

INNOVATION MANAGEMENT, ENTREPRENEURSHIP AND SUSTAINABILITY 2019

Proceedings of the 7th International Conference



FORECAST OF INVESTMENT FINANCING IN RUSSIA IN TERMS OF FUNDING SOURCES

VALENTINA EDRONOVA – DARIA MASLAKOVA..... 173

SOCIAL INNOVATIONS IN THE CULTURAL FIELD: AN ESSAY

DANIEL ERICSSON..... 183

DIGITAL PAYMENTS – HOW NEW TECHNOLOGIES DISRUPT MONEY TRANSFER SYSTEMS IN AFRICA

KENZIE K. FERGUSON – MICHAEL NEUBERT 195

GENDER PAY GAP IN THE STATE ADMINISTRATION OF THE CZECH REPUBLIC

MICHAEL FORMAN..... 208

VALUE CREATION THROUGH DIGITAL TECHNOLOGIES IN PRODUCT DEVELOPMENT ON RUSSIAN TELECOMMUNICATIONS MARKETS

VALENTINA GERASIMENKO 220

TRANSFORMATION OF BUSINESS MODEL OF GENERATING COMPANIES IN RUSSIAN ENERGY SECTOR

MARIA GORGISHELI – IRINA VOLKOVA – ANNA YAKOVLEVA..... 229

NASCENT ENTREPRENEURS’ BUSINESS PROPOSALS QUALITIES AND THEIR RELATIONSHIP TO FINANCIAL INDICATORS WHEN APPLYING FOR ANGEL INVESTMENT

ROBERT HANÁK..... 242

TRANSFORMATION OF BUSINESS MODEL OF GENERATING COMPANIES IN RUSSIAN ENERGY SECTOR

Maria Gorgisheli – Irina Volkova – Anna Yakovleva

Abstract

Purpose: The paper aims at creation of an effective business model of global generating companies performing on Russian market and to develop a transformation plan of business for one of these companies.

Design/methodology/approach: The face-to-face interviews with Russian senior management of foreign generating companies were conducted to define the strategic development directions and the key characteristics of target business model. The literature review enables to systematize knowledge about the challenges of both global and Russian energy market and of the energy companies' strategic initiatives. The analysis assisted to incorporate innovative elements into new business model of generating companies and to determine the stages of its transformation, taking one of these companies as an example.

Findings: Generating companies' performance is influenced by Russian energy market institutional features. The key directions for companies' development are to increase the share of generating capacity working on RES and to diversify activities. According to these findings, the target business model was created and the scalable plan of refined business model adaptation in a particular generating company was suggested.

Research/practical implications: The findings of the paper appear in elaboration of the methodological approach towards the transformation of foreign generating companies' business models on Russian market. Strategic vision of market evolution and key characteristics of business activities will let managers create state-of-the-art business model. Adoption of the model in diverse foreign generating companies accumulates the data about the challenges of this process. This fact might give the ground for future research in this field.

Originality/value: Review of the differences between foreign generating companies' business model in both global and Russian energy sectors. New business model including renewed elements of Russian generating companies and a plan for business model adaptation.

Keywords: Business Model, Energy Sector, Generating Company

JEL Codes: M10, O30, Q42

Introduction

Global trends in power sector development evoke companies to be on the cutting edge of emerging technologies, new business models (further - BM) and approaches to the energy sphere enhancement. Consequently, companies operating both globally and locally have to transform their managerial practices to meet the contemporary requirements. One of the core tools – a subject to change – is a BM of the power industry company. Specifically, BM defines the way of company performance and of interaction with market. That is why compliance of energy companies' BM to current world trends may become essential for studying. On the assumption of mentioned above, the authors consider innovative BM creation as a prospective field of the research. Hence, the purpose of the paper is to elaborate a renewed BM corresponding to contemporary trends and to propose the scalable plan of the one of the Russian energy companies' BM transformation. The aim of the research might be accomplished through the fulfillment of the following tasks: 1) energy market analysis; 2) academic papers review and deep interviews with representatives of Russian energy generating companies; 3) creation of renewed BM 4) suggestion of a mechanism which might assist to adapt an innovative BM in the case of Enel Russia.

