Business Planning: A Key to Energy Efficiency in Russia

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Synopsis:

Innovations in business planning can promote energy efficiency in Russia by attracting financing, increasing the chances of project success and highlighting the benefits of energy efficiency.

Abstract:

Many banks and Western companies would like to invest in energy efficiency projects in Russia, but they find it difficult to offer financial support for the Russian proposals they receive, which may lack key market and financial information. With support from the U.S. Department of Energy, The Pacific Northwest National Laboratory has organized training workshops on writing business plans for energy efficiency projects.

Russian business plans often resemble project proposals — they describe the technical measures to be implemented, and they provide a simple payback analysis of the costs. The most difficult tasks for Russian entrepreneurs include developing a marketing plan, using creative financing techniques, describing the implementation plan in sufficient detail, and providing appropriate information on the organizations involved in the project.

As Russians enhance their business planning skills, their ability to attract financing for energy efficiency projects and successfully implement such projects will increase. Business planning also provides a useful framework for assessing energy projects. In this sense, it can highlight the advantages of energy efficiency and increase the willingness of Russian entrepreneurs to invest in demand-side measures.

1. Introduction

Energy efficiency can help Russia become more economically competitive, it can solve many of Russia's environmental woes, and it can improve the quality of life of ordinary people. Despite these advantages, implementing energy efficiency projects in Russia is often difficult. Bankers and investors state that they have money they would like to spend in Russia on financially solid projects. Project ideas abound: almost every Russian enterprise and city has them. Yet few projects are ultimately financed. The problem in many cases is the lack of quality business plans: Russian businesses have ideas, but their plans are not developed to the point that they ensure financiers of a reasonable return at a reasonable risk.

While planning has long been a part of Russian and Soviet economic life, Russian companies now find that they require new tools in the planning process. Production figures must consider market environment rather than supply capabilities, and financing plans must consider commercial financiers rather than ministries or government planning agencies.

This paper will begin with a brief outline of the history of business planning and a look at previous Russian experiences with planning. It will then summarize the difficulties and successes Russians have experienced by analyzing the trends in the nascent energy efficiency and renewables industry. Examples provided in the paper are drawn from business planning seminars held by the Pacific Northwest National Laboratory for Russian entrepreneurs in the energy efficiency and renewable energy sector.[1]

2. Why Business Plans are Important

Business plans are important in any market economy, but particularly so in a country like Russia where risks are high, macroeconomic problems are pervasive, and managers with experience in a competitive market environment are rare.

While the practice of long-range planning has existed for more than a century in military establishments, planning for businesses in the United States did not expand widely until after the financial crisis of 1929. Planning had already become a distinct management function in many U.S. companies by the 1950.[2] Adapting market analysis, risk management, and other aspects of business plans to energy efficiency projects is, of course, a more recent innovation in the United States. These innovations have been important in raising awareness in the United States about energy efficiency.

2.1 Project Planning and Russia: Background

Russia has maintained one constant throughout the dramatic political and economic changes in its modern history: economic planning has been conducted by the state rather than by individual firms. Beginning in the 19th century, the Russian Ministry of Finance played an active role in Russia's economic development, closely regulating private enterprise, joint stock companies, and infrastructure projects such as mining and railroads.[3]

Gosplan, the state planning agency of the Soviet Union, was created in 1921, partly as a response to a fuel shortages that plagued Russia following the end of its civil war.[4] In 1925, the first full scale national economic plan—"control numbers"—was developed by Gosplan and endorsed by the Communist party.[5] This arrangement continued through the 1980s, as Gosplan would convert party-approved plans into production quotas for specific enterprise that were then issued through memorada.

The first state plan and all subsequent economic plans for enterprises included discussions of financing. For example, the concept of *khozrascheť* or self-financing without support from the state, was espoused by Gosplan beginning in the 1950s. However, enterprises that failed to be self-supporting never faced hard budget constraints or bankruptcy. As a result, industrial management concentrated only on meeting production targets. In effect, the state was the only customer that mattered to enterprises; actual consumers had no effect on a firm's financial well-being.

