Energy Research & Social Science xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Energy Research & Social Science

journal homepage: www.elsevier.com/locate/erss

Original research article

(Non-) Alternative energy transitions: Examining neoliberal rationality in official nuclear energy discourses of Russia and Poland

Ekaterina Tarasova

School of Social Sciences, Södertörn University, 141 89 Huddinge, Sweden

ARTICLE INFO

Keywords:
Energy transition
Nuclear energy
Neoliberalism
Market rationality

ABSTRACT

Neoliberal trends are a part of the sociopolitical contexts that shape present-day energy transitions. Economic arguments extensively used in nuclear energy discourses regarding the Nuclear Renaissance period may indicate that neoliberal trends have penetrated discussions about energy transitions. This article examines the presence of neoliberal rationality in the official nuclear energy discourses coming from Russia and Poland. These countries are interesting in respect to their relatively recent changes towards a market economy. Neoliberal rationality is defined in the article as the combination of market rationality, limited role of state, political consensus, governance structures and securitization, following Foucault and Brown. Discourse analysis of the energy policies and speeches of politicians that contain statements about nuclear energy development is carried out. The analysis confirms the significant presence of these themes in nuclear energy discourses as well as discourses reflecting the specificities of the two countries. The combination of the defining features of neoliberal rationality in official nuclear energy discourses seem to leave limited space for challenging nuclear energy development and discussing alternative energy transitions.

1. Introduction

Energy transitions provide an opportunity for understanding how energy systems function and how they may develop in the future. They are understood as "a shift in the nature or pattern of how energy is utilized within a system" [1, p. 112]. One of the most discussed systematic changes in the energy sector for almost seventy years has been the introduction and expansion of nuclear technology for electricity production [2–4]. The "Nuclear Renaissance" rhetoric, appearing at the turn of the century [5], has revitalized debates about the development of this technology and possible energy transitions [e.g. 6–8]. Nuclear Renaissance is considered here to be a discursive construct since it is difficult to assess whether it indeed takes place at all or to the extent anticipated by the industry, as it takes considerable time from announcing the plans to build a nuclear reactor to the actual reactor start-up. While the future of transitioning to a revival of nuclear energy is opaque, discourses of Nuclear Renaissance are observable in the official political energy discourses in a number of countries, among them Russia and Poland. To understand what drives such discourses of energy transitions, official nuclear energy discourses are of significance since they may reveal dominant sociopolitical thinking about energy systems and their underpinning rationalities.

Energy transitions are shaped by the sociopolitical contexts in which they take place [9–12]. Nuclear energy discourses seem to have evolved throughout history in tight connection with their sociopolitical contexts [4,13]. Using the UK as an example, Blowers summarizes how nuclear energy discourses have developed historically [13]. The first discourse of trust in technology was replaced by distrust of nuclear energy and the rise of anti-nuclear movements. Later it turned to a discourse of consensus and cooperation at the end of the last century and finally to concerns about security [13, p. 166]. Similar developments in nuclear energy discourses are observed in other contexts. The rise of anti-nuclear sentiments and further mobilization of anti-nuclear movements in the 1960–80s took place in many countries around the world [2,3]. These years are also characterized by large numbers of protest events. Concerns about energy security that appeared at the turn of the century overlap with the general rise of awareness about security issues, in particular after the events of 9/11. Currently nuclear energy development is legitimized, for instance, through its potential contribution to climate change mitigation [4,14,15]. Economic arguments, energy security and potential contributions to climate change mitigation are the core themes in present-day nuclear energy discourses [4,7,14–17]. The spread of economic arguments in discussions about nuclear energy development may signal the penetration of neoliberal trends in these energy transitions. Neoliberal ideas are associated with trust in market forces and ascribing economic values to factors not previously considered in economic terms as well as an emphasis on political consensus and governance [18,19]. While neoliberal reasoning has been studied,

E-mail address: ekaterina.d.tarasova@gmail.com.

https://doi.org/10.1016/j.erss.2018.04.008
Received 29 June 2017; Received in revised form 2 April 2018; Accepted 5 April 2018

for example, in the educational and healthcare sectors, it has received much less attention in connection to energy policies and even less to energy transitions, although there is some research available [e.g. 20–22].

This article examines the presence of neoliberal rationality in the official nuclear energy discourses of Russia and Poland. Both countries provide an interesting combination, where they are among other cases where the rhetoric of Nuclear Renaissance is observable. In 2006, it was announced that 26 new reactors were planned to be built in Russia by 2030 [23]. The Polish government included nuclear energy in the Energy Policy of Poland in 2005, 15 years after the idea to build a nuclear power plant for the first time was abandoned, and in 2010, when the Polish Nuclear Energy Program was made public. However, while approximately 15% of Russian electricity comes from nuclear power plants, there are no nuclear reactors in Poland. The significant dependence on coal in Poland is considered unsustainable and therefore diversification of the energy mix is the cornerstone of their energy transition [24, p. 7]. The need for diversification of energy sources and electricity producing technologies and an increase in energy efficiency is articulated in Russian energy policy as well [25]. The turn to nuclear energy in both countries can be regarded as the intention to carry out energy transitions since, in both cases, systematic changes are implied. In Poland, the construction of the first nuclear power plant implies a significant re-organization of the energy sectors since, for instance, the introduction of nuclear technologies may mean a greater centralization of the energy sector. In Russia, an increased share of nuclear energy is presented as a means to transform the energy sector that is, to a significant extent, based on exports of oil and gas to the sector that is based on knowledge and technologies.

Both countries have gone through political transformation after the collapse of the previous political regimes and then a rapid adjustment to market economies. They differ, however, in their political outlook and the stages of nuclear energy development. Moreover, energy transitions and nuclear energy discourses, in particular in the context of Nuclear Renaissance, are relatively understudied in these countries in comparison to the studies of Western European countries [e.g. 7,26]. The specificities of both countries as well as their seeming difference from the more often studied countries can contribute to an understanding of the rationalities that drive energy transitions, in particular taking into account that both cases are less obvious choices for assessing neoliberal rationality in discourses regarding energy transitions.

This article proceeds with placing the study in the context of energy transitions research and research on nuclear energy discourses. Then neoliberal rationality is defined using the work of Foucault and Brown. Discussion on method and materials follows. The next section presents and discusses the nuclear energy discourses of Russia and Poland structured after four aspects of neoliberal rationality. The article concludes with a discussion of findings.

2. Politics of energy transitions and nuclear energy discourses

Energy transition is an emerging field in energy studies [1,27]. It has been examined from historical, economic and social perspectives [e.g. 28–30]. The focus has often been placed on conditions that drive energy transitions as well as the socioeconomic implications of energy transitions. Political aspects and the politics of energy transitions have also been highlighted [9–12,31–33]. Studies of political aspects have mainly examined how energy transitions are managed and governed, how decisions in the energy sector are made or, in other words, the governance of energy transitions [10,12,33–35]. Relations of agency and power are in focus in the studies of the politics of energy transitions [e.g. 21,33] as well as political relations between the multiple dimensions of transition processes [31,33]. Hess brings attention to not only the formation of political coalitions in driving sustainability transitions forward but also effective political opposition, and industry and grassroots mobilization [21]. The role of social movements that may campaign for greater sustainability is also put forward by Smith and Stirling [33]. Among other political aspects of energy transitions that have been scrutinized are policy instruments [32,36], institutional conditions and institutional change [34], and institutional and political factors for analyzing energy backcasting [11].

Politics can be understood in broader terms through power defined beyond the dichotomy of agency and structure and more as knowledge and discourses [37]. In the case of energy transitions, it means that the *politics* of energy transitions is shaped by *discourses* of energy transitions. Cultural approaches that focus on meaning making processes are used to a lesser extent in the literature on energy transitions. Visions, framings, storylines and discourses of energy transitions have been analyzed [7,38–41]. Geels and Verhees analyze how technological changes in the energy sector are framed and legitimized [39]. Ideologies of political parties may matter for visions of energy transitions and sustainability that political parties put forward [38]. Although visions and framings of energy transitions do not provide a lens that would allow the scrutinizing of rationalities that drive energy transitions, discourses on energy do.

While not necessarily focusing on energy transitions, the literature on nuclear energy discourses is extensive. Nuclear energy discourses are known for putting forward the notions of cost effectiveness, technological development and progress in general [e.g. 42]. Among other arguments, such as energy security and contribution to climate change mitigation, economic argumentation has manifested in the studies of recent nuclear energy discourses, for instance through examples from the UK [7,17], France and Finland [17], Poland [16,41,43] and Russia [16]. Nuclear energy has been argued to be framed as a “sustainable energy source” [e.g. 7]. Johnstone argues that the prevalence of “consensus” in the discourses of sustainability and banking on governance structures constructs the “post-political” thinking about nuclear energy, therefore creating a democratic deficiency in nuclear energy governance.

> The apparent “consensus” on sustainability appears to foreclose discussions on multiple and divergent political imaginaries into a single shared vision. This is symptomatic of the wider conditions of the post-political and the post-democratic, where debate is reduced to managerial and technocratic particularities in which, regardless of public engagement, nuclear power becomes an “inevitability” [7, p. 91].

While Johnstone argues that the discourse of sustainability “ultimately includes the assumptions of neoliberalism” [7, p. 98], he does not discuss usage of economic arguments in this respect nor does he develop which features of neoliberalism account for this closure of discussions on nuclear energy. It is not surprising that discourses of sustainability are based on assumptions of neoliberalism in the case of the UK, one of the birthplaces of free market policies. It remains unclear how neoliberal rationality appears in present-day nuclear energy discourses and shapes energy transitions in other contexts, such as Poland and Russia. No similar studies connecting nuclear energy discourses and neoliberal trends in Central and Eastern Europe have been found. As this region has been characterized by new democratic or hybrid political regimes and rapid changes in the economic sector after the change of political regimes, it promises to be particularly interesting to assess nuclear energy discourses in regard to neoliberal trends in these contexts, as they are quite different in contrast to the UK. The studies of nuclear energy discourses in Poland and Russia point in the direction of the possibility of similar conclusions as Johnstone. Maciejewska and Marszałek denote the democratic deficit in Polish pro-nuclear discourses [43, p. 239] as claims of anti-nuclear movements are neglected and society is not considered an equal partner. Considering public debate on nuclear energy in Poland from the perspective of law, media discourse and civil society, Wagner et al. arrive at similar conclusions [41], claiming that deliberation on nuclear energy is limited and analyzed discourses of nuclear energy can lead to depoliticization of the

nuclear energy issue. It has been argued that public participation and participatory practices are put forward in official nuclear energy discourses in Poland and Russia [16]. Similar to Johnstone's findings, nuclear energy in Russia and Poland is often presented as an inevitable energy source [16]. Neither of these studies examine the connection between the democratic deficit in these discourses and neoliberal trends, nor discuss what it means for energy transitions in Central and Eastern Europe.

3. Defining neoliberal rationality

There is no universally accepted definition of neoliberalism as it is "at once a global phenomenon, yet inconstant, differentiated, unsystematic, impure" [19, p. 20], expressed differently across time and space. It could be seen, for example, as an economic project, a way of governing, an ideology, regime of truth, discourse or rationality. Foucault examines neoliberalism as government rationality, or as he calls it, *governmentality*, in the lectures at the Collége de France, later published as *The Birth of Biopolitics* [18]. Foucault conceives neoliberalism to be a new government rationality based on self-limiting governmental reasoning, political economy and a market logic based on competition. He argues that according to neoliberals, "there is no need to intervene directly in the economic process, as the bearer in itself of a regulatory structure in the form of competition, will never go wrong if it allowed to function fully" [18, p. 137] because the objects of governmental actions function according to a specific nature [18, p. 15]. Foucault then further describes how neoliberal governmentality presupposes that formal principles of a market economy are projected to a general art of government [18, p. 131]. "American neo-liberalism seeks instead to extend the rationality of the market, the schemas of analysis it offers and the decision-making criteria it suggests, to domains which are not exclusively or primarily economic…" [18, p. 323]. Competition becomes the core regulatory principle of neoliberal governmentality instead of exchange of commodities [18, p. 147]. In brief, neoliberal governmentality is characterized by the prevalence of market rationality and the self-limited role of the state, including the extension of market rationality to spheres that have not traditionally been based on this rationality. This rationality has immediate political consequences:

> "This economic institution, the economic freedom that from the start it is the role of this institution to guarantee and maintain, produces something even more real, concrete, and immediate than a legal legitimization; it produces a permanent consensus of all those that who may appear as agents within these economic processes, as investors, workers, employers, and trade unions. All these economic partners produce a consensus, which is a political consensus, inasmuch as they accept this economic game of freedom" [18, p. 84].

While agreeing with Foucault's description of neoliberalism "as an order of normative reason that… takes shape as a governing rationality extending a specific formulation of economic values, practices, and metrics to every dimension of human life" [19, p. 30], Brown argues that Foucault wrote about neoliberal transformations at a time when neoliberal reason was not yet fully flourishing [19]. She indicates there are other features of neoliberalism that were not noticed and could not be noticed by Foucault as he wrote about these issues earlier. The primary feature of neoliberalism according to Brown is intertwinement of neoliberal reasoning with governance mechanisms. She argues that Foucault's view on neoliberalism is state centric while in the last decades the world has experienced the rise of governance [19, p. 71]. This change implies that not only the state but also other actors such as market and civil society are involved in governing. While this is not surprising in the case of the market as neoliberal rationality comes from free market policies in the economy, it is certainly interest-raising in case of civil society. The political consensus that Foucault discusses is taken to a higher level with the development of governance [19, p. 71]. Actors who used to disagree have to find a way to build consensus in the new system of governing.

Brown's observation about the transition of neoliberal rationality from state-centric political consensus to governance is rather important. Governance networks can work as mechanisms for the depoliticization of nuclear energy and establishing a neoliberal order in general [7,44]. Limited state intervention has been exemplified in regard to the sustainability partnerships of the United Nations Commission on Sustainable Development; this includes the World Nuclear University [44]. These partnerships "have been instrumental in the introduction of policies in line with neo-liberal globalization by way of being discursive practices repetitively organizing voluntary modes of operation among private actors" [44, p. 226]. Governance mechanisms can contribute to shaping global environmental discourses with the consideration of nuclear energy as an environmentally friendly technology [44, p. 239]. Johnstone denotes the significance of governance structures for the depoliticization of nuclear energy [7]. Among other features, Brown claims that economic growth is nowadays considered the only goal of the economy [19, p. 70] and neoliberal reasoning became intertwined with securitization in the world after 9/11 [19, p. 72]. Neoliberal rationality is operationalized here as market rationality, implying the prevalence of market forces (marketization) and ascribing economic values (commodification) that are complemented by the securitization of new areas, the self-limiting role of the state, and establishing political consensus through engagement of various actors in governance mechanisms.

4. Method and material

As this article focuses on a system of meanings, discourses and rationalities, discourse analysis has been carried out. Discourse analysis is understood as both theory and method [45]. Discourses are "practices that systematically form the objects of which we speak" [37], shaping the identities of subjects and objects [46]. The definition of discourses as practices provides a wider framework for understanding how nuclear energy development is shaped than, for instance, visions or framings because it allows the incorporation of sociopolitical contexts in the analysis. This study examines the official nuclear energy discourses that are put forward in energy policies and are also projected by politicians in power because these discourses, as dominant systems of meaning, lie at the bottom of energy strategies and policies and drive energy transitions. While political contestations and the interplay between these discourses and other discourses, such as public discourse, media discourses and discourses of those opposing nuclear energy development, could provide a more nuanced picture of the nuclear energy debates, they are omitted in this study for the sake of focusing on dominant ideas that drive energy transitions to a Nuclear Renaissance. As this study is interested in the rationality that drives energy transitions to a Nuclear Renaissance, this limits the collection of material to statements regarding nuclear energy development. Broader conceptualization of nuclear discourses that incorporates concerns for instance about nuclear waste or nuclear decommission are not considered here.

Official nuclear energy discourses are considered to consist of any material that presents the official position on nuclear energy development. The webpages of the Russian government, the Federal Assembly of the Russian Federation (the Federation Council and the State Duma), the Polish government, the Polish Parliament, the ministries that deal with energy, the environment and natural resources, and the energy companies Rosatom and PGE EJ1 were searched for the statements on nuclear energy development that comprised arguments for this development. The corpus consists of policy documents, interpellations in the Parliament, press releases, statements of politicians and heads of nuclear energy companies (17 and 15 in total in Polish and Russian cases respectively). Main policy documents include *Energy Policy of Poland until 2025* and *Energy Policy of Poland until 2030*, *Polish Nuclear Power Program*, and *Energy Strategy of Russia until 2020*, *Energy Strategy of Russia until 2030*, and *the Framework of Transition to Innovative*

Development of the Economy of Russia. In Poland, Hanna Trojanowska, the Deputy Minister of the Economy and before that the Director of the International Affairs and New Technologies Department of the Polish Energy Group as well as Donald Tusk, the prime-minister at the time, and several members of the Parliament were most outspoken about nuclear energy development. In Russia, it was Dmitry Medvedev and Vladimir Putin, during both their mandates as president and prime-minister as well as Sergey Kirienko, the Director General of Rosatom 2007–2016. The analysis is limited to the period between 2005/2006–2014, which is considered the timeframe of the revived interest in nuclear energy. The period opens with the enactment of programmatic policy documents in 2005 in Poland [24] and Russia in 2006 [23]. The year 2014 is when the collection of material stops since developments in Ukraine changed the tone of public discourse in Poland and Russia. The focus on the political events and relations between these countries may have affected energy discourses as well.

Discourse analysis has been carried out in two stages: an entry-level analysis and then an in-depth analysis, as suggested by Krzyżanowski [47]. Entry-level analysis is the thematic analysis of the corpus. For the purposes of this study, entry-level analysis looked at what kind of themes are associated with nuclear energy development, and then coded the themes. The thematic analysis has revealed a broad spectrum of themes associated with nuclear energy, including economic and technological development, international interdependency, safety of nuclear technologies, climate change, and participatory practices. This article presents only the part of this analysis that is necessary for examining whether neoliberal rationality underpins nuclear energy discourses. A more complete thematic analysis of nuclear energy discourses in Russia and Poland is available elsewhere [16]. MaxQDA software was used for carrying out entry-level thematic analysis of the collected texts. In-depth analysis attempts to reveal meanings associated with nuclear energy development and even more so the rationality that lies at the bottom of this meaning making. Codes extracted from the entry-level analysis were studied further at this stage for revealing some specific meanings given to nuclear energy development. Quotes used extensively in the rest of the article demonstrate ideas observable in a number of collected texts rather than an isolated idea that only rarely appears in the texts. Energy policies do not only deal with nuclear energy but the energy sector in general. Therefore, some quotes are representative not only for nuclear energy discourses but in general for the energy sector.

5. Commodification of nuclear energy: economic growth, innovations and energy security

Among other changes in the energy sector that nuclear energy development will bring, references to economic growth and competitiveness are particularly and extensively present in official nuclear energy discourses of Russia and Poland. Economic growth is presented as the main rationale for the energy sector in both countries. The purpose of the Russian energy policy is “the most effective use of natural energy resources and of the potential of the energy sector for sustainable economic growth, improving the quality of life of the population and helping to strengthen its foreign economic positions” [25]. Within this constellation, when the quality of life of the population is put in between economic growth and foreign economic positions, it suggests that the former is understood in economic terms. It is, however, possible to imagine that quality of life could be understood in other terms, for example with respect to ecological, social, ethical aspects. The specific feature of official Russian nuclear energy discourses is the emphasis on innovations and innovative economic development. “The main internal challenge is the need for the country's energy sector to fulfill its most important role envisaged by the Framework of Transition to Innovative Development of the Economy of Russia” [48]. Innovative development is considered closely connected to nuclear energy development because it is stated that non-hydrocarbon energy which includes hydro and nuclear energy will be developed and will be the source of “innovative economic growth” [48].

Polish energy policy aims to: “ensure energy security of the country, increase competitiveness of the economy and its energy efficiency, protection of environment against adverse effects of energy associated with generation, transmission and distribution of electricity and fuels” [24, p. 5]. More specifically, Trojanowska argued that nuclear power is needed for the growth of the Polish economy [49]. Nuclear energy development is “a unique economic undertaking, not only because of the high financial expenses required to sustain it, but also because of the significant impact of this investment on the whole national economy” [50]. The same speech continues with emphasizing the decision to develop nuclear energy