1 Influence of Russian Power Industry Imperfections on the Strategy of Foreign Generating Companies

The global energy market is characterised by an active transformation and an established liaison change between its participants (Ellabban, 2014). Advanced technologies influence necessary background for new environment creation where participants play new roles. All told evoke formation of renewed power sector paradigm (see Table 1).

Tab. 1: Characteristics of Dominated and Forming Paradigms of Power Sector Development.

	Dominated paradigm	Forming paradigm
Sources of energy production	Fossil fuels are the base of power sector	Green energy. Decentralization of energy generation
Energy companies	Vertically integrated companies, which have high installed capacity and own deposits	Decentralized market, private investments. Predominance of private companies, which have diversified structure and partnership network with IT companies
Network infrastructure	Centralized system of electric grid management	Digitalization and intellectualization of energy system. Development of smart grids
Customer role	Unidirectional power flow (from generating company to consumer). Passive role of consumer	Proactive behaviour of consumers. Forming trends by consumers
Efficiency of energy use	Simultaneity of electric power production and consumption	Development of systems of energy storage. Increase in efficiency of energy using
Distribution of electrification	Use fossil fuels in different industries	Active process of electrification in different industries

Source: Kniahinin&Kholkin (2017)

Due to institutional flexibility of European markets and of BM relevant to new dynamic environment, the global energy companies can sustain current competitiveness level and respond to the market challenges in time. Such companies diversify businesses, implement new technological decisions and develop strategic partnerships with IT companies, equipment suppliers etc.

Russian power industry imperfections are characterized by lack of wholesale and retail market competition, by ineffective industry support programmes (including development of renewable energy sources - further RES), by infrastructure obsolescence influencing the energy companies' performance (Gitelman, 2014). These Russian electricity market particular features force companies - parts of global groups - to develop renewed BM. A few examples of international companies' new BM adaptation are presented below.

“E.On” is one of the leading global companies performing on Russian market. It was a pioneer in transformation of its BM towards RES. “E.On” delegated fuel resource extraction; traditional resources energy generation and energy delivery to its subsidiary “Uniper”. A shift to the model “Internet of energy” was done by “E.On” properly (Kniahinin&Kholkin, 2017). Similar approach to transformation was implemented by particular case of German company “RWE“. Unlike “E.On“ kept traditional production and its subsidiary “Innogy“ involved in

innovation activities. An illustrative example of “Enel Group“: in 2017 “Enel“ and “E.On“ were the first companies which sold energy using blockchain technology.

Detailed analysis of these companies’ annual reports and another available information helps to discover company’s limited growth, despite the efforts to „nurture“ innovation. To prove this fact we compared the strategic responses of aforementioned companies to global challenges on both world and Russian market. for each challenge the possible responses are applied by different international companies were determined. The results are shown in Table 2.

Tab. 2: Energy Companies Responses to Global Challenges.

Type of Challenge	Global Companies Response	Enel		EDF		E.On		Fortum	
		W	R	W	R	W	R	W	R
Decrease of traditional energy sector efficiency	- Internationalization	+		+		+		+	
	- Diversification (electromobility)	+	+	+		+		+	
Downsize of CO2 emissions.	- Nuclear energy projects			+	+			+	
	- RES projects	+	+	+		+		+	+
Rise of renewable energy	- Solar energy development	+		+		+		+	+
	- Wind energy development	+	+	+		+		+	+
	- Geothermal energy development	+		+				+	
Digitalization of energy system (on the base of Internet of energy)	- Strategic partnerships with IT companies	+		+	+	+	+	+	+
	- Use blockchain technology	+		+		+			
	- Demand management services, smart grid	+	+	+	+			+	
Decentralized energy development	- Construction of efficient power plants of different capacity for industrial consumers			+	+				
	- Solar panels for households	+				+		+	

Source: Authors’ contribution * W - World, R – Russia

2 The Theoretical and Methodological Background

Due to transformation of Russian energy market maintaining of foreign generating companies’ competitive market position supported by appropriate BM becomes crucial. Despite the wide diffusion of the term “BM” in business and academic spheres, it is still interpreted in very different ways (Zott et al., 2011). In this paper we will use definition of Osterwalder and Pigneur because it reflects the main idea of BM: “the rationale of how an organization creates, delivers and captures value” (Osterwalder & Pigneur, 2010). There is plenty of other “BM” interpretations, however “the BM canvas” of A. Osterwalder is the most appropriate for generating company (Meier, 2014) and for purpose of our analysis.