In the 1970s, issues such as efficiency and quality control emerged in the Russian management literature, but these were still discussed within the context of centralized production parameters. Reformers in the 1980s also called for changes, including more independence for enterprises, calls for attention to consumer demands and more flexible plans.[6] However, issues of consumer demand or pricing continued to remain at the margins of the debates.

Energy management became important in the context of a centrally-planned economy because when high quotas for production in fuel were not met, shortfalls of deliveries to enterprises resulted.[7] In the hierarchical chain of fuel and power consumers, industries outside of the energy and defense sectors fell somewhere in the middle of the chain of demand.[8] Energy managers in the past faced an environment that differed from the current market in two key respects: 1) The acquisition of financing did not involve competing in a general market for capital; and 2) There were no incentives to lower production costs through energy efficiency, since prices for resources and finished output did not reflect true market value.

2.2 Russia's Current Economic and Investment Climate

Russia has undergone profound economic transformation in the last several years. Only a few enterprises were privatized in 1991, but 85% of the economy had been privatized by 1995. Russia is now more "capitalistic" in this sense than Italy. Even heavy industry—metallurgy, machine building, chemicals—has been privatized. This is important for energy efficiency because industry accounts for the majority of energy use in Russia, and heavy industry is particularly energy intensive. Privatization should provide incentives for industrial firms to improve

their energy efficiency. In fact, 11% of all upgrades to industrial plants in 1995 were energy efficiency measures and another 12% of the upgrades were for automation, which can also save energy.[9]

2.2.1 Barriers to Investment

Taxation, non-payments and crime remain serious barriers to investment today.[10] Taxes are a problem in Russia not only because they are so high, but also because tax laws change constantly. Thus tax advisers have a booming business, but average businesses see their costs skyrocket. The Russian profit tax was 35% in 1995, the excess wage tax was also 35% and the value-added tax (which covers most goods and services) was 21.5%.[11] Non-payments reduce the solvency of many companies and significantly increase the commercial risk of all ventures. For example, the first question bankers usually ask regarding power project proposals is "how do you know consumers will pay?" Likewise, energy savings are financially useless if the consumer never paid the energy bill in the first place. Crime is a problem in that many entrepreneurs are scared away from Russian business because of the perceived risks to their personal safety. Organized crime can also scare aware customers or make business very difficult to conduct. Theft can cut into profits and may necessitate costly security measures.

Remnants of the old corporate culture also stunt investment and growth. Most large, privatized enterprises are still very hierarchical, and they have not completely adjusted to working in a market economy. Marketing departments in many formerly state-owned enterprises remain small with few experienced staff. Most enterprise managers are loath to fire workers, but rather withhold their wages, which differs only technically from unemployment. Energy, which can account for more than 50% of an enterprise's costs, often is still treated as though it were cheap. Enterprises can afford to do so because they often do not pay their energy bills. However, the role of these enterprises in the Russian economy is decreasing as new companies and importers gain market share.

2.2.2 Positive Changes

In the past two years, the economic and investment climate in Russia has improved significantly. The Russian stock market sustained higher growth than almost every other stock market in the world in 1996.[12] Russian commercial banks are easing their lending terms, in part because the economic climate is improving, and in part because they are searching for new markets and profit centers as the federal government reduces the yield on government bonds (GKOs). Commercial bank interest rates and 30-day interbank rates have decreased steadily over the past 2 years.

In addition, inflation has also decreased significantly. If current trends are maintained, inflation for 1997 is expected to dip to 12 percent — lower than rates were in the United States and Great Britain in 1980. It should be noted that even if inflation were to rise against expectations, business planning would be no less important for Russian businesses. In fact, planning could actually protect Russian businesses in an inflationary environment by allowing them to assess the viability of their product lines, develop meaningful systems for measuring performance, and plan for adequate cash reservoirs.[13]

In short, financing is becoming a more realistic option for energy efficiency projects, but obtaining it is not easy.

