus, both groups of factors must be taken into account in order to ensure a complete and concise assessment of a firm's international competitive advantage.

3.1 Internal analysis of a firm's strengths and weaknesses

Assessing a firm's competitive advantage, it is of utmost importance to analyze the firm's internal organization. In theory there are several approaches towards internal

constitution of a firm and importance of its elements, namely, resource-based theory (Barney & Clark 2007; Grimm, Lee & Smith 2005), information-based theory by Itami 1987 (Barney & Clark 2007) and competences-based theory by Prahalad and Bettis 1986 (Barney & Clark 2007). Each of these theories stresses the importance of a firm's internal elements from three different perspectives: a firm's internal organization, its information flow, as well as internal competences of a firm.

3.1.1 Organizational resources of a firm

Organizational resources are characterized by Czinkota & Ronkainen (2010) as “reality check for any strategic choice” of a company. Jay Barney quoted by Grimm, Lee & Smith (2005) defined a firm's resources as “all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to (...) improve its efficiency and effectiveness”.

Resources of a firm can be tangible and intangible (Grimm, Lee & Smith 2005) (see Figure 3).

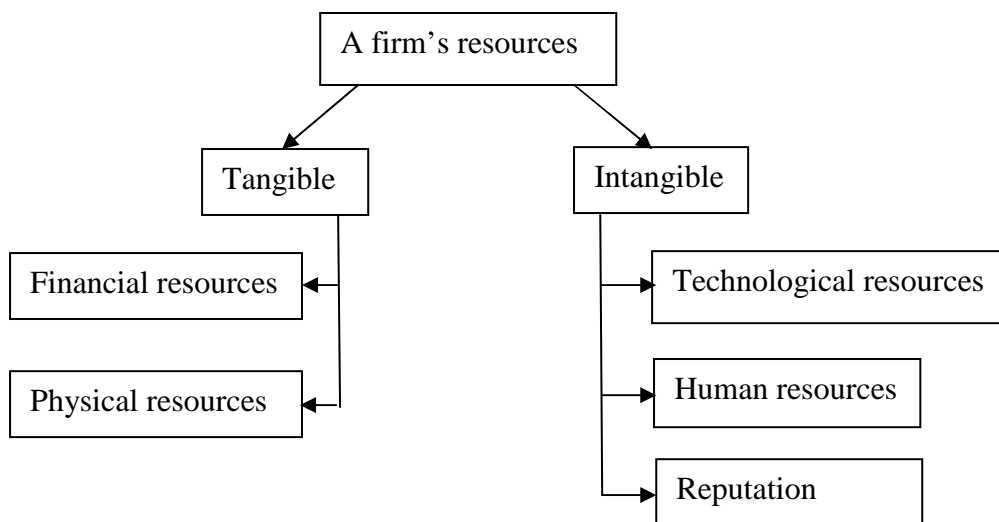


Figure 3 Resources of a firm (based on Grimm, Lee & Smith 2005)

The above illustrated groups of a firm's resources are of utmost importance when assessing a firm's ability to enter a new market. Tangible resources comprise financial and physical resources. Financial funds give evidence about a firm's capacity for

investment. Physical assets prove a firm's production possibilities, and can be defined through such parameters as the size, location, technical level of the facilities and equipment. Technological superiority is important in terms of a firm's intellectual property, technical and scientific personnel. Human resources present an asset giving a proof of the skills and expertise a firm can offer. Finally, reputation is seen as an evidence of the produced by the firm products' quality and reliability. It is also a prerequisite of a smooth cooperation with stakeholders (Grimm, Lee & Smith 2005). Such an approach towards a firm's internal organization and importance of its elements is known as "resource-based theory" (Barney & Clark 2007).

Intangible, or invisible assets orientation is presented by researcher Itami cited by Barney & Clark (2007), who believed that a firm needs tangible assets for business operations, while invisible assets are required for competitive success. To the invisible assets the so-called "information-based resources" were referred: technology, customer trust, brand image, control and distribution, corporate culture and management skills. At the same time, human resource of a firm was seen as a body accumulating and producing invisible assets.

The information-based theory, or invisible assets theory according to Itami 1987 (Barney & Clark 2007) is illustrated with Figure 4.

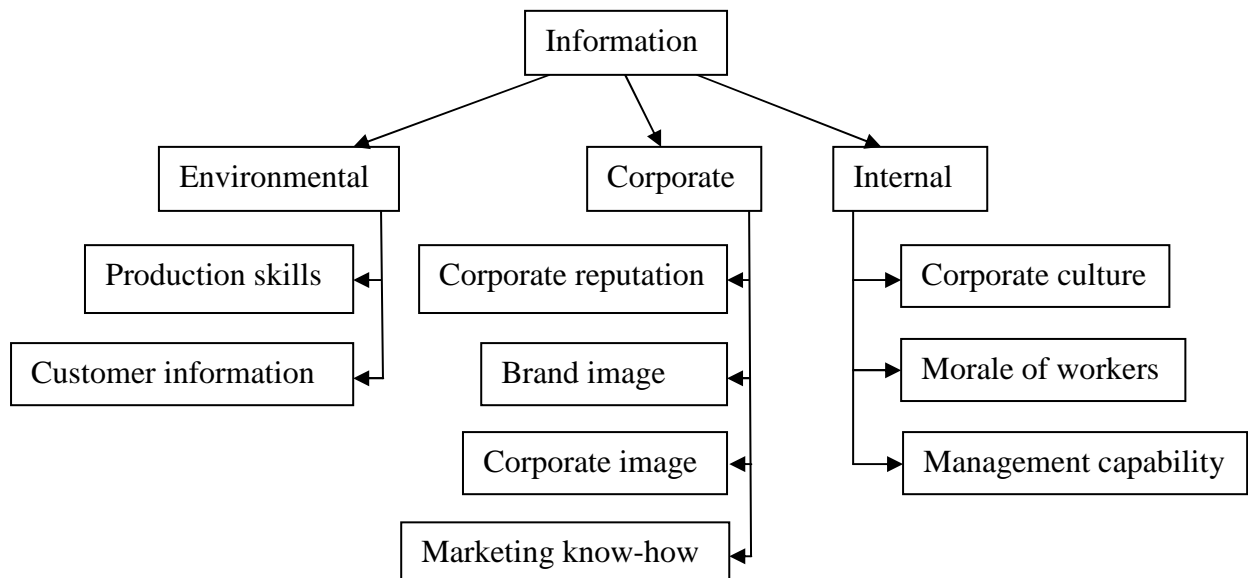


Figure 4 Information-based theory of competitive advantage (based on Itami 1987)

From the figure above it is possible to conclude that flow of information to, from and within a firm is considered to be of high importance: environment “supplies” information to a firm and thus stipulates creation of certain production skills. This is also influenced by the information received from customers. Corporate information appears to be in the outward flow: a firm shares this information with the environment. Finally, internal information is originated and terminated within a firm. Thus, internal information flow, closely connected with corporate culture, morale of workers and managerial skills, is an important element to be considered when analyzing internal characteristics of a firm.

Competence-based theory also places its core value on intangible assets of a firm. According to the definition cited by Barney & Clark (2007), a firm’s core competence is “the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies”. As it can be seen, competence-based theory is stressing the importance of managerial abilities in a firm. Managing is stated to require “a delicate balance between internal activities and external market conditions” (Paley 2006). Strategies built by firms would probably not be successfully implemented without leadership and managerial capabilities. Consequently, when evaluating a firm’s internal organization, management aspect must be considered.

Norton Paley does not strictly follow any of the three above mentioned theories. However, the elements of internal analysis defined by the scientist are meaningful and valuable. The researcher suggests analyzing the following activities and considerations of a firm: performance, strategy, strategic priorities, cost, portfolio (Paley 2006).

Performance analysis deals with precise evaluation of a firm’s organizational structure. The importance of organizational culture assessment is stressed, as it is considered to be a sign of a firm’s coherence. Its importance lies in the ability to undertake risks, tolerate change, face competition, respond quickly, differentiate the firm’s product, keep customers and grow.

Strategy analysis evaluates the ability of management to face fierce competition, acquire confidence in the existing markets and enter new ones. Strategic priorities

analysis undertakes long-term orientation of a firm as its main essence. This is done in order to identify a firm's outstanding competences which will further help gain competitiveness.

Cost analysis is an extensive analysis of all cost-related considerations, starting from a firm's product price and pricing decisions, till the market share considerations, etc. The main concerns here are market share growth, costs and profitability. Portfolio analysis is an evaluation of competitive position of a firm and consequently its investment decisions. Portfolio analysis as an element of internal analysis of a firm is also suggested by Proctor (2000), where product life cycle and its stages are analyzed.

To draw a conclusion, presented by Paley (2006) approach towards the internal analysis of a firm is quite scattered, though it grasps important aspects of a firm's activities. Thorough analysis of internal decisions will help reveal a firm's strengths and weaknesses which cannot but have impact on its competitiveness in the long run.

Each of the above presented approaches towards the internal assets of a firm classifies them in a different way. This is determined with the prevailing importance of certain elements. In the current research there is no intention to prove the correctness and appropriateness of one and disapprove another one. The aim is rather at creating a comprehensive framework for as complete approach as possible. Thus, the following summarizing scheme is drawn in order to illustrate the main elements of internal analysis of a firm (see Figure 5).

