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Model of the impact of legal regulations on management processes in power companies

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Abstract

The Polish energy sector is affected by a number of formal and legal regulations, both national and European Union. Energy companies are compelled to comply with the formal and legal regulations imposed by the legislator. Distribution companies and trading companies are adjusting to their requirements. There is therefore a need for a model for assessing the impact of individual regulations on companies belonging to this sector. The paper presents the proposal of the impact model of regulations on management processes in energy companies. A review of selected legal and regulatory regulations resulting from the Energy Law, which affects energy companies, was conducted. In addition, maps of management processes in energy companies were presented before and after the introduction of the TPA principle. Obtained research results were verified by means of a questionnaire.

Keywords: management, power industry, regulation

Introduction

Nowadays, the vast majority of socio-economic activities are subject to formal and legal regulations. The power sector is one of the most regulated economic sectors. There are strong, interrelationships between regulation and power engineering, and for this reason formal and legal regulations and power engineering are increasingly associated with each other. Problems related to the impact of regulations on management processes in energy enterprises are extremely important and current, as evidenced by the extensive and varied literature on the subject (Kahn, 1991) (Nijsen, Origin and Functionalities of Regulation, 2009) (Nijsen, SCM to Measure Compliance Costs, 2009) (Ogus, 2004) (Administration, 2000) (Frick, 2009) (Tirole, 2012) (Sokołowski, 2013) (Jaskow and Noll, 2014) (Nagaj, 2006).

For the purposes of the article, the definition of formal and legal regulations in the power sector was adopted as a process involving the use in economic practice of specific economic policy tools of the state or local authorities to stimulate and control the expected behavior of power sector

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entities. The desired behavior of business entities is, above all, balancing the interests of power companies and consumers of fuels and energy, development of competition, counteracting the negative effects of natural monopolies, ensuring energy security, economical and rational use of fuels and energy, taking into account environmental protection requirements and obligations arising from international agreements (Law Act of 10 April 1997)

The power sector is regulated in a special way in almost every country, especially in the European Union member states and the USA. The scope and structure of regulations in each country is different. In Poland, formal and legal regulations in the field of energy are dealt with by the Energy Regulatory Office, which is the central body of government administration established under the Energy Law of April 10, 1997, as amended from 2012, item 1059, from 2013 item 984 and item 1238, from 2014 item 457, item 490, item 900, item 942, item 101 and item 1662 and from 2015 item 151, item 478 and item 942. The duties and competences of the President of the Energy Regulatory Office are closely related to the state policy in the field of energy, i.e. the economic conditions for the functioning of power companies, the concept of market functioning and the requirements arising from the obligation to adapt Polish law to European Union law (Law Act of 10 April 1997)

In order to secure public interests, the Polish state applies various formal and legal regulations to power companies (i.e. Third Party Access, Unbundling, price regulation). These regulations oblige us to take or avoid certain actions and to act in a certain way. In the era of growing competition, the most important goal of electricity trading companies and distribution system operators is the ability to effectively acquire customers and reduce costs. To achieve these goals, companies must act pro-quality, be guided by customer needs and the satisfaction of members of the organization and society, which involves both benefits and costs (compliance costs). (Kott and Kott, 2018)

The model for assessing the impact of regulations on management processes in power companies

The article presents a tool for determining the impact of formal and legal regulations on management processes in distribution companies and electricity trading companies. This tool is a model of regulatory impact on management processes in power companies - Figure 1.