2.3 The Components of a Business Plan

A strong business plan gives a financier confidence that a project is financially attractive, even if conditions change somewhat. The business plan must also demonstrate that the project developer has the skills, experience and ability to implement the project successfully. Specifically, financiers look for the following types of components of a business plan:[14]

(1) a project summary,
(2) a description of the company (its ownership, products, services, market, competition, costs, facilities, staff and the state of its industry),
(3) information on the other sponsors or partners and their roles,
(4) a project implementation plan describing the scope, rationale, benefits and strategy for implementation (a

more detailed feasibility study may also need to be attached),
(5) an explanation of the proposed role of financial institution(s),
(6) planning projections and financial data for the project,
(7) regulatory and environmental information,
(8) proforma financial statements: income statement, balance sheet, cash flow and financial ratios.

2.4 Russian Business Plans

Russian business people usually know that a business plan can help them develop a project and obtain financing, but they may not be aware of the components necessary to adapt their plans to a changed investment environment. Several problems that are often evident in Russian business plans include:

(1) lack of information on markets and competition,
(2) inadequate implementation plans,
(3) lack of contingency plans and sensitivity analyses,
(4) insufficient financial information and projections,
(5) emphasis on production and supply-side energy efficiency measures, with little examination of lucrative end-use energy efficiency potential.

2.4.1. Market Information

Engineers often write business plans for their companies, and their strong knowledge of technologies and products manifests itself, but such plans frequently lack adequate market information. Even enterprise managers with experience in Soviet-era planning lack training in sales and marketing, because the centralized system separated production from distribution. Market information should be at the heart of any business plan, so lack of market information can be a serious problem. One example of this was a business plan proposing a mini-district heating system for a new neighborhood of Samara, a town on the Volga River. The business plan provided hundreds of pages of technical specifications for the new system. Yet the plan only mentioned in passing the fact that the new neighborhood did not yet exist, and that massive financing would be needed to build the new neighborhood.[15] Too little attention was paid to the market; consequently, the plan never got off the ground.

Another example with a happier ending is a business plan prepared by a Russian company called Criocor. Criocor assembles turbines and cryogenic equipment to take advantage of the energy given off when natural gas expands as it enters local distribution systems. The original business plan had little information on the markets for their products. When asked about this, Criocor provided information on their planned production, assuming that this was an adequate substitute. Criocor did, however, spend quite a bit of time marketing its products, and is now a relatively successful company with a well-defined niche.

Russian companies with strong marketing skills and track records of selling their products in market economies are more likely to produce solid marketing plans. Two examples of such companies are Geoterm, which has built geothermal power plants in several countries, and Inset, which produces mini-hydro power plants.

2.4.2. Implementation Plans

Implementation plans help project developers think through and prepare the details of how a project will work in reality. Russian businesses usually do an excellent job of describing the technologies and production facilities they will use to implement a project. However, they may leave out some information, such as descriptions of contracts, staffing, operations and maintenance, raw material supply, and shipping.

Viacheslav Shubin, the deputy mayor of Lytkarino, a suburb of Moscow, participated in the 1995 business plan training seminar in Washington, DC. His implementation plan was sketchy at best. However, when he returned to Russia, Mr. Shubin worked steadfastly to fill in the details of his plan to increase the energy efficiency of the local housing stock. A year later, he had negotiated contracts with several construction companies to install energy efficiency measures in residential buildings in exchange for the right to build and rent additional apartments

on these buildings. The city paid nothing for the measures in this creative deal.[16]

2.4.3 Contingency plans

While contingency plans are usually part of implementation plans, they warrant special attention in a country where conditions change constantly. Russian entrepreneurs, particularly those working for state enterprises, tend to shy away from describing the negative aspects of a plan. Western investors, on the other hand, may find perfectly glowing business plans hard to believe. They often show greater trust and respect for project developers who admit that there are potential problems with their plans, and develop strategies to address these problems should they arise.