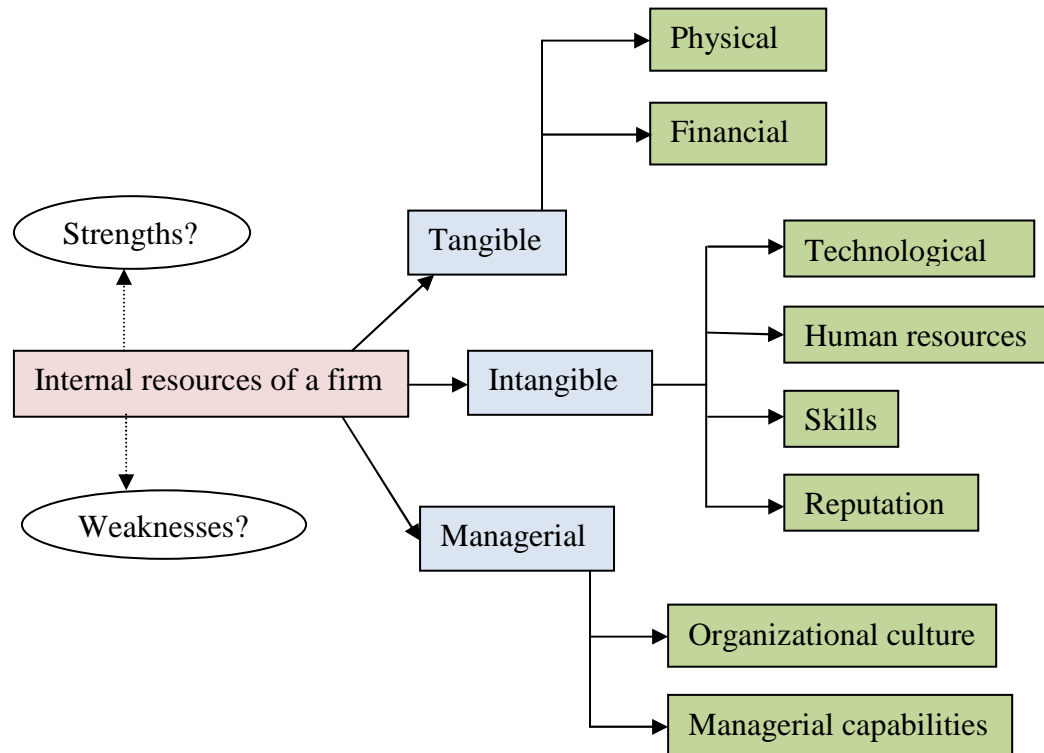


Figure 5 Internal analysis of a firm and its strong and weak points.

3.2 External analysis of factors influencing a firm

Indubitably, analysis of a firm's resources and capabilities is a must when evaluating its strengths and weaknesses before entering a foreign market. However, there are also external forces executing influence on a firm in a market. In the previous section internal characteristics of a firm were discussed. This section will focus on the external factors impacting a firm in a foreign market. Namely, these are international environment factors, industry-related matters and competitor analysis.

3.2.1 Industry factors

Industry in which a firm is operating can provide certain opportunities, as well as impose threats in a foreign market. Opportunities of a firm in a market greatly depend on the demand for its product. Attractiveness of the industry is then analyzed through the nature of demand, current demand, demand potential and changes in the demand pattern. Industry attractiveness is determined by its growth potential and its inherent profitability (Jeyarathmm 2008).

Industry audit can be done through evaluation of the following categories of information (Jeyarathmm 2008): general features, industry environment, industry structure, industry attractiveness, industry performance, industry practices, emerging trends in the industry. General features of the industry include basic indicators, characterizing the industry. For instance, product categories, performance indicators in recent time, scope of the industry, etc. Based on the level of development of its environment, industries are classified into fragmented industries, emerging industries, transition to maturity industries, declining industries, and global industries (Porter 2004). Once a firm's belonging to certain industry type is identified, it is possible to forecast trends in the industry.

Industry structure deals with the amount of players within it, market size, market share of the players, nature of competition, barriers, differentiation and cost structure of players (Jeyarathmm 2008). Industry attractiveness can be viewed from four perspectives: its potential, growth, profitability and characteristics of competition. Industry performance includes such indicators as sales, profitability, production and technological advancement. Industry pricing is concerned with the marketing decisions of the players in the market. And finally, emerging trends can be analyzed by investigating product lifecycle, stage of the industry development, changes in customer behavior, innovative products, government policies, etc.

To draw a conclusion, the above described elements create a complex framework for industry relevant factors identification. By revealing industry characteristics, it is then possible to highlight opportunities and threats within the industry for a firm.

3.2.2 Competitor factors

Together with industry analysis, competitor audit helps formulate a firm's competitive advantage. Industry attractiveness cannot be formulated without competitor analysis. A firm not knowing what its competitors are doing is "flying blind" into the battle (Rao 2010). When implementing competitor analysis, existing and potential competitors must be analyzed. Also, consideration of possible mergers and acquisitions must not be underestimated (Porter 2004). As it is known, competitors appear to be one of the forces driving industry competition. Michael Porter created a

very practical framework for competitor analysis to help understand the position of a firm's competitors in the industry. These can be seen in Table 2.

Table 2 Components of competitor audit (adopted from Porter 2004)

Component	Characteristics
Future goals	What drives the competitor? - financial goals - attitudes towards risks - values or beliefs - organizational structure - etc.
Current strategy	What the competitor is doing and can do? - how the firm is currently competing
Capabilities	Strengths and weaknesses
Assumptions	What does the competitor assume about itself and about the industry and other firms?

From the table it is clear that evaluation of competitors must be full and complete: different perspectives enable creation of multifaceted characteristics of competitors. Competitor audit and industry analysis discussed in the previous section can become a useful tool when making forecasts. Awareness of competitors' capacities and trends in industrial development can help anticipate the moves of competitors. To complement the overall picture of forces reflecting a firm's competitive advantage, a set of macro factors will be discussed next.

3.2.3 International environment factors

International environment factors (Czinkota, Ronkainen & Zvobgo 2011; Daniels, Radebaugh & Sullivan 2009) comprise cultural, political, legal, economic, social, technological, ecological factors, known as PESTLE factors, having direct or indirect

influence on a firm when entering a foreign market. Liuhto (2001) defines one more set of factors, i.e. institutional. Institutions and policies are also defined in the scope of environmental factors by Czinkota, Ronkainen & Zvobgo (2011).

It is important to note that each of the above mentioned factors can be relevant for a firm to a different extent, depending on the firm's objectives, activities, degree of involvement, etc. However, in this research I am interested in revealing most of the existing influencing factors in order to create a complete picture of the foreign environment.

3.2.3.1 Cultural factors

Cultural environment and culture in particular are an integral part of a nation's operating environment (Daniels, Radebaugh & Sullivan 2009). The guru of cultural dimensions theory, Geert Hofstede, defines culture as "the collective programming of the mind distinguishing the members of one group or category of people from another" (Hofstede & Hofstede). This "collective programming" is reflected in shared by people environment, e.g. nation, knowledge, beliefs, art, morals, laws, customs, etc. (Ghauri & Cateora 2010). Culture is then a phenomenon which unites people in their views, and, consequently, stipulates their actions.

Culture is "an integrated system of learned behavior patterns" distinguishing people belonging to different societies (Czinkota, Ronkainen & Zvobgo 2011). Another important feature of culture is that it is the result of past actions of a group of people sharing the culture, and it can be transmitted from generation to generation by symbols (Ghauri & Cateora 2010). These characteristics of culture prove its conventional nature. Culture is embodied in everyday life of the group of people sharing it. Such customs and habits of life are referred to as "elements of culture" (Ghauri & Cateora 2010; Czinkota, Ronkainen & Zvobgo 2011), and are as follows: language (verbal and non-verbal), religion, or belief system, values and attitudes, manners and customs, material manners, aesthetics, education, social institutions.

What is more important for an internationalizing company is the knowledge of cultural differences, the so called "cultural awareness" (Daniels, Radebaugh & Sullivan 2009). Being aware of another culture means understanding the roots and

anticipating possible consequences of certain issues within a foreign culture. An internationalizing firm might face difficulties related to cultural peculiarities when, for example, negotiating with a representative of a foreign market. Prof. Horacio Falcao (Falcao 2011) claims that often people either underestimate or overestimate foreign culture and its proximity to other cultures, which, as a result, affects the outcome of a firm's operations.

Ethics can be discussed in this section since it is greatly stipulated by the culture. Undoubtedly, the topic is closely connected to the legal environment. In fact, these two aspects lie in the basis of ethical behavior. However, they say that ethics start there where the law ends. Apparently, the issue of ethics appears to be multifaceted, however, within the scope of the current research two big topics will be considered, namely, corruption and sustainability. The latter one will be discussed in the environmental factors section.

Daniels, Radebaugh & Sullivan (2009) state that determinants of corruption can be found in cultural, legal and political forces. Corruption is said to be present in every country of the world, however, to a different extent. Also, bribery might be called by a different name, e.g. "commissions" (Leigh & Evans 2007), however, the meaning remains the same. It is then a question for each firm to decide whether to engage into this kind of practices or stay with a clear conscience.

It is then possible to conclude that being aware of cultural peculiarities of a foreign market increases chances for successful operations of a firm. This is possible, in particular, due to the ability to anticipate and thus avoid pitfalls, as well as create understanding of the way a foreign market works. Finally, cultural environment cannot but have impact on other aspects of life, e.g. political arrangements, social matters, etc.

3.2.3.2 Political factors

When going international, a firm must possess a clear understanding of how things work in this very country and what influences the market operations. Being aware of political factors means knowing the answers to such questions as "is there a rule of

law or a rule of man in the country?”, “how are the officials elected?”, “what are the political risks we might face entering this market?”.

Daniels, Radebaugh & Sullivan (2009) define political system as a complete set of bodies, organizations and other political groups, as well as the relationships between them, and the set of rules and norms followed by them. Czinkota, Ronkainen & Zvobgo (2011) determine a number of risks a company might face when internationalizing: political risk can be caused by the change of such policies in the foreign country as tax laws, tariffs, expropriation of assets, restrictions in profits repatriation. These risks are classified into ownership risks, operating risks and transfer risks. Political risks might find their reflection in various ways. In addition to those mentioned earlier, political risks include international war or a civil strife, unilateral breach of contract, destructive government actions, harmful actions against people (e.g. kidnapping, terrorist acts), differing points of view (e.g. interpretation of certain rights and obligations in a different way) (Daniels, Radebaugh & Sullivan 2009).