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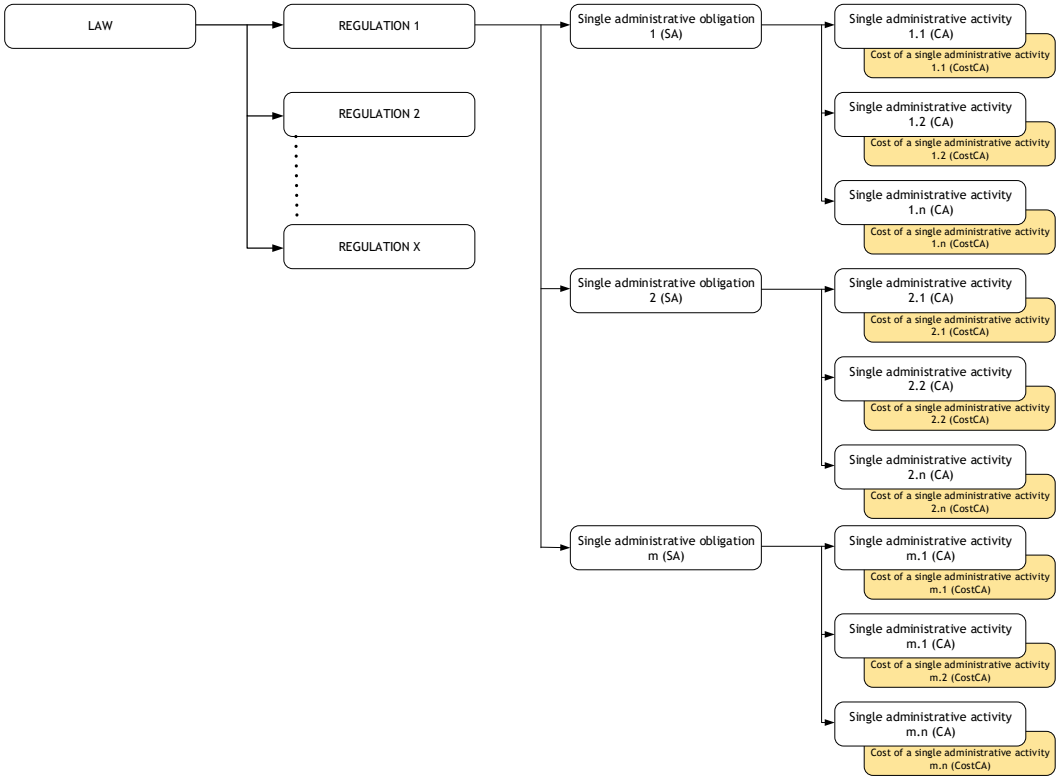

Fig. 1. Model for assessing the impact of regulation on management processes in power companies.

The model for assessing the impact of regulations on management processes in power companies was developed on the basis of the Standard Cost Model. This model is used to measure administrative burdens resulting from regulation, using four factors (Platchkov i Pollitt, 2011) (van Paridon i Jhagroe, 2009):

- the frequency of performing the administrative obligation during the year,
- the duration of the undertaking's administrative obligation,
- costs of performing the obligation by employees,
- number of companies obliged to perform this obligation.

The first step leading to determining the impact of regulations on management processes in power companies was an in-depth analysis of legal acts affecting the energy market in Poland. From among many legal documents having a broad impact on this sector, the Energy Law of April 10, 1997 was amended, as amended Of Laws of 2012, item 1059, from 2013 item 984 and item 1238, from 2014 item 457, item 490, item 900, item. 942, item 1101 and item 1662 and from 2015 item 151, item 478 and item 942. This Act reflects the formal and legal regulations contained in Directive 2009/72 / EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54 / EC. The choice of law was made on the basis of the number of regulations affecting distribution companies and electricity trading companies, their impact on the functioning of power companies and the number of administrative obligations arising from a given legal and institutional regulation (Law Act of 10 April 1997)(Directive 2009/72 / EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive

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2003/54 / EC) (Directive 2003/54 / EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92 / EC) (Act of 15 April 2011 on energy efficiency (Journal of Laws 2011 No. 94 item 551) (Act of 12 January 2007 amending the Energy Law, environmental protection law and the conformity assessment system (Journal of Laws of 2007 No. 21 item 124) (Act of 15 April 2011 amending the act on the conformity assessment system and some other acts (Journal of Laws of 2011, No. 102, item 586) (Accounting Act of September 29, 1994 (Journal of Laws 1994 No. 121 item 591) (Regulation of the Minister of Economy of 4 May 2007 on detailed conditions for the operation of the power system (Journal of Laws No. 93, item 623) (Act of 5 August 2010 on the protection of classified information (Journal of Laws 2010 No. 182 item 1228) (Act of 27 April 2001 on environmental protection) (Act of 4 July 2019 amending the act on tax on goods and services and some other acts (Journal of Laws of 2019, item 1520) (Act of 19 July 2019 amending the act on renewable energy sources and certain other acts (Journal of Laws of 2019, item 1524) (Act of 19 July 2019 amending the act on the road and rail monitoring system for the carriage of goods and certain other acts (Journal of Laws of 2019, item 1556) (Act of 9 June 2011 - Geological and mining law (Journal of Laws 2011 No. 163 item 981) (Act of 29 November 2000 Atomic Law (Journal of Laws of 2007, No. 42, item 276) (Act of 11 January 2018 on electromobility and alternative fuels (Journal of Laws 2018 item 317) (Act of 29 July 2005 on trading in financial instruments (Journal of Laws of 2017, item 1768, as amended) The criteria for choosing the act are presented in Figure 2.