Sensitivity analyses help businesses determine the feasibility of their plans even if conditions vary. In this sense, sensitivity analyses are the roots of contingency plans. Due to the centralized nature of contingency planning in Soviet Russia and the static nature of prices, enterprise managers never had to produce sensitivity analyses as a part of their planning data. The only contingency planning at the enterprise level focused on procuring supplies that would allow a factory to meet its production quotas. As a result, few Russian businesses have experience with sensitivity analyses, and few use them in their planning projections.

When business plans do provide sensitivity analyses, they often avoid analyzing unfavorable scenarios. An example of this is Geoterm's original business plan for a geothermal power plant in Kamchatka. While the business plan was good as a whole, the sensitivity analyses of changing electricity prices did not address the potential that electricity prices might fall. It is true that when the plan was written, electricity prices seemed to have no limit, but recently, some regions have actually experienced falling electricity prices. The original plan did get Geoterm in a banker's door, and it was then revised with feasibility study funding from the European Bank for Reconstruction and Development.[17]

Despite the lack of written contingency plans, most Russian businesses are accustomed to working in a constantly changing environment, and to handling unexpected difficulties. Advanced planning, however, could help these businesses avoid problems, or resolve them more expediently when they do occur.

2.4.4. Financial Information and Projections

Financial information on a company is crucial for a financier to understand its financial health and ability to repay debts. This is particularly so in Russia because no standardized credit ratings exist. Even public companies have much more lenient reporting rules than public companies in the West, and most private companies in Russia are traded over the counter, so their reporting requirements are less stringent still. Thus the information in a business plan and its attachments is usually the most complete information to which a financier has access. When the financial information in a business plan is missing or incomplete, a financier has little to go by, and most likely will dismiss the business plan. Providing this information, on the other hand, builds trust.

Russian companies may avoid handing out their financial data for a variety of reasons. The Russian accounting system differs significantly from the Western one, making it tedious to convert numbers into a format that is easily understood by Westerners. For example, Russian tax laws do not require accruals, only expenses actually made. Many Russian companies have two sets of accounting books—one for the tax authorities, and one of their real financial situation. They may also be hesitant to share the real books with outsiders because of the potential tax and legal ramifications, and because of their fear that the scent of money will bring the mafia to their door.

While Russian companies which conceal financial data may extract short-term tax gains, ultimately they are cutting themselves off from potential investment. The boom in the Russian stock market has concentrated on the stocks of a few Russian companies with books audited by Western firms for two to three years.

A related problem is the lack of financial projections for a project or investment. Under the Soviet regime, Russian enterprises would calculate the simple payback for all investments. With inflation officially denied and most investments coming from the government, simple pay back calculations were sufficient. Such calculations, how-

ever, do not paint a clear picture when inflation is high and the cost of capital even higher. Lack of financial projections may also make it difficult for a Russian company to assess its ability to pay for a project, either up front or through loan payments.

The chemical manufacturer Polimer falls into this category. The company conducted engineering studies to determine how to improve its energy use and waste water treatment, and at the same time cut operating costs. Based on these studies, Polimer decided to purchase Western steam traps.[18] It negotiated with a Western steam trap manufacturer to the point where the steam traps were ready at the Russian border, awaiting pre-payment. At this point the deal fell through because Polimer had miscalculated its ability to pay for the steam traps up front. Polimer could not send the money, and both sides walked away from the deal after having spent considerable time and effort in arranging it.