As we can see the above mentioned risks can affect different activities of a firm. An important feature of the political environment of a foreign country is that it cannot be avoided. What a firm can do is carefully study the political risks in advance, and estimate all the pros and cons of the entering the market.

3.2.3.3 Legal factors

Earlier discussed political factors appear to be in a close connection to legal environment of a country. Laws and legal regulations are the base for the organization of society that is why a firm must be aware of the legal regulatory procedures in a foreign country. Legal systems of different countries are based on different systems of value. These include the following (Ghauri & Cateora 2010; Daniels, Radebaugh & Sullivan 2009):

- common law system, based on tradition, decision of a judge, interpretation of a dispute based on the very case under consideration;
- civil, or code law, based on codified laws, applies existing legal codes to disputes;

- theocratic, or Islamic law, based on sacred texts (e.g. the Koran, the Sunnah);
- socialist law, based on the Marxist-socialist system
- mixed system, employing two and more of the above mentioned legal systems.

Apart from the recognized legal systems, which represent the “rule of law” there is an opposite phenomenon, i.e. the “rule of man”. The name talks for itself: even though a country might officially claim to follow one of the legal systems, in practice, it might be the opposite, i.e. in the country there is one person, “the ruler”, or a group of people executing ultimate power (Ghauri & Cateora 2010). Knowing the legal systems and degree of their practical application by a certain country can help understand what approach a firm must undertake to internationalize successfully.

3.2.3.4 Economic factors

Economic environment consists of a number of factors, or forces (Daniels, Radebaugh & Sullivan 2009), to be considered by a firm, when evaluating its potential in the market. Importance of certain indicators for a firm differs depending on the type of activities a firm plans to have in the market. However, the following forces present the most commonly analyzed ones.

Population is considered to be one of the key variables. Existing demographic indicators as well as population projections present certain value, and create opportunities or impose certain threats on a firm. Age distribution and life expectancy are in close connection with the development of the market. Other population related figures include size of households, degree of urbanization, income and its distribution, level of poverty, consumption patterns, inflation and cost of living, unemployment, working-age population number, labour regulations (Czinkota, Ronkainen & Zvobgo 2011; Daniels, Radebaugh & Sullivan 2009).

Other important economic indicators include infrastructure and the level of its development, geographical features of the environment and degree of foreign involvement in the economy (Czinkota, Ronkainen & Zvobgo 2011). Also, the level of economic freedom and peculiarities of market transitions reveal relevant information. Economic freedom shows how freely economic decision of production,

sales and consume are made within a country. It also presents the degree of government intervention into the process. The degree of market transition shows how free an economy is, and how government deals with privatizing, protection of property rights, application of antitrust and other regulations and policies (Daniels, Radebaugh & Sullivan 2009).

All of the above mentioned indicators can serve as tools for understanding economic trends and making forecasts which allows a more precise strategic planning of such important decisions as, for instance, when to build new assets, when to expand the workforce, etc. (Cheverton 2004).

Institutional organization within a country can be seen as a result of economic development of a country. Thus, Liuhto (2001) notes that the complex process of transition to market economy included institution building as its main component. Institutions are claimed to be bodies which “set the rules” for the market players. Formation of institutional base is a result of historical and cultural development, and appears to be tightly linked to legal environment of a country.

A firm must be aware of the institutional structure of the country whose market it is entering, since the elements of the institutional chain might have certain fixed order of succession. Also, knowing the constituents of the chain means understanding possible bureaucracy behind it.

3.2.3.5 Ecological factors

Ecological, or environmental, factors can present a decisive force for a firm. Changing climatic conditions, in particular, global warming, and scarcity of natural resources impose certain restrictions on activities of firms. Such restrictions are implemented in legal regulations on the use of natural resources as well as other environmental protection measures. Those can be issue on national or regional levels. Kyoto Protocol is one of such regulations, which legally binds industrialized countries to reduce their collective emissions of greenhouse gases in the view of global warming (The Kyoto Protocol). Thus, ever “greener” production means are needed. More attention is given to recycling.

Sustainability is thus a burning issue. Sustainability is defined by Daniels, Radebaugh & Sullivan (2009) as the ability to meet the needs of the present and at the same time not compromise with the abilities of future generations to meet their needs in the future. Sustainability is also about finding a compromise between people and the environment. Consequently, firms must undertake responsibility for their actions impacting environment and society.

3.2.3.6 Technological factors

The importance of technology in modern life cannot be overestimated. Especially, when considering technology as a competitive advantage force. Technological advantage is one of the proactive stimuli for an internationalizing firm (Czinkota, Ronkainen & Zvobgo 2011). Products and services not available in a market can provide a competitive edge. Superior technology is said to be “a compensating advantage” for a firm entering a foreign market (Liuhto 2001). Thus, technological situation in the market must be evaluated in order to adequately assess the opportunities in the market.

Figure 6 summarizes the international environment factors influencing a firm. From the figure it is clear that a foreign market provides opportunities and imposes threats on a firm’s activities. Industry and competitors stipulate a firm’s opportunities in the market under the conditions of cultural, political, economic, legal, ecological, technological factors. Thus, external environment audit must be done in order to evaluate possible threats and opportunities for a firm in a foreign market.

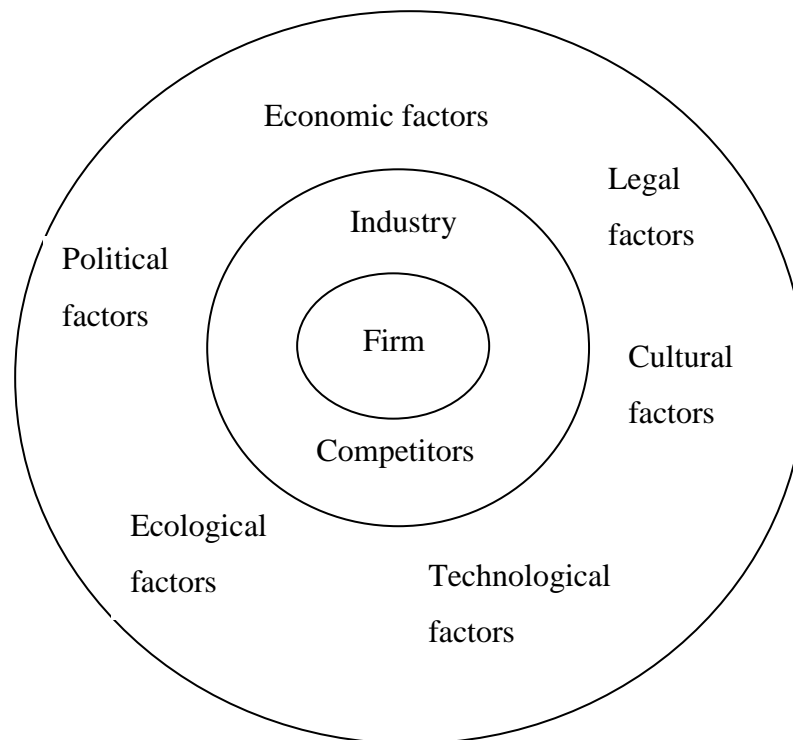


Figure 6 International environment (adopted from Jeyarathmm 2008)

3.3 Conclusions

Dunning's eclectic paradigm (Dunning 2000) offers a three-dimensional framework for evaluation a firm's internationalization perspectives. Accordingly, the interaction of three sets of interdependent variables, i.e. ownership-specific advantages, location advantages and internationalization advantages, reflects the context of a firm's competitive advantage formulation. Namely, the essence of the ownership advantage lies in the greater competitive advantage of the firm compared to the domestic companies. Next, a firm must identify the locational attractiveness, i.e. a foreign market must be more lucrative than the domestic one, thus, to better fulfill the firm's ownership-specific advantages. Finally, internationalization perspectives must potentially bring greater benefits than engaging into licensing or joint venture. Thus, in order to see a complete picture of the context in which a firm's competitive advantage is formulated, it is useful to place the earlier explained internal and external factors of internationalization within the framework of Dunning's theory (Figure 7).

From Figure 7 it is clear that utilization of a firm's resources and capabilities must reflect the firm's ownership advantages over the domestic companies, acting as competitors in the market. Also, it is country- and industry-specific features that will

be reflected in a firm's foreign activities, leaving alone the individual objectives of firms, as well as the strategies they are pursuing. Thus, it is possible to conclude that having evaluated a firm's competitive advantage based on the international environment parameters presented in Figure 6, specific and operationally plausible forecasts on a firm's success in a foreign market can be made and further considered.