Innovations in energy companies’ BM are in focus of the researchers. New energy paradigm destroys the old market structure and creates a lot of value propositions that majority of companies miss (Hall & Roelich, 2016). Renewed BM assists to respond the new market

challenges. However, the conditions for BM adaptation in developed and developing countries are different: significant barriers and restrictions in deve

loping countries adversely affect the development of generating companies' business (Engelken et al., 2016).

In order to identify the most vulnerable areas of BM of international energy groups Russian subsidiaries and the directions of companies' strategic development, the authors conducted a comprehensive study, including:

1. Analysis of theoretical and empirical works concerning the Russian electricity market, its problems and trends.

2. Studying of companies' freely available statements and reports, investors information.

3. Conducting a series of face-to-face interviews with the senior management of Enel Russia, EDF, Fortum, UniPro (Feb-Apr., 2018). The respondents were responsible for strategic and innovation management decisions, for transformation of internal business processes; in charge with industry regulation and communication with public authorities. The topics of interviews covered the following areas: retention of companies from the developing trends in Russian electricity market; priority areas of development; characteristics of the target BM, fundamental structural changes for the transition to the target BM.

4. Elaboration of target BM based on the data obtained during interviews with representatives of energy companies and on the literature analysis.

5. Development of a transformation plan of existing BM into new one in case of Enel Russia.

3 Description of Key Characteristics of Target BM

According to Russian power market development forecasts (Proskuryakova & Ermolenko, 2017) and interviewees' statements, foreign energy companies have two potential ways of growth strategy development in Russia. The first one that corresponds with the global decarbonization trend is to increase the share of generating capacity working on RES. As in other developing countries (Engelken et al., 2016) in Russia solar and wind energy are the most relevant and affordable types of RES. Some of the surveyed companies have already begun to transform their business to this direction.

For example, in 2017 the “Fortum” acquired 3 solar plants, manufactured by “Hevel” (MOEX Report, 2017). “Hevel” is a company manufacturing solar modules, build solar plants, provides the ready decision for households. Speaking about wind energy production, recently some tenders were held for construction of wind parks. In 2017 “Fortum” together with state corporation “Rusnano” acquired permission of wind plant construction. “Enel Russia” PJSC won tender for two wind parks construction in Rostov and Murmansk area (Official website of company).

The second strategy, according to respondents, is to diversify the activities of the generating company. It contains development of intelligent solutions for the market: demand management programs and energy storage systems, in particular (Kniahinin & Kholkin, 2017). In case of the diversifying strategy implementation the key factor of the strategy success might be formation of strategic partnerships with leading energy companies or with IT firms; development of companies’ own unit responsible for technology developments as well.

From the perspective of the mentioned above and considering necessity to create BM with new value propositions (Hall & Roelich, 2016), we suggest the following elements of renewed target BM of generating companies (see Table 4).

Tab. 3: Key Characteristics of Target BM of Generating Companies.