2.4.5. Emphasis on Supply-Side Measur es

Most Russian ideas for energy-sector projects focus on the supply side. Even energy efficiency projects are usually related to efficient new supply, or rehabilitating old plants. While such supply-side measures may make sense, Russians often fail to consider the potential for end-use savings, even when end-use measures are more cost effective. The root of this supply-side focus is in the old regime, when production was king and consumption a necessity with unpleasant bourgeois undertones. It is this view that made the former Soviet Union one of the most energy-intensive regions of the world, with some of the least efficient industrial and residential facilities.
The list of Russian supply-side project ideas is very long indeed, and few of the developers of these projects have even considered demand-side energy efficiency as an alternative for meeting the energy needs of an area or a facility. One power project in southern Russia is of particular note. The Russian Government partially funded the construction of a new gas turbine power plant in Piatigorsk; the project developers, a consortium of Russian energy companies, took on debt to pay for the rest. Problems arose, government checks stopped coming, construction was halted, and now the project developers are looking for new financing to complete the project. However, two major problems stand in their way. First, the project developers have defaulted on their existing debts, so investors and banks are staying away. Second, the plant is located in southern Russia, relatively near Chechnya. The project developers claim the plant is in no danger, but Western investors have been scared by the fact that the plant is within approximately 125 kilometers of the war-torn region, particularly because Chechen fighters have targeted power plants in the past. The region this cogeneration plant would serve has a power deficit. Despite the large energy efficiency potential in the area, the project developers have not considered tapping it.[19]

Regional governments, however, are beginning to understand the benefits of energy efficiency. Their pleas for federal funding for new power and district heating plants have brought little money since the breakup of the Soviet Union. Regional and city governments are responsible for a large portion of energy costs because they subsidize prices to make residential energy bills affordable. As a result, several cities have begun to look seriously at energy efficiency as a means of reducing the financial burden of the subsidies on their budgets. Two prime examples of this approach are Cheliabinsk Region and the City of Kostroma.

Cheliabinsk Region has proposed a new circulating fluidized bed (CFB) power plant which would supply excess demand. Cheliabinsk officials saw this as an energy efficiency project in that the new plant would be more efficient than most existing capacity. It is interesting to note that the business plan was prepared by a German company, Agiplan, although the Cheliabinsk Region funded it.[11] Regional officials also entertained the idea of end-use energy efficiency and increasing the efficiency of the district heating distribution system.[20] Viacheslav Galanov, deputy head of the Cheliabinsk regional energy savings fund, participated in a business plan training seminar in Washington, DC in 1995. He tried to sell the CFB power plant proposal to several financiers, but was repeatedly told the project had problems. Several government and banking officials expressed greater interest in some of his less-developed ideas for demand-side energy efficiency projects.

The Cheliabinsk region had been working with the Russian Center for Energy Efficiency (CENEf) on regional energy policy. After Galanov's return to Russia, the U.S. Department of Energy provided project development funding for a project to increase the efficiency of the district heating system, focusing on pipeline and substation

losses. Cheliabinsk officials are also considering other energy efficiency projects, such as energy efficiency measures in hospital buildings.

Kostroma is another positive example of what can happen when local officials realize that energy efficiency is less expensive for them than building new energy plants. Federal nuclear officials were planning to complete construction of a nuclear plant in Kostroma, which the people of Kostroma opposed in a binding referendum in 1996. This is the only time in Russian history local people were able to reject a nuclear power plant at the ballot.[21] At the same time that federal officials were considering completing the nuclear power plant, local officials were developing energy efficiency projects. CENEf has recently begun working with Kostroma to develop a business plan for district heating efficiency.

3. Business Plan Assistance

Understanding how to develop a business plan usually takes training and experience, and increasingly, Russian businesses are mastering these skills. New, private companies in particular tend to attract entrepreneurs with strong business skills. Such entrepreneurs are successful because of their understanding of the market, so it is not surprising that they have a good sense of what will work in a market environment and know how to express this in a business plan.

3.1 Business plan training

In an effort to help Russian businesses and local governments understand the potential for energy efficiency and obtain financing for energy efficiency projects, the Pacific Northwest National Laboratory (PNNL) has organized a series of DOE-sponsored seminars on business planning. PNNL selected participants with promising business plans in the areas of energy efficiency and renewable energy. The participants were brought to Washington, D.C. for training in business planning and finance, using their existing business plans as the basis of their training. PNNL also invited bankers, investors and representatives of U.S. companies to meet with the Russian participants. These meetings introduced the Russians to individuals who could potentially help them finance their projects. They also helped the Russians understand the requirements and criteria of financiers, so that the Russians might improve their business plans. PNNL has also worked individually with several Russian business people and government officials to provide advice and assistance in writing business plans. Most of the projects described above were associated this work, or with related work that PNNL is conducting with CENEf.