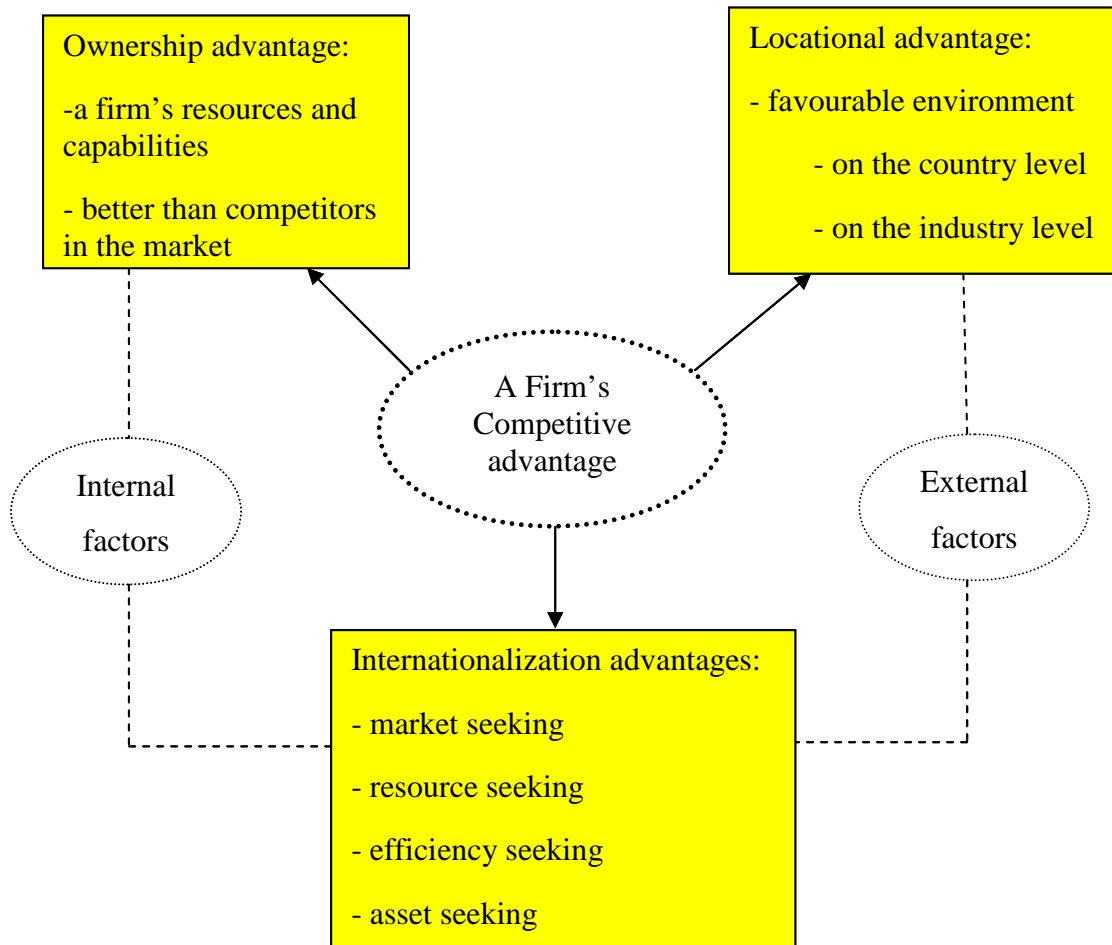


Figure 7 Context of a firm's competitive advantage formulation (based on Dunning 2000)

Figure 7 presents a systemized and comprehended application of the earlier analyzed factors, and will be proceeded with in the next chapters as a theoretical framework for the empirical research.

4 EVALUATION OF CTS ENGTEC'S BUSINESS OPPORTUNITIES IN ENERGY INDUSTRY OF NORTHWEST RUSSIA

Theoretical framework of firms' competitive advantage formulation, presented in Figure 8, proves the complexity of the issue. However, within the scope of the research only one element of the framework will be discussed and investigated, i.e. locational advantage of CTS Engtec in the regions of Northwest Russia: Arkhangelsk, Murmansk, Kaliningrad regions, the Republic of Karelia and the Republic of Komi.

Opportunities of CTS Engtec in the energy industry of Russia greatly depend on the strategic energy development programmes of the country. Following the hierarchy, country level directives, in particular, in energy industry, shall be reflected in the regions' energy field development. Thus, in order to identify CTS Engtec's opportunities in each of the five regions, a closer look into Russian energy strategy is required.

4.1 CTS Engtec's locational advantages in energy industry of Russia

Strategic development of the energy industry of the Russian Federation is presented in two currently valid energy strategies: one for the period till 2020, and the other one for the period till 2030 (Ministry of energy of the Russian Federation 2012). Important are also bodies and organizations dealing with energy related issues: apart from the Ministry of energy of Russia, there are also Ministry of economic development and trade, Agency for power industry balances forecasts (2011), Energy efficient Russia, a recently specially created informational portal aimed at better implementation of state energy efficiency measures. Energy problems and developments in Russia are also followed in periodic publications (Energosovet 2011). Having reviewed contents of official web pages of each of the mentioned bodies, and the latest issue of Energosovet, main guidelines in terms of energy development of the Russian Federation can be summarized as follows:

1. Energy safety.
2. Energy efficiency.

3. Budget efficient energy.
4. Environmentally safe energy.

These guidelines in their turn stipulate achievement of the following goals on the country level:

1. More efficient energy production.
2. Energy savings.
3. Renewable energy.
4. Diversification of fuels used in energy production.
5. Environmentally sustainable energy production.

In order to reach the goals, certain conditions must be created, namely, application of energy saving technologies and equipment, which are at the same time environmentally friendly; formation of federal and regional legal base which would pave the way to higher energy efficiency and support international ecological standards. Also, state and privately owned partnerships aimed at common implementation of energy projects are given attention to. Finally, consideration of alternative energy sources is forecasted in the strategic development of energy in Russia starting from now till 2030 (Ministry of energy of the Russian Federation 2012).

However, plans and forecasts would have no value without proper assessment of the existing funds and assets in energy. Thus, among the factors preventing energy industry from development there are the following: more than 50% of the major equipment is worn-out, few new industrial facilities have been started since the 1990s, obsolescence of the majority of equipment sets the danger of emergency breakages. (Ministry of energy of the Russian Federation 2012).

At the same time, there are certain forecasts concerning the energy demand in Russia in the future years. To be more precise, Ministry of Energy of Russia is said to forecast an increase in demand for energy by 18,4% till 2017 compared to the level of 2010 (Dokukina 2012).

These problems and strategic policies present the situation in the whole country in general. Regionally, there are certain priorities also in the Northwestern Federal District development. Namely, it is planned to up to 2020 develop energy systems based on different types of energy generating facilities. Also, centralized heating systems are planned to be modernized and reconstructed. What is more, diversification of types of fuels used at the energy generating facilities is seen as one of the priorities as well (Ministry of energy of the Russian Federation 2012).

Thus, it becomes clear that the growing demand for energy will not be compensated with the obsolescent facilities. Consequently, modernizations and reconstructions of the existing energy producing facilities must be implemented in order to keep up with the needs for energy. This proves the existence of certain business opportunities for CTS Engtec, which deals with different kinds of modernizations and project types: greenfield investments, brownfield investments, energy audits, energy and material efficiency studies, etc. (CTS Engtec Oy 2012).

Notable is also the fact that Russia is becoming more and more open to cooperate with the EU in the sphere of energy efficiency. It is noticed that such cooperation has become quite active in the past 2,5 years, in particular, EU-Russia Partnership for Modernization provides areas of common interest for EU and Russia in the field of energy (Kononenko 2011). Finland as a geographically closest to Russia EU country and CTS Engtec's vast experience in the field at once set certain business opportunities for the company. In the upcoming year Russia is said to invest billions into its power energy industry, in particular, into modernization and construction of new energy facilities. Finnish engineering companies, in particular, CTS Engtec, are forecasted to be in demand (Sinervä 2012).

4.1.1 CTS Engtec's locational advantages in energy industry on the regional-scale

In order to assess CTS Engtec's business opportunities in each of the regions under interest, a brief characteristic of the region's economic situation, main industries, and strategic development plans is required.

4.1.1.1 Arkhangelsk region's social and economic factors

Arkhangelsk region is situated in the North of the European part of Russia. The area covers 587 000 km². The Nenentsk autonomous district, Novaya Zemlya island and Franz-Josef Land also belong to Arkhangelsk region (Arkhangelsk region administration 2012). In 2009 population of the region equaled to 1262 000 (Metaprom.Ru 2011). The population density is 2.2 persons per 1 km². A bit more than 74 % of people live in cities, 25% - in rural area. Average age is 37 years, while working population constitutes 64% of the population.

In terms of raw materials, Arkhangelsk region is rich in forest resources with 22,3 million ha of land covered with forest: mostly conifer (80%), 20% - broadleaved. The region's mineral resources are oil (Nenets district), bauxites, diamonds, also limestone, dolomite, cement material, plaster-stone, anhydrite, sand, clay, building stone, manganese, copper ore, zinc, lead, mineral amber, agate (Arkhangelsk region administration 2012).

In 2011 GRP of Arkhangelsk region was almost 7 billion €, compared to 2010 when it was close to 6 billion € (Chamber of Commerce and Industry of the Russian Federation 2011; Central Bank of the Russian Federation 2012). The biggest contributors to the GRP are forestry (17, 1%), transport and logistics (16,8%), trade (16,3%), construction (9,6%), shipbuilding (4,2%) (Arkhangelsk region authorities 2012).

In 2010 foreign investments into Arkhangelsk region equaled to more than 497 M €. The figure is the third biggest in the North-Western region of Russia (MK.RU 2011). Capital investment into the region for the first half of 2011 was 448 million € (Arkhangelsk region administration 2012). It is the fourth indicator in the Northwestern Federal District of Russia (MK.RU 2011). However, as it is stated at Regnum information agency web page (Regnum 2011) 27% of those investments came from the offshore accounts.

In general, the most attractive branches for capital investment in the first quarter of 2011 were middle- and big-size facilities in transport (34 million €), pulp and paper industry (21,7 million €), state administration and military security, social security

(6,5 million €), agriculture, hunting and forestry (5,4 million €) (Arkhangelsk region administration 2012).

4.1.1.2 Energy industry of Arkhangelsk region

There are 970 power plants in the region. Annually Arkhangelsk region consumes about 1,3 GW of energy. And it is expected that the need for energy will rise up to 1,6 GW till 2015. The main energy suppliers in the region are Chief Directorate of OAO “TGK-2” in Arkhangelsk region (49%) and block-stations of industrial facilities (see Table 3).