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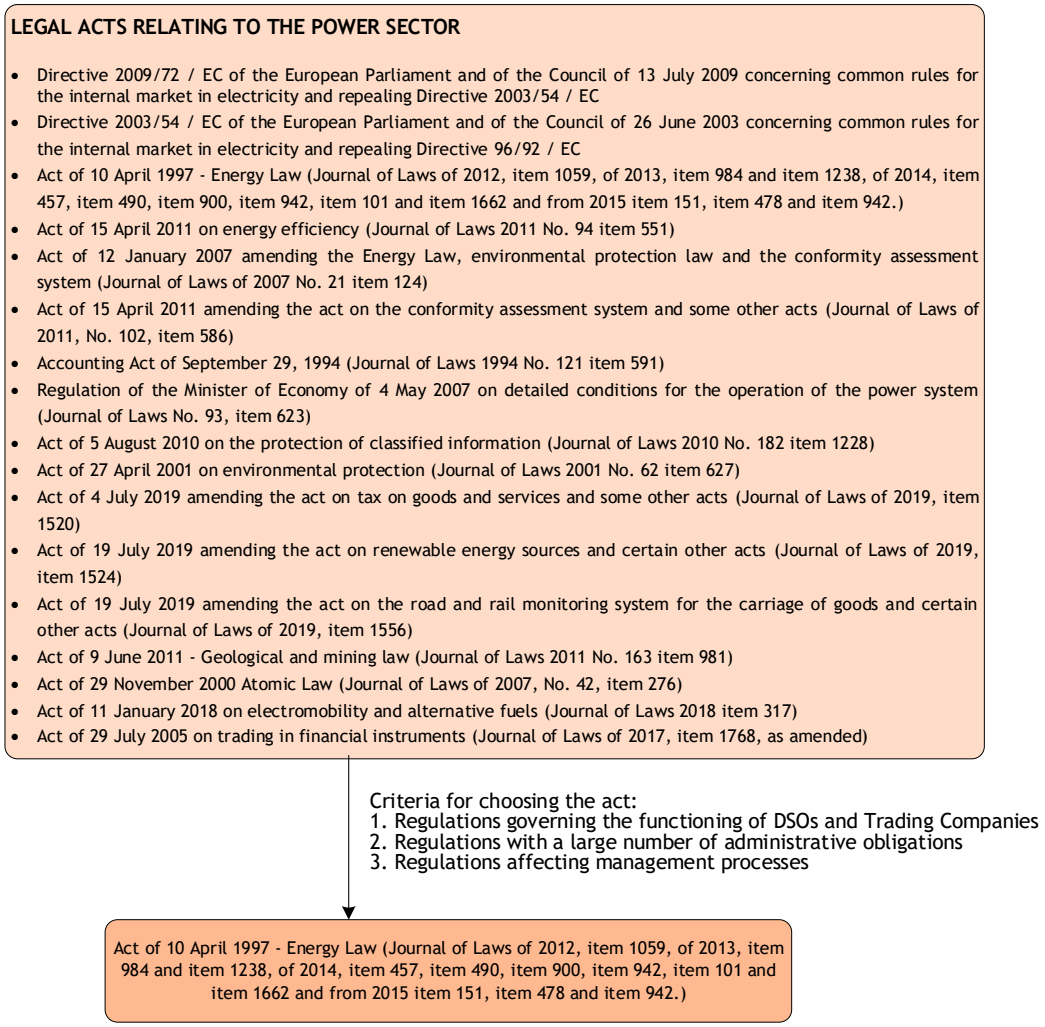

Fig. 2. The criteria for choosing the act

The next step was to carry out a detailed identification of formal and legal regulations that impose specific administrative obligations on power companies resulting in organizational changes. Administrative obligations (OA) towards the state result from any formal and legal regulation for a given power company. Administrative obligations for all companies are very similar, therefore, standard administrative tasks were designed for various categories of administrative obligations through consultations with experts from both the business world and government representatives, e.g. applying for permits and licenses, submitting applications for subsidies, declarations income tax or VAT, notifications, e.g. regarding the employment or dismissal of employees, etc. (Dobroczyńska i Juchniewicz, 6/2005) (Stigler, 1971)

In order to fulfill the legal administrative obligation, an enterprise must take certain actions that result from legal requirements and from actions taken in the business process. Business processes in the field of so-called standard administrative operations are necessary to create a message. Examples of standard administrative activities are familiarizing with the need to obtain specific information, obtaining information, assessing what information must be provided to public

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authorities in accordance with regulations, calculating the data to be provided, preparing data presentations, checking the data contained in presentations, correcting data, preparing a description of the prepared data, making payments, e.g. taxes, organizing internal and external meetings, inspecting entities by public entities and the need to service them, making corrections after detecting errors and irregularities, copying, distributing reports, etc., reporting and providing information (Nijsen, SCM to Measure Compliance Costs, 2009) (Paczocha, Rogowski, Kłosiewicz i Kozłowski, 2009)

Each administrative obligation has several administrative activities (CA) Figure 1. Which the company must undertake to fulfill the administrative obligation imposed on it. The time of performing a given administrative activity is examined and the rates of remuneration for persons involved in its performance are determined (Szpringer i Rogowski, 2007).

Management processes in power companies

Until recently, the power sector, along with other infrastructure sectors, was considered to be specific. Its specificity resulted from the elements of the natural monopoly and the attribution of the nature of public goods to products and services of this sector.

Effective and efficient energy has a decisive impact on economic development, increase in the well-being of society and on the competitiveness of other areas of the economy. Legal regulations and liberalization of the electricity market have changed the management methods used in power companies. Effective and effective management of an power company in a changing and dynamic environment enables it to achieve competitive advantage. The organization's ability to carry out its tasks requires effective adaptation to changes in the environment as well as creating its own solutions. The purposeful and planned making of such changes in an organization is to improve it.

Process management systems are created in power companies that must be understood by all employees. The implementation of this goal is also associated with the identification of links between activities carried out in the company and customer requirements in all processes. Separating processes in distribution and trading companies allows for easier acquisition of data on the functioning of the company, monitoring and improving it (Haney i Pollitt, 2011)

Power companies were required to separate their distribution activities from electricity trading by July 1, 2007. It resulted from the provisions contained in Directive 2003/54 / EC. The regulations contained in the Energy Directive have been included in national law regarding the rules of functioning of trading and distribution of electricity by means of an amendment to the Energy Law of May 3, 2005. (Directive 2009/72 / EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54 / EC) (Law Act of 10 April 1997)In the power industry capital groups, the processes have been reorganized as a result of restructuring. Figure 3 presents a diagram of management processes in capital groups before division into distribution and trading. The current division of processes in distribution and trading companies is presented in Figures 4, respectively. and Figure 5. (Platchkov i Pollitt, 2011).

In power companies before July 2007, the following processes could be identified:

- basic - which include the development of tariffs and concessions, identification of customer needs, customer service broken down into distribution management and energy trading management;
- auxiliary - such as accounting, controlling and human resources;

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- management - is environmental management, documentation and data supervision, and occupational health and safety management.