3.2 District heating projects

Russian cities face tremendous financial problems because of the energy subsidies they pay. While reducing these subsidies will be the ultimate solution to this problem, for now, most residents cannot afford to pay the full cost of their utilities, primarily district heat. They have no way to control the district heat which is supplied to them; even if they insulate their apartments, their heating bills will remain the same because the bills are based on residential space, and not heat consumption. However, if cities continue to pay heat subsidies at the rate they are now paying, most will be bankrupt by the time the subsidies are eliminated.

In addition, approximately half of the heat which is produced, and for which the residents and cities pay, is lost in the pipelines and substations. CENEf and PNNL are now working on a DOE-sponsored project to write business plans for district heating efficiency measures and to structure financing for these projects.

4. Conclusions

Business planning is a key to energy efficiency in Russia because it address three of the problems which have plagued energy efficiency initiatives in Russia in the past: (1) lack of financing, (2) unsuccessful implementation, (3) lack of understanding of the benefits. Most ideas for energy efficiency projects never come to fruition because

the project developers do not have enough capital on hand to implement them, and they cannot attract financing to support the ideas.

A comprehensive business plan is a powerful tool which project developers can use to convince financiers of a project's merit. It requires project developers to think about the details of project implementation, to uncover potential problems, and to produce contingency plans. A good business plan will serve as a road map, outlining how goods and services will be procured, who will be responsible for various aspects of the project, and when each step of a project is to take place. Advanced planning and proactive problem solving do not guarantee success, but they certainly help. While a business plan alone is not enough to obtain financing, few sizeable projects are financed without business plans. This is increasingly true in Russia, where the supply of financing does not come close to matching the demand.

Business planning can also have a profound impact on the way organizations use energy. Energy managers are still concerned with ensuring a steady supply of energy for their enterprises, but now they and their supervisors must also worry about how to pay for their fuel and power. The planning process forces managers to scrutinize their costs and business operations, and the success of energy efficiency relies on such scrutiny.

As Russian business planning expands to encompass market research and commercial financing, increased energy efficiency is likely to follow.

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Endnotes

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2. Cleland, pp. 1, 13

3. See Anan'ich.
4. Zambatova, p. 35.

5. Interestingly, initial plans were developed with support from foreign management experts, including Americans (see Merkle, p. 122)

6. Zambatova, p. 140; Zamakh, p. 5.

7. Yadzov, p. 62.

8. Ibid., p. 82.

9. *Russian Economic Trends*. 1995. 4(2): 102.

10. Braverman, p. 11; Quillin, pp. 2-3, 5-9.

11. *Russian Economic Trends*. 1995. 4(3): 39, 83.

12. O'Sullivan, p.5; *Russian Economic Trends*, 1996. 5(2): 128.
13. Bace, pp. 31-32.

14. Mikelonis, p. 133; Economic Commission for Europe, pp. 34-37; Tanega, Chapter 6, pp.1-5.

15. AO Energoperspektiva, *Annotated Business Plan*; AO Energoperspektiva, *Feasibility Indicators*...

16. Conversation with Viacheslav Shubin, Deputy Mayor of Lytkarino, October 1995.

17. Conversations with Grigory Tomarov, Director of Geoterm-M, in July and September 1995 and May 1996.

18. Letter from Evgeny Panov, General director of Polimer, to Igor Bashmakov, Executive Director of CENEf, April 18, 1995.

19. Gasenergo Joint Stock Company; Conversations with Valery Morev, Executive Director of Energoinvest, Inc., in May and September 1996.

20. Agiplan.

21. Evans, pp. 10-23.

22. Memo from Lydia Popova, Executive Director of the Socio-Ecological Union, to William U. Chandler, December 16, 1996; Greenpeace Press Release dated December 9, 1996.

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