The biggest industrial consumers of energy are Federal State Unitary Enterprises “SMP” and “Zvezdochka”, and “Plesetsk” space-launch complex. Up till 2005 there was a monopoly in energy market of the region, represented by OAO “Arkhenargo”. However, in 2005 as a result of reorganization it was decided to assign production of energy to OAO “Arkhangelsk energy generating company”, a branch of OAO “TGK-2”, while OAO “Arkhenargo” started performing energy transportation and distribution, and OAO “Arkhangelsk Sales company” took care of energy sales. (Resheniye Consulting 2009.).

Table 3 Main power producing companies in Arkhangelsk region

Company	2006		2007	
	Production volume, M kW/h	%	Production volume, M kW/h	%
Chief Directorate of OAO “TGK-2” in Arkhangelsk region	3468	46,61	3832,3	49,17
OAO “Ilim Group” Branch, Koryazhma	1874	25,19	1821,4	23,37
OAO “Arkhangelsk Pulp and Paper Mill”	1184	15,91	1125,2	14,44
OAO “Solombala Pulp and Paper Mill”	177	2,38	180,8	2,32
OOO “RN-Severnaya Neft”	115	1,55	159,8	2,05

Source: Resheniye Consulting 2009.

The structure of the heat consumption can be seen in the next figure.

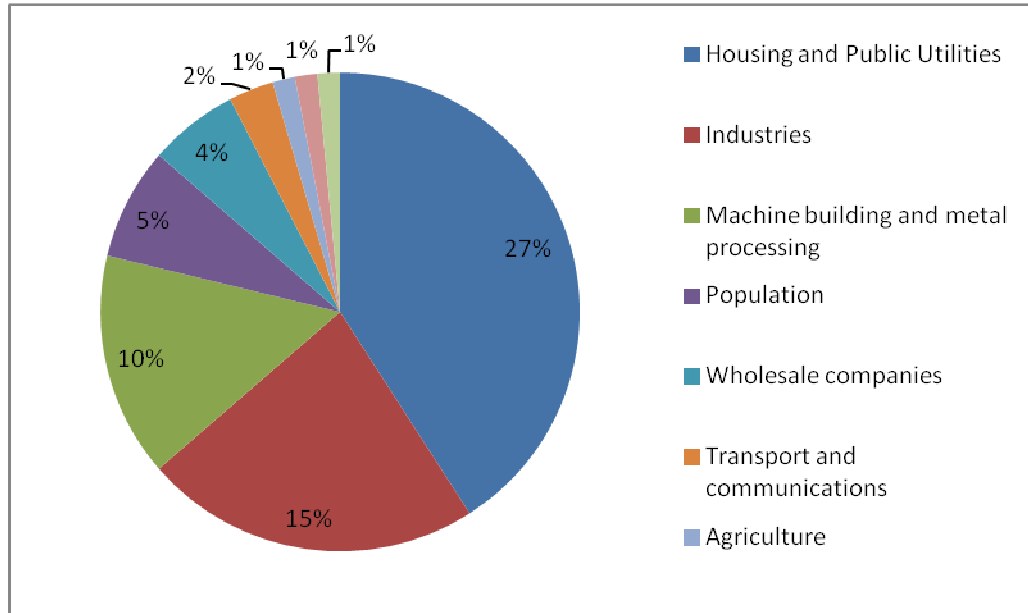


Figure 8 Heat power consumption in Arkhangelsk region (Resheniye Consulting 2009).

According to the forecasts, there is a steadily growing demand for energy in the region, while production capacities are not increasing (Resheniye Consulting 2009). Partially, this is caused by the fact the region's economy is excessively energy intensive. In addition, due to physical obsolescence of the energy producing facilities there are huge power and heat losses. Consequently, energy system of Arkhangelsk region is considered to be in deficit. In order to solve this situation authorities of the region have adopted energy saving and energy efficiency improvement programme. Existing geographic, climatic conditions and forestry resources enable the change of energy system of the region for renewable energy sources. Experts estimate that energy saving potential in the region equals to 3,2 M tons of fuel (Regional Centre for Energy Saving in Arkhangelsk region 2012). Apparently, implementation of the programme will involve restructuring and reconstructions of the existing energy producing facilities. One of CTS Engtec's expert services is biofuels and renewable energy sources.

4.1.2.1 Kaliningrad region's social and economic factors

Kaliningrad region is situated on the southeastern coast of the Baltic Sea, and is the most western part of Russia. The region appears to be one of the smallest territories of the Russian Federation and covers 15,1 thousand km² (Kaliningrad.Net 2012). The population of the region is 937,400 registered in 2009, with a density of 63 persons per km². 60% of population are non native, 46,8% came from the Commonwealth of Independent States (Expert Ra 2012).

GRP in Kaliningrad region equaled to 4,23 billion € in 2009, and almost 5 billion € in 2010. Almost 20% of the GRP is brought by 7 big enterprises, among which there is an automobile company "Autotor-Holding", "Lukoil-Kaliningradmorneft" working in oil industry, Kaliningrad thermal power plant-2, Yantarenergo energy company, etc. According to estimate, the biggest share of GRP of the region belongs to process industries and wholesale and retail trade. Irrespective of the increase in GRP in 2010 GRP per person remains quite low, placing the region onto 30-32 place among other regions of the Russian Federation (Kaliningradnews 2011).

In 2010 capital investments in the region equaled to 1,7 billion €, which is 114,8% to year 2009. (Kaliningradnews 2011). Foreign investment figure also improved in 2010 being almost 156 million €. Almost 45% of all foreign investments were made to processing industries. The main investing countries were Cyprus, Germany, Switzerland, Denmark and Lithuania (Kaliningrad region authorities 2012).

In 2010 Industrial production index equaled to 136,1%, and 174,4% for processing industries. In January 2010 Industrial production index in minerals extraction equaled to 95,1%. According to the data provided in Kaliningrad social and economic development middle- and long-term strategy approved in 2007, in 2005 Kaliningrad region was the second leading region in North-Western Federal District in mineral resources extraction. It is outpaced by St. Petersburg and followed by the Republic of Karelia. All the oil extracted in the region is exported. The main consumer of Kaliningrad oil is Gdansk oil processing plant (Poland) (Kaliningrad region authorities 2012).

4.1.2.2 Energy industry of Kaliningrad region

Registered at the end of 2007 there were 185 functioning energy facilities. Still, the region belongs to energy deficit regions of the RF, dependent on the neighbouring countries. Starting from 2001 there has been a steady tendency of annual growing energy consumption. This could be explained with the fact that Kaliningrad region's industrial production index has been growing, placing Kaliningrad on the leading positions among other North-Western Federal District's regions (Resheniye Consulting 2009).

Unlike other regions of the Northwestern FD, energy system of Kaliningrad region does not have direct connection lines with the Single Energy System of Russia, and, actually, appears to be a "blind" branch of Lithuanian energy system. This fact makes Kaliningrad and Lithuanian energy system interdependent, which in its turn sets certain requirements on Kaliningrad. The matter is that since Lithuania joined "Baltic Ring" Electricity Cooperation Committee and gradually applies European standards, energy systems of Baltic countries and Russia became incompatible. This makes further power transfer impossible. Thus, there is an urgent need to expand power generating capacity in Kaliningrad region in order to enable further social and economic development. Certain measures have been already implemented in order to improve the situation – in 2005 the first energy unit of OAO "Kaliningrad thermal power plant-2" was started (450 MW) (Resheniye Consulting 2009).

Kaliningrad region is referred to the non-price zone of the Power and Capacity Wholesale Market (known as OREM in Russia), where OAO "Kaliningrad thermal power plant-2" is the only power generator, which provides power capacity to the guaranteeing supplier OAO "Yantarenergo". Deficit in the region is covered through imports from the Single Energy System of Russia (Resheniye Consulting 2009).

Electricity consumption in the region in 2010 was 4,093 billion kWh, the region itself produced 3,18 billion kWh of electricity, including 3,08 billion kWh generated at "Kaliningrad thermal power plant-2". Kaliningrad region provides 77,7 % of its domestic needs in electrical power. This is achieved with the help of "Kaliningrad thermal power plant-2", where in December 2010 a second energy block was commissioned, thus, improving the production capacity of the plant to 900 MW. It is,

however, forecasted that a 3-4% increase in energy consumption is going to take place in 2012-2014 (Kaliningrad region authorities 2012).

From the figures mentioned earlier it would seem that Kaliningrad region's energy situation is under control. However, recent report of Yuriy Zlobin, Director of "Kaliningrad Energoinvest" energy company proves the situation to be quite complicated (Markanova 2012). Namely, Mr.Zlobin informs that till 2007 region's development was quite satisfactory, but then it became evident that regional energy industry is on the wane. Along with 95% dependence on energy imports, own power network is extremely worn-out. Network losses reach 22% (whereas generally in Russia the figure is 4%). As reported, energy complex is exhausted. The situation is also extreme in heat supply and district heating. Loss level in heat supply network is 50%. The system is characterized as extremely inefficient, burning more than 500 million m³ of gas. Forecasted power capacity figures are illustrated in Table 4.

Table 4 Forecast of power capacity deficit in Kaliningrad region, GW

Year	Required capacity	Domestic capacity	Capacity deficit
2010	1,19	0,92	0,27
2011	1,30	0,93	0,48
2012	1,41	0,93	0,48
2013	1,53	0,93	0,60
2014	1,65	0,93	0,72
2015	1,78	0,99	0,78
2016	1,91	0,99	0,92
2017	2,04	0,99	1,05
2018	2,18	0,99	1,19
2019	2,33	0,99	1,34
2020	2,47	1,10	1,37

Source: Kaliningrad region authorities 2012

Summing up all of the above mentioned, modernization of energy facilities is a severe issue in Kaliningrad region. Development of other social and economic indicators depends on it. These matters are within CTS Engtec's area of expertise.