Element of a BM	Key features
Key Partners	<ul style="list-style-type: none"> - Strategic alliances with IT companies - Wide network of fuel suppliers. - Partnership networks with research centers and universities
Key Activities	<ul style="list-style-type: none"> - Main activity is the electricity generation with using of RES. - Additional - programs of demand management and systems of energy storage
Key Resources	<ul style="list-style-type: none"> - Power plants which operate on different types of fuel. - High-qualified employees (especially IT specialists).
Value Propositions	<ul style="list-style-type: none"> - High level of quality and safety - Client orientation (the fast reaction to demand changes)
Customer Relationships	<ul style="list-style-type: none"> - Adaptation to customer needs and wide range of provided services - Customer satisfaction control system
Channels	<ul style="list-style-type: none"> - Wholesale Electricity Market, thermal energy is sold on regional markets - Official website - Technological segment of Russian power market
Customer Segments	<ul style="list-style-type: none"> - Participants of Wholesale Electricity Market - Consumers of thermal energy - Consumers of technological solutions are participants of Russian power market segments
Cost Structure	<ul style="list-style-type: none"> - Rise in development costs and R&D costs - Lower fuel costs - Optimization program of various departments
Revenue Streams	<ul style="list-style-type: none"> - Sale of electricity and capacity on the Wholesale Electricity Market - Subsidizing the generation of electricity based on RES via the "green" tariff - Income from sale of technological solutions for energy market

Source: authors' contribution

It is worth to mention that characteristics presented in the table are rather aggregative and optional. Target BM by its nature is the general guidelines, which need to be corrected according to generating company request. All in all, we determine the following differences between current and target BM:

- Key resources will be delivered by natural gas and RES plants. This mechanism will give the opportunity to manufacture green energy and to balance the costs of fuel.
- Companies' R&D departments and mutual partnerships may present new technological decisions on the energy market. This leads to coverage of a new consumer segment and to customer-oriented approach development.
- Despite the increased costs and investments in new activities, cash flow might grow as well.

4 Application of the Targeted BM in the Case of Enel Russia

One of the generating companies appropriate for the proposed BM application - JPSC Enel Russia might be considered as an example of the case study. This company represents part of the international Enel Group and therefore is most committed to taking advantage of new market opportunities. According to the global vector of development, the basis of its activities should be creation of affordable energy and new technological solutions for energy sector.

The announced Mission 2025 demonstrates certain areas of the company's development: Opening up access to energy, Opening up new technologies for energy, Opening up new technologies in household energy management and Openness to new partnerships, achieving sustainability through innovation (Official website of the company).

The company has already launched transformation of its BM to the renewable one by the following steps:

- planned sale of Reftinskaya GRES, which operates on coal and has a high percentage of depreciation of production assets,
- construction of two wind parks in Russia after participation in the state competition.

Besides the positive trends, the company has a number of problems that have sufficient impact on its competitiveness. The authors of the paper analyzed existing problems under the lens of the proposed elements of new BM (Table 5).

Tab. 4: The Inconsistency Between Enel Russia’s Current BM and the Future Conditions of Russian Electricity Market.

Element of a BM	Gaps with the Future Conditions of the Russian Power Market
Key Partners	- Weak partnership networks with IT companies, research centers
Key Activities	- Business is not diversified - Low level of R&D
Key Resources	- Power plants use natural gas and coal - Lack of IT specialists
Value Propositions	- No additional customer services and technologies - Weak response to the decarbonization trend
Customer Relationships	- Low client orientation - No customer satisfaction control system
Channels	- The site of the company is uninformative - Not present on the market of related services and energy technologies
Customer Segments	- Needs of consumers of intelligent energy solutions are not met
Cost Structure	- No decisive actions to reduce fuel costs - Low R&D costs
Revenue Streams	- Cash flows are not diversified

Source: authors’ contribution

5 Mechanism for Enel Russia’s BM Transformation

Transition of Enel Russia companies from the traditional BM to the target one includes two areas identified earlier: power generation based on wind energy and development of intelligent solutions for the market.

Considering the first strategic direction of development, the company has already implemented some of BM elements. It is crucial to note that in spring 2018 (the period when the research was conducted), the company only won the tender for the construction of wind parks and carried out preliminary organizational actions. By the moment of current paper preparation of one of the wind parks of Enel Russia is already under construction. In future the company needs to reorganize many of its business processes so the integration of new generating capacity was completed successfully. We present a detailed transition plan (based on research motives, we consider only an example of one Park construction). We marked the stages that have already been implemented, as well (see Table 7).