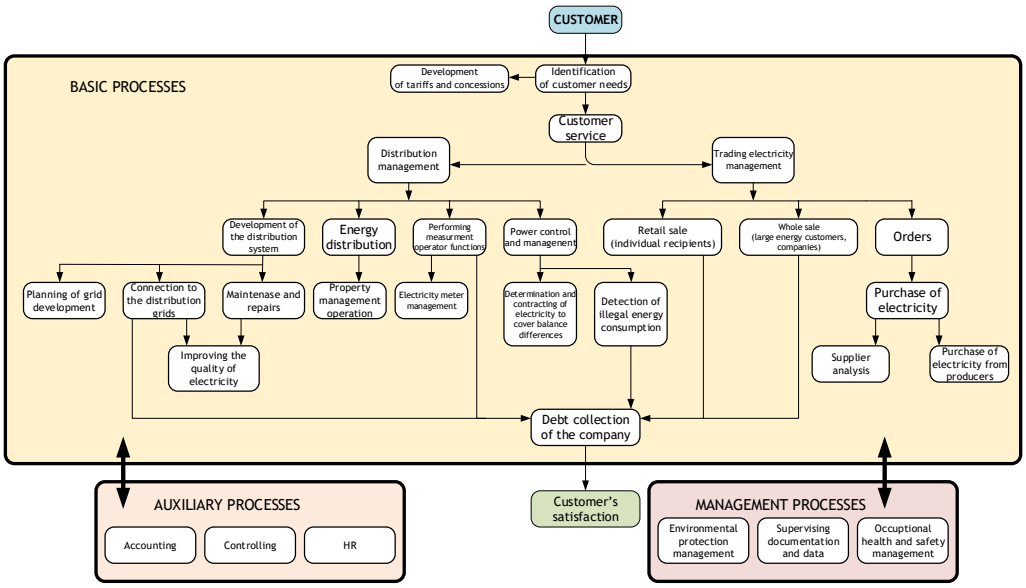

Fig. 3. Map of processes before the separation of activities into distribution and trade of energy

Separation of distribution companies and trading within capital groups resulted in the division of basic processes in accordance with the basic activity of newly established companies.

For distribution system operators, management processes are divided into:

- basic - such as developing tariffs and concessions, identifying customer needs, customer service and distribution management,
- auxiliary - is accounting, controlling, human resources department and additionally quality control of supplied electricity, maintenance and repairs, improvement of the quality of distributed energy. The last two processes can be counted simultaneously as basic processes,
- management - includes environmental management, supervision of documentation and data, management of occupational health and safety, marketing and PR management, improvement of the management system.

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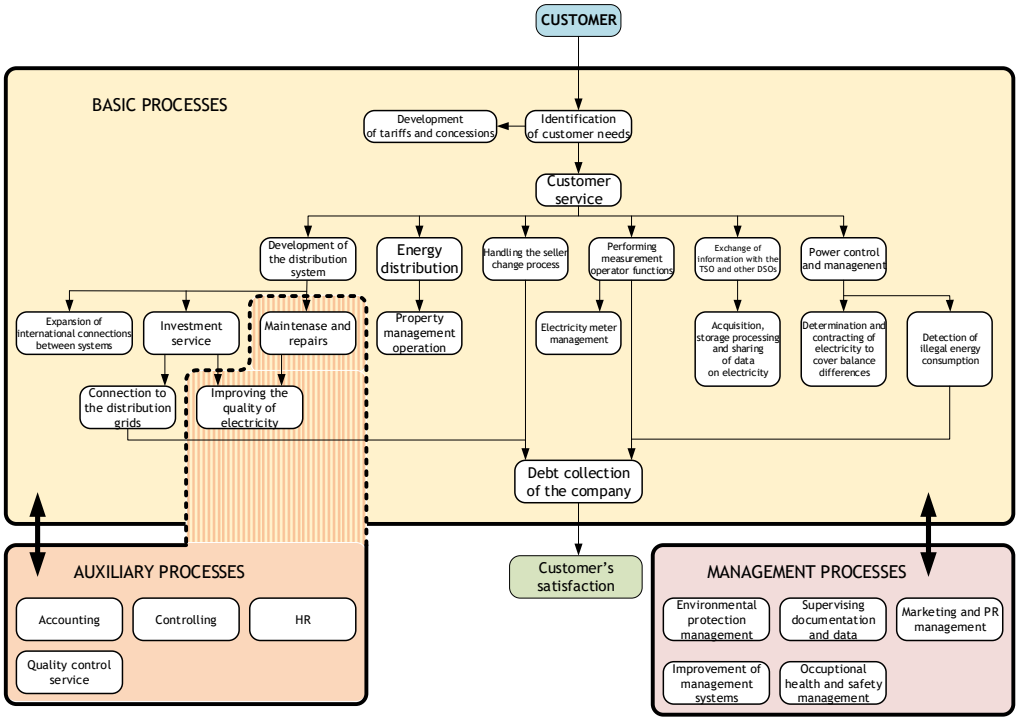

Fig. 4. Process management - Distribution System Operator

In turn, the distribution of processes in trading companies is as follows:

- basic - developing tariffs, identifying customer needs, customer service and energy turnover management,
- auxiliary - accounting, controlling, human resources department and quality control of services,
- management - environmental management, supervision of documentation and data, management of occupational health and safety, marketing and PR management, and improvement of the management system.

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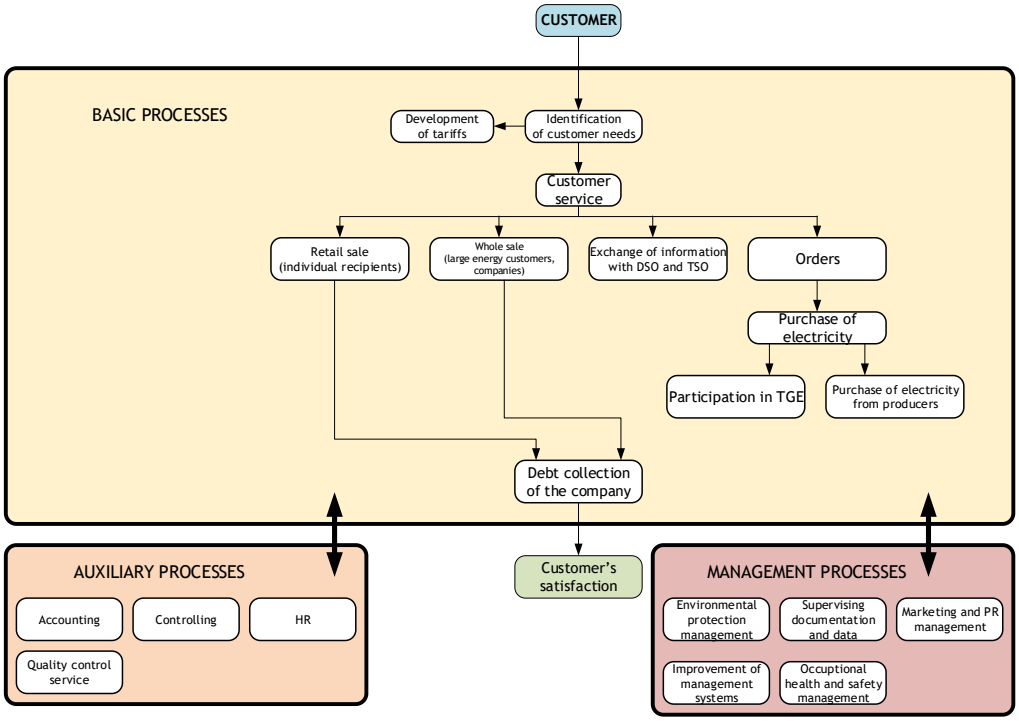

Fig. 5. Process management - Electricity trading company

Comparing process maps before and after the separation of activities in power companies, a number of significant changes were noted. Management and support processes in trading and distribution companies have been replicated. The number and scope of processes has increased. Management processes have been additionally enriched with marketing and PR management, and improvement of the management system. For trading companies, ancillary processes also include quality control services. In the case of DSOs, auxiliary processes provide for quality control of supplied energy and duplicate basic processes such as maintenance and repairs, improvement of the quality of distributed energy. Duplication of processes results from the outsourcing of some services in power companies.

After the separation of DSOs, the basic processes related to distribution have been significantly enriched with functions resulting from newly introduced legal regulations such as the TPA principle and unbundling. Distribution companies must handle the process of switching suppliers by the electricity consumer and exchange information with the transmission system operator and other distribution system operators.

The newly established trading companies also increased the number and scope of basic processes. Basic processes, like for distribution companies, include the exchange of information with DSOs and TSOs. The procurement process, and in particular the purchase of electricity, has changed. Currently, trading companies buy electricity on the Polish Power Exchange, and less often directly from producers.

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Despite the increase in the number and scope of processes after the distribution into distribution companies and trading, the key process from the point of view of the profitability of the functioning of companies remained the Debt Collection process.

Results and summary

The proposed Model for assessing the impact of regulations on processes in power companies and developed process maps of distribution system operators and trading companies before and after the separation of activities were verified by conducting empirical research, the final effect of which is the results of the author's survey. The research procedure consisted of four stages **(Kott i Kott, 2018)**:

- I consisting in literature studies and the use of methods for collecting and analyzing information,
- II based on the selection of research tools and methods, selection of a research sample, development of a questionnaire, and then its discussion as part of the consultation. The next step was to conduct a pilot study and verify the questionnaire,
- III conducting proper research among employees of distribution companies and electricity trading, and then the obtained results were analyzed using the IBM SPSS computer program,
- IV consisting in the summary of research results and verification of research hypotheses.

The second extremely important goal of the survey was to verify the proposed model of the impact of regulations on the management processes of power companies. (DSO and turnover)

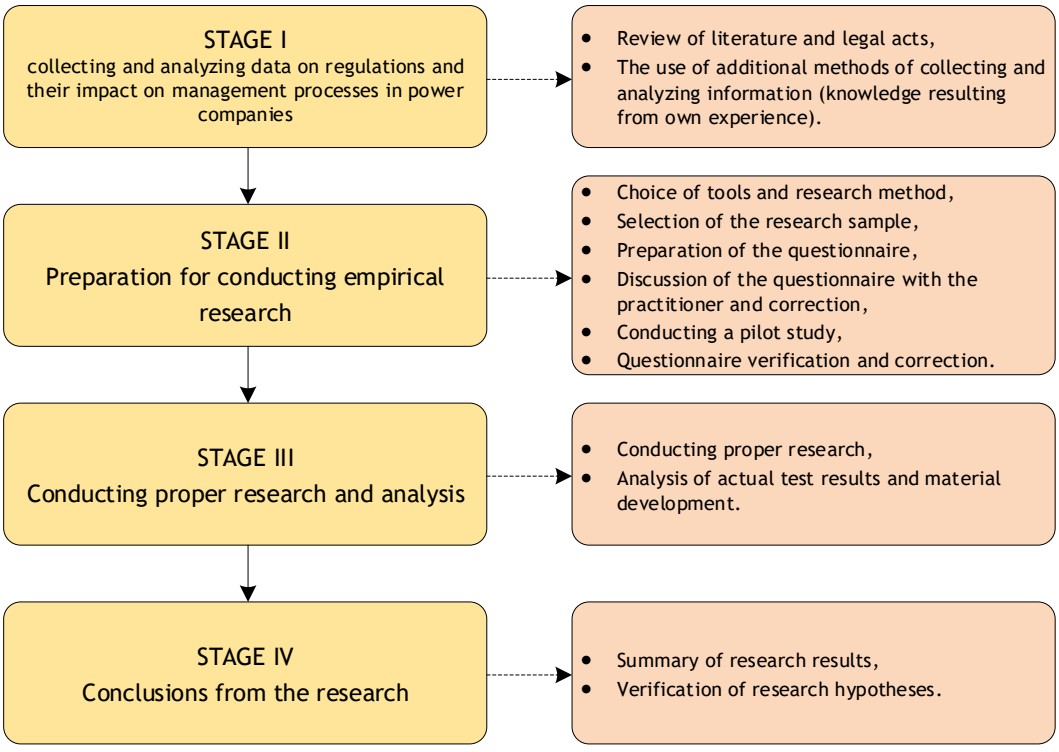

Fig. 6. Individual stages of the research process.

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The results of the survey among employees of the power sector companies allow to draw the following conclusions:

- The change in the organizational structure of power companies has forced an increased number of employee training in balancing the interests of energy consumers. The largest number of trainings concerned employees of the customer service department and energy sales
- The most important topics discussed during the training are: protection of sensitive commercial information, development of sales skills and comprehensive customer service.
- The survey shows that the biggest challenge for power companies is to meet the requirements of ordinances and formal and legal regulations.
- The Energy Law was recognized as the most influential in the energy sector.
- The main purpose of contacts between power sector companies and ERO is to provide / provide information related to administrative obligations.
- The respondents defined formal and legal regulations in the power sector as: increasing costs, increasing competition between companies in the power sector, affecting management processes and causing changes in the organizational structure of the enterprise.

The conducted survey and the above conclusions resulting from it allow us to state that the proposed model of regulatory impact on management processes in power companies is an effective tool, and choosing the Energy Law for analysis using this model is the right approach.

The authors predict the expansion of the model with the impact of formal and legal regulations on management processes in gas and heating sector companies.

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