4.1.3.1 The Republic of Karelia social and economic factors

The Republic of Karelia covers the area of 180,5 thousand km² with the population of 644,2 thousand people, registered in January 2011. Average population density is 3,6 persons/ km², people of working age constitute 63,2% (Republic of Karelia for Investors 2012). In 2010 GRP was estimated to be 3,16 billion €, i.e. 106,5% compared to 2009 (Republic of Karelia Authorities' official web portal 2011). In 2009 the figure equaled to 2723,8 million € (Karelia State Statistics Committee 2011).

Industrial production index equaled to 90,1 % in 2009, while the average in Russia was 89,2 % and 88,6 % in North Western Federal district (Republic of Karelia for Investors 2012). In 2010 the figure improved to 110,6% compared to 2009. Strong branches in the regional economy are minerals extraction, textile, wood processing and wooden items production, chemical industry, machinery and equipment production. In the mentioned industries production index is higher than in Russia in general. However, food items and beverages branch, as well as non-metal mineral products manufacturing and metal industry are less productive. Another weak point of the region's recent development is electricity, gas and water production and distribution. In comparison to the figure in the whole Russia (100,8%) Karelian index for the first quarter of 2011 is 85% compared to 2010 (Romanov 2011).

In the region's economy infrastructure the following activities can be highlighted (Republic of Karelia for Investors 2012): lumbering industry, timber processing, pulp and paper, fishing. Railway transport is an indispensable part of the economy. Also, the region is rich in building materials: granite, toadstone, quartzite, dolomite, marble, iron ore, titanomagnetite, specular stone.

As results for year 2010 show the most lucrative industries for foreign investment in the region have been process industries, forestry and minerals extraction. The total investment figure was about 480 million € (2010). Main investing countries were Finland (57%), Estonia (21%), Sweden (13%). Finland was mostly investing into process industries (Karelia State Statistics Committee 2011). According to Minister of economic development of Karelia, capital investment figure increased to about 570 million € in 2010. It is 114,8% compared to the level of 2009 (Republic of Karelia Authorities' official web portal 2011).

4.1.3.2 Energy industry of the Republic of Karelia

Karelia's energy complex consists of heat and power plants, i.e. Suna, Vyg, Kem hydroelectric plants (about 70% of the produced in the region power energy), Petrozavodsk thermal power plant, and 4 thermal power plants at pulp and paper mills. The total power production capacity in the region equals to 1118 MW (Resheniye Consulting 2009).

OAO "TGK-1" Karelia Branch appears to be the main player in the region's energy market. It provides around 80% of the total power production, and constitutes about 40% of power consumption in the Republic. In the power market it is the only big provider, while in the heat supply market its share is almost 80%. Petrozavodsk thermal power plant's capacity is 821 Gcal/h.

Figure 9 shows power consumption pattern in the Republic of Karelia.

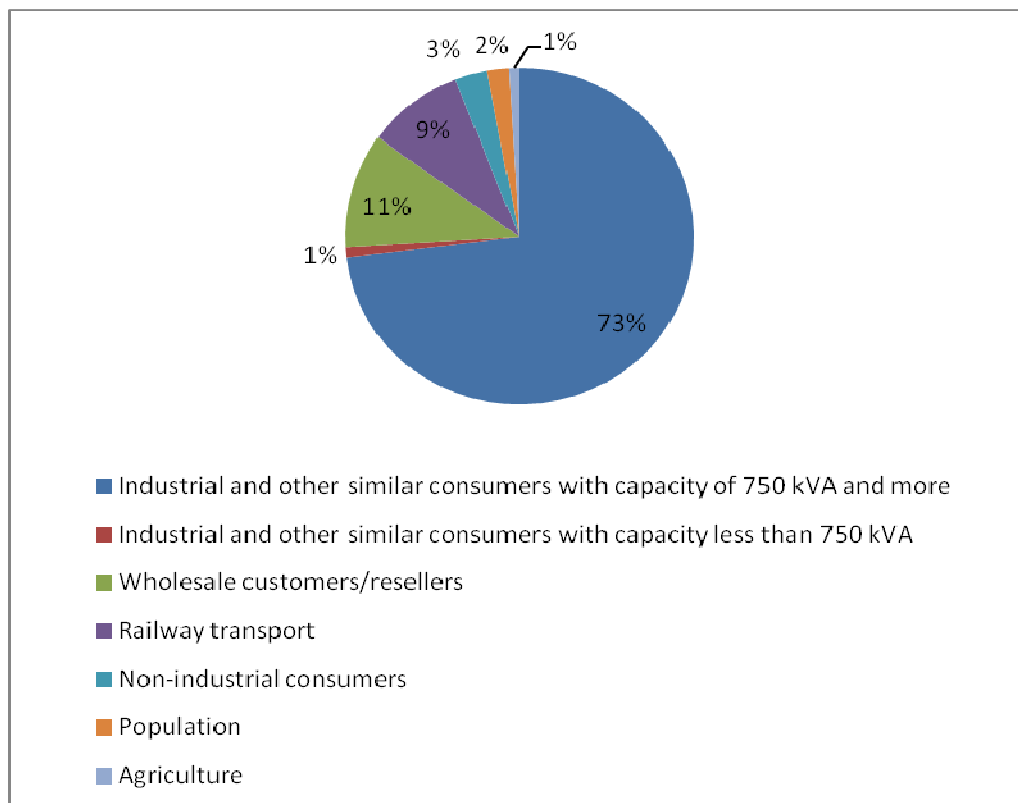


Figure 9 Structure of power consumption in the Republic of Karelia in 2007 (Resheniye Consulting 2009).

As it can be seen from the figure the main power consumers are industrial enterprises, which are, in fact, the driving forces of economic development in the region.

Ministry of Regional Development of Russia (2009) in the Strategy of social and economic development of the Republic of Karelia till 2020 notes that energy complex of the Republic can be characterized as energy deficit. Domestic consumption of power is 40% higher than the power production in the region. Moreover, domestic energy producing system is dependent on the fuels brought to the region from other regions of Russia. It is claimed that Karelia has substantial reserves of domestic alternative fuels, i.e. peat and wood waste. However, energy system of the region needs to be reconstructed in order to start utilizing domestically available fuels.

Another need of the region is capital reconstruction of the existing energy facilities, energy efficiency improvement and implementation of energy saving technologies through the studies and use of alternative energy resources. According to the Karelia regional programme on Energy saving and energy efficiency improvement for the period till 2020, at the beginning of 2010 physical depreciation of the main assets of boiler rooms in the region are reported to equal to 55%, heat supply networks – over 60% (Ministry of energy of the Russian Federation 2012). Reconstructions and transfer to alternative energy resources is within CTS Engtec's know-how.

4.1.4.1 The Republic of Komi social and economic factors

The Republic of Komi covers the area of 416,8 000 km². The population in the region is 951155 thousand people (2010) (Republic of Komi official portal). GRP has shown a steady growth from 2003 till the latest available 2009, when it equaled to 7728 million € (State Statistics Office in the Republic of Komi 2010). In the first quarter of 2010 the Industrial Production Index in the region equaled to 103,8% compared to the same period of 2009. While in January 2011 IPI was 101,7% compared to January 2010 (Komiinform 2011).

In terms of economic activities, the following are the most substantial industries in the region (Republic of Komi official portal):

- Oil mining industry. There are 152 registered sites of crude hydrocarbon resources in the Republic of Komi, out of which oil and gas are being extracted in 87 sites, including 65 being industrially exploited and 22 tested. The big sites, providing the main share of the oil extracted in the region, are characterized with high degree of

reserves depletion. The main oil mining companies in the region are Lukoil-Komi OOO (68,9% of the total extracted oil) and PH-Northern Oil OOO (9,3%).

- Oil processing industry. The main oil processing company in the region is Lukoil-Ukhtaneftepererabotka OOO.

- Gas industry. Most free gas reserves are at Gasprom Pererabotka OAO which is extracting and processing gas.

Other industries include coal industry, ore mining, forest industry (main companies are Finleskom OOO a branch of Mondi Sykvyvkar JSC with 70% of the production volume, Luzales OOO.), wood processing (main companies: Syktyvkar plywood plant OOO, Zheshart plywood plant CJSC, Fibreboards plant OOO, Syktyvkar LDK OOO), pulp and paper industry where Mondi Syktyvkar is the leading production facility, machine building industry and energy industry.

In 2010 foreign investments in the region comprised 517 million € (Komiinform 2011), while in 2009 the figure equaled to 684 million €. Capital investments in the region grew in 2009 compared to 2008 by almost 38%, resulting in 2,55 billion € (Republic of Komi official portal). The data for 2011 are not available yet, but Komiinform (2011) expects the figure to be around 4,35 billion €, which is approximately 60% more than in 2010.

4.1.4.2 Energy industry of the Republic of Komi

Energy system of the region consists of 5 power centres: Vorkutinsk, Intinsk, Pechorsk, Ukhtinsk (Central) and Southern centres (Republic of Komi official portal). In 2006 electrical energy system of the region was reformed. It resulted in the distribution of energy activities: now there are three power producing companies in the region – “Pechorsk GRES power plant” Branch, OAO “OGK-3”, OAO “Komi” Branch and OAO “Mondi Business Paper – Syktyvkar LPK”. These three companies are the biggest heat and power producing companies in the region. OAO “Komienergo” is dealing with power transportation and distribution, supplier functions are performed by OAO “Komi energy retail supplier” (Resheniye Consulting 2009).

All in all, in Republic of Komi there are more than 600 of boiler stations with total capacity of almost 10000 Gcal/h. These are the main sources of heat supply in the region. The main heat producer in the region is OAO “TGK-9”, a Branch of “Komi”, having more than 30% share in the heat energy market of the region (Resheniye Consulting 2009). The next figure illustrates the main heat consuming sectors in Komi Republic.

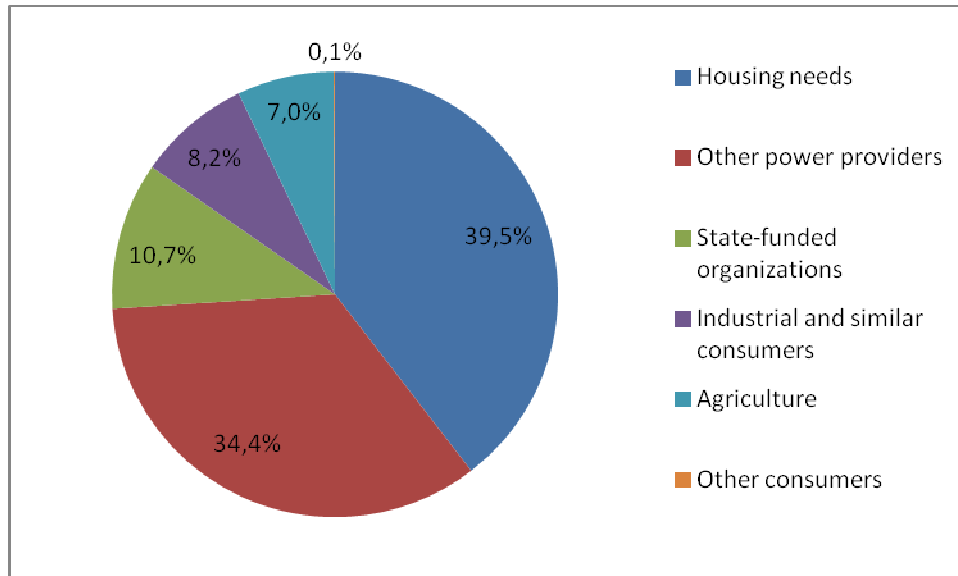


Figure 10 Structure of power consumption by sectors in the Republic of Komi (Resheniye Consulting 2009).

As it can be seen from Figure 10 the biggest heat energy consumer in Komi is housing facilities. In particular, this can be explained with the climatic conditions of the region. Power use in shown in Figure 11.

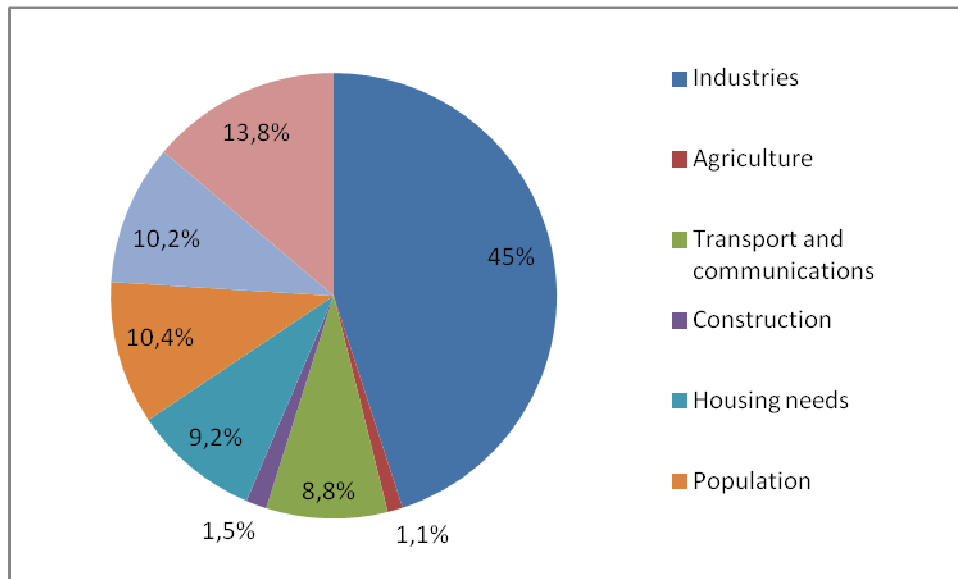


Figure 11 Structure of power use in the Republic of Komi in 2008 (Resheniye Consulting 2009).

From Figure 11 it is clear that energy intensive industries of the region (i.e. oil mining and oil processing) set high demand in energy. Namely due to these industries in the region energy system of the Republic of Komi is considered to be a region with a high degree of energy consumption (Resheniye Consulting 2009).

Regional programme on Energy saving and energy efficiency improvement on the territory of the Republic of Komi (EnergSovet.Ru 2012) states the planned actions in the field, involving energy audits in the region, as well as implementation of technical and technological energy solutions. These are believed to provide better output indicators of separate sectors, and as a result of the region in the whole. One of the key service concepts of CTS Engtec in Russia is energy auditing. Thus, the firm could apply its knowledge and skills in the region.

4.1.5.1 Murmansk region's social and economic factors

Murmansk region lies on Kola peninsula, and covers the territory of 144936 km². Registered on January 2012, the population in the region is 787 thousand people. GRP in Murmansk region was about 5 million € (Murmanskregion Statistics office 2012). The structure of the Gross regional product of Murmansk region can be seen in the figure below.

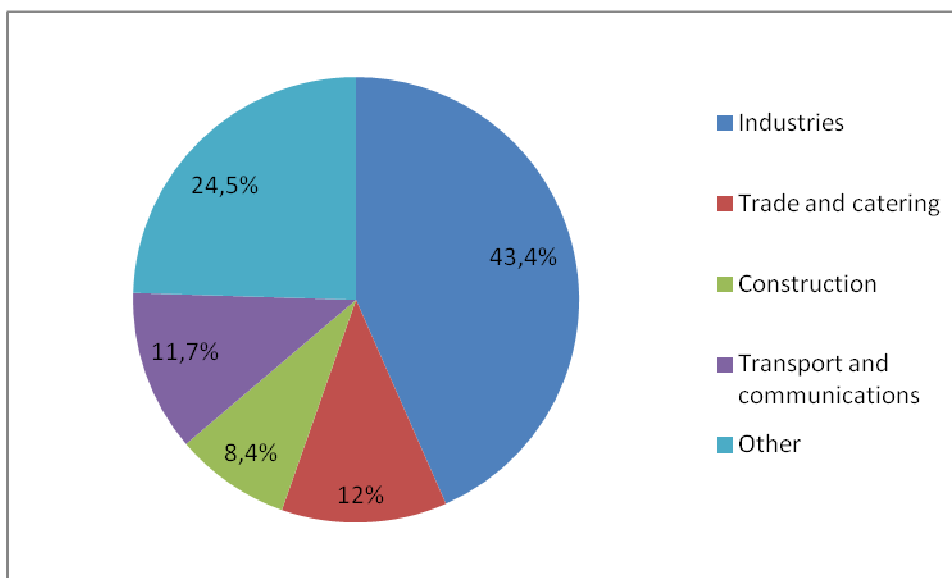


Figure 12 Structure of Murmansk region GRP (Resheniye Consulting 2009).

According to its industrial production indicators per person Murmansk region occupies the second place in the North Western Federal District of the RF. The main industries in the region are mining and fishing. Murmansk region is rich in phosphate ore, phlogopite, vermiculite, baddeleyite, iron ore concentrate, nickel, copper, etc (Murmansk region 2004).

Murmansk Statistics office (2012) informs that in January-June 2011 Industrial Production Index in the region equaled to 98,9% compared to the same period in 2010. Regional statistics shows that compared to 2010 mineral resources mining decreased by 4,6%, process industries' production slightly increased (by 0,5%) and power, gas and water generation and distribution increased by half a percent in 2011.

In 2008 capital investment figure was more than 2 billion €, which was 12% more than in 2007. In 2009 the investment equaled to 2,77 billion €, and in 2010 – 2,63 billion €. In 2008 most of the investments (35%) were made to minerals extraction industry, 31% - to transport and communications. In 2009 the situation changed so that 51% of the investments went to transport and communications, with minerals mining as the second biggest investment area (20%). In 2010 the trend increased: 56,9% of all investments were made to transport and communications sphere, while mineral resources extraction received 20,5% of the investments. In terms of foreign investments, in 2010 2,466 million € were invested into Murmansk region economy. Most of the investments were made into process industries and minerals extraction. In

2009 almost twice less was invested and with the priority of the same branches. In 2008 the figure equaled to 7,056 million € (84% of all investments made to process industries). (Ministry of Economic Development of Murmansk region 2010.).

4.1.5.2 Energy industry of Murmansk region

Murmansk region is known to be the most “equipped” in terms of energy: there are 17 hydropower plants, Kola nuclear power plant and 2 CHP plants. Three biggest companies, i.e. OAO “TGK-1” (“Kolskiy” Branch), OAO “Energoatom Group of Companies” (Kola atomic power plant) and OAO “Kolenergo” (a Branch of OAO “North-West MRSK”, provide power for Murmansk region (Resheniye Consulting 2009.).

Resheniye Consulting (2009) reports that during 2003-2008 production of power has been steadily increasing, while heat production is in downward trend starting from 2005. Main thermal energy producers in the region are Murmansk CHP plant (almost 75%) and Apatity CHP plant. Production figures of these plants are illustrated in the table below.

Table 5 Main heat power producers in Murmansk region

Plant	Thermal capacity, Gcal/h	Heat energy output, thousand Gcal		
		2006	2007	2008
Murmansk CHP	1111	2376	2392,7	2437,7
Apatity CHP	735	1249	1251,1	1213,2

Source: Resheniye Consulting 2009

Notable is the fact that out of some 200 boiler stations with total capacity of about 6,5 thousand Gcal/h and 5 thermal and electric power plants only at Apatity power plant production of heat and energy is performed in the most efficient way, i.e. combined production (Boroukhin 2010).