Another direction of transition is associated with the activities of energy storage systems and of technologies in smart energy systems development. Such companies’ strategic vector is

merely a plan, supposed to be implemented in the cooperation with PJSC Rosseti and other foreign partners. The transition plan is shown in the Table 8. Sophisticated R&D Department and a large technology companies partner network will make companies to develop and to implement demand management programs and energy storage systems. This, in turn, will provide an opportunity to increase customer focus and get a new consumer segment.

Tab. 5: Adaptation Plan of Enel Russia’s BM in Transition to Wind Power Electricity Generation Performance

Main steps	Changing Elements of BM	Status
Stage 1 (2016-2018)		
<ul style="list-style-type: none"> • Working Group Formation • Solving of legal issues regarding building of a wind park • Partnership building with equipment supplier (Siemens Gamesa) • Taking part in the tender of wind park building 	<ul style="list-style-type: none"> • Key Partners • Cost Structure • Value Propositions 	All steps are completed
Stage 2 (2018-2021)		
<ul style="list-style-type: none"> • Creation of Department of Renewable Energy • Partnership building with subjects of a WEM • Completion of wind park building 	<ul style="list-style-type: none"> • Key Resources • Key Partners • Revenue Streams • Customer Relationships • Cost Structure • Value Propositions 	<ul style="list-style-type: none"> • In planning • In progress • In progress (preparatory phase is completed)
Stage 3 (2021-2023)		
<ul style="list-style-type: none"> • Creation of communication channels between RE Department and R&D Department • Development of cooperation with the authorities • Development of energy market players partnerships 	<ul style="list-style-type: none"> • Key Partners • Cost Structure • Value Propositions 	All steps are in planning

Source: Authors’ contribution

Tab. 6: Adaptation Plan of Enel Russia’s BM in Transition to Intellectual Energy Market Performance

Main steps	Changing Elements of BM	Status
Stage 1 (2019-2020)		
<ul style="list-style-type: none"> Transformation of IT Department Searching of highly qualified staff by HR Department Increase in R&D investments 	<ul style="list-style-type: none"> Key Resources Cost Structure Value Propositions 	<ul style="list-style-type: none"> In progress In progress (company has collaboration programmes with universities) In progress (new development programme)
Stage 2 (2021-2022)		
<ul style="list-style-type: none"> Integration with Enel Group R&D Department Partnership building with IT companies Development of own projects in intellectual energy 	All BM elements will be changed	All steps are recommended
Stage 3 (2022-2024)		
<ul style="list-style-type: none"> Creation of new R&D department based on the previous one Development of partnerships with IT-companies and energy market players Taking part in the programs of energy market digitalization 	<ul style="list-style-type: none"> Key Partners Key Resources Cost Structure Value Propositions 	All steps are recommended

Source: Authors’ contribution

Conclusion

Russian energy sector imperfections impede development of foreign generating companies. Their business model in Russian market has a lot of weaknesses, including fossil fuel power stations, weak partnership networks with IT companies and low client orientation, which will be crucial in the nearest perspective. Impart with the literature analysis and with the results of interviews the authors systematized the key characteristics of renewed target BM. Such new features as the expanding of partnerships with other market participants, customer approach development and business diversification were added to the renewed BM. Use of RES, start of generating companies own R&D department and partnerships for making innovative technological decisions were revealed as valuable managerial practices as well.

The target BM possible implementation was shown using the example of Enel Russia. Today company has made significant progress towards using the wind energy. The author’s adaptation plans can be scalable and be used by other companies. But it is important to say that our target BM has some limitations for implementation. First of all, the applicability of this BM

is limited to the context of Russian market and its institutional landscape. Also it does not appropriate for vertically integrated companies with diversified business because of their organizational features and wide range of activities. Additionally, the suggested BM cannot be used by energy companies which operate in specific technological areas of energy sectors as that BM suppose the availability of traditional energy generating business.

Future research could focus on adaptation of global energy trends on Russian market and their influence on generating companies' BM. It is important to define new directions of energy companies' strategic development and key characteristics of a new target BM.

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