Murmansk region is characterized with a high degree of centralized heating system. More than 90% of the households are provided with the heat from four heating units (with the capacity of 260-461 Gcal/h). Such system is recognized as inefficient and

requires modernization. The existing energy system satisfies domestic needs in the region, and transfers part of the generated power to other regions in Russia, as well as Norway and Finland through Nordel energy system (Kola encyclopedia 2008). Murmansk region is plays a key role in energy production and supply in the North Western Russia, thus, it is important to maintain sufficient production indicators in terms of heat and power. However, obsolescence of most of energy system productional funds (e.g. Kola power plant 53% of its equipment is more than 25 years old), as well as inefficiency in purchased materials utilization (60% of fuel used in Murmansk region plants is residual oil brought from outside the region) hinder development of energy industry as well as other energy intensive industries in the region (Boroukhin 2010).

Therefore, in order to improve Murmansk region's energy system development the following measures need to be implemented (Boroukhin 2010):

- modernization of Kola nuclear power plant in order to improve its production capacity as well as assure nuclear safety;
- promotion of more sustainable fuel types and renewable energy sources;
- heat supply systems efficiency improvement, in particular, by utilizing power in heating and water supply systems.

As it can be seen, there is a real existing need for modernizations and energy funds' efficiency improvement. CTS Engtec is specialized in this kind of services, thus, there are obvious business opportunities for the company in Murmansk region.

NOTE: all financial figures are converted from rubles into euro based on the currency exchange rate of the Central Bank of the Russian Federation on 3 March 2012 (1€=38,9490 RUR).

4.2 The process of information collection

Having described the factors influencing CTS Engtec's business opportunities in energy industry of the Northwest Russia, thoroughly studied the regions' current economic situation and state of energy sector in each of the regions, as well as reviewed the forecasted needs in energy in the specified regions, I clearly realized that

there is a real need for modernizations, reconstructions, even new energy facilities in the Northwest Russia. Notable is the fact that the need is acute, and what is more, it is understood on the legislative level: respective improvement programmes have been carried out at the national level and regionally. Consequently, there must be concrete measures, i.e. projects, to be implemented in each region in terms of its energy industry development.

Since energy industry is a vast area, and in order to specify the interest of CTS Engtec in energy market of the five regions of the Northwest Russia, I proposed a list of criteria according to which potential projects would be selected. Juha Kemppe from CTS Engtec, Director, Russian market and a supervisor of this research from the commissioning company, has approved the criteria (Appendix 1) which laid the basis for further findings. Therefore, based on the defined criteria I acquired information from the following sources:

- 1) Contact persons in the energy field in Russia via personal conversation and email correspondence:

Rokhlikov Igor, Regional Economic Development Agency, Director;

Aleksandrov Andrey, NPO “South Kola peninsula cities union”, Expert, Doctor of Economics;

Zaitsev Sergey, Coordinating Board on municipal economic development, Chairman, Deputy of St. Petersburg “Zvezdnoye” municipality.

- 2) Strategic development programmes in energy field of each region and Russia as a whole (Kaliningrad region Ministry of Economic Affairs; Ministry of Economic Development and Trade of the Russian Federation; Ministry of Regional Development of the Russian Federation 2009)
- 3) Regional programmes on energy saving and energy efficiency improvement (Kaliningrad region Ministry of Economic Affairs; Ministry of Economic Development of the Republic of Karelia 2012; EnergoSovet.Ru 2012; Regional Centre for Energy Saving in Arkhangelsk region 2012)

- 4) Analysis of the main energy companies' projects for implementation in the specified regions (TGK-2)
- 5) Review of the information from the web sites of the regions' administrative bodies, ministries of economic and regional development in each region (Kaliningrad region Ministry of Economic Affairs; Ministry of Economic Development of the Republic of Karelia 2012; The Republic of Komi official portal; Ministry of Economic Development of Murmansk region 2010; Murmansk Oblast Duma)
- 6) Review of the energy field and data portals, as well as Russian energy news web sites (Arkhangelsk region investment portal; Rugrad.eu; AtomInfo.Ru; Torlopov, V; TV21 Murmansk Telecompany).

It is worth saying that review of news and data portals was made for the purpose of information verification on potential projects. In the course of data collection I have noticed that quite often there is a gap between the scheduled time of projects implementation and actual implementation of the projects. The gap sometimes equals to years. Energy field and news portals helped clarify what projects have been carried out and which of them are only planned for implementation. I refer this kind of projects delay to the cultural specifics of Russia. I also have to mention here that all the information that I received concerning the projects in Russia, and the majority of used reference materials used in the process of CTS Engtec's business opportunities' evaluation were in the Russian language. Thus, in addition to the challenge of actual useful, trustful and profound information collection my task was to provide faithful and accurate translations. Finally, I must admit it was quite a challenge to find contact persons in energy industry in Russia who would help identify concrete energy projects in the specified regions. As one of the persons I was in contact with said "This kind of information is not confidential but you have to be familiar with the Russian mentality".

In the long run, all collected data were then classified and a list of potential projects for CTS Engtec was made (Appendix 2). For certain reasons the company decided to keep Appendix 2 confidential.

5 CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

This research has been commissioned by engineering, project management and consulting company CTS Engtec. Key objectives of the research were to describe the factors having influence on CTS Engtec's business opportunities in energy industry of the Northwest Russia, evaluate the company's energy market prospective opportunities in the specified regions and identify concrete potential projects for CTS Engtec in Arkhangelsk, Kaliningrad, Murmansk regions, the Republic of Karelia and the Republic of Komi.

A theoretical framework for the research on a firm's competitive advantage formulation was created based on five main theories: information-based theory, resource-based theory, competence-based theory, Porter's theory and Dunning's eclectic theory. The theories were used to provide a multi-dimensional approach towards the context of a firm's competitive advantage formulation. Namely, internal and external factors influencing a company's business opportunities were discussed and visual aids (e.g. figures, tables) were made to illustrate the factors. Further, for the purpose of the research objectives achievement one element of the created theoretical framework, i.e. locational advantage, was chosen to be characterized in more detail. Therefore, CTS Engtec's locational advantages in Russia as a whole as well as in each of the five specified regions were discussed with profound utilization of qualitative and quantitative data to support the discussion.

When describing the factors influencing CTS Engtec's business opportunities in energy industry of Russia and specifically in each region only reliable information from official sources was used. Since the interest was in prospective opportunities in the energy industry, strategic development programmes of Russia and each region separately were as studied and critically analyzed. Also, existing statistical data (energy consumption indicators, social and economic figures, etc.) were reviewed to help understand the existing and future needs in terms of energy in each region. Along with the description of these factors, evaluation of CTS Engtec's business opportunities was made. Finally, based on the criteria defined in agreement with the company, a list of potential projects for CTS Engtec was compiled. To ensure reliability and validity of the acquired information on the projects, data from the following sources were used: contact persons engaged in energy field of Russia in the

specified regions; regional authorities' official websites; main energy companies' websites in each region; ministries of energy and economic development websites; review of the latest news on energy developments in each region. Classification of the potential projects for CTS Engtec was compiled into a separate Appendix, which for certain reasons was decided to be kept confidential. However, it is important to mention that due to the peculiarities of the Russian culture certain reliability risk still exists. This can be explained with the fact that there may be discrepancies between the positions prescribed in documents (even if they are official) and the real implementation of those positions. This issue could be a matter of further research.

Notable is the fact that the collected from various sources information helped reveal that CTS Engtec has promising locational advantages in Russian energy industry, in particular, in the northwest. Not only there is a legal regulatory base favourable for the company's business in the energy field, also the real need in the regions where energy assets are more than 50% obsolescent, prove the existence of business opportunities for CTS Engtec. Moreover, this need is realized by Russia, that is why cooperation in terms of energy projects with European companies, in particular, Finnish is being and planned to be implemented (Kononenko 2011; Sinervä 2012).

Further research could be carried out in different directions: one option would be to evaluate other components of CTS Engtec's competitive advantage formulation, namely, the ownership advantage and internationalization advantages, thus, creating a full picture of the company's competitive advantage in a foreign market. Another option is to commission a similar research but in a different federal district of Russia. Another possibility is to investigate the same regions in terms of their key industries: business opportunities in pulp and paper, mining and metal industries of CTS Engtec could be identified. Also, focus could be placed on one region with evaluation of all possible business opportunities in it, with regard to the peculiarities of its industrial development. I strongly believe that there are business opportunities for CTS Engtec in Russia, in particular, due to the following reasons: the country is tremendously large and possesses immense natural resources, enrichment of which is connected with efficient industrial facilities which must be planned by a knowing engineering expert. Next, Russia is one of the rapidly developing countries, while majority of its industrial facilities are out-of-date. Finally, from CTS Engtec's side there is a positive country

of origin effect, as well as many years of projects experience in Russia. Finally, evaluation of the company's competitive advantage in any other market could be performed based on the created framework of firm's competitive advantage formulation.

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Appendix 1

CRITERIA FOR CHOOSING A PROJECT/ AN INVESTMENT FOR CTS ENGTEC IN ENERGY INDUSTRY IN NORTHWEST RUSSIA

Projects planned to be implemented in 2012 – 2020 in:

Energy Industry

In the following regions:

Arkhangelsk region

Kaliningrad region

The Republic of Karelia

The Republic of Komi

Murmansk region

Type of investments:

- Greenfield investments
- Brownfield investments
- Refurbishment investments of power plants
- Municipal and industrial investments
- CHP investments
- Electric power plants investments
- Heat power plants
- Biogas investments (municipal, agricultural, industrial)
- Energy efficiency studies
- Energy audits

Appendix 2

Upon the request of CTS Engtec, the company that has commissioned the research, findings of the research presented in Appendix 2 were decided to be kept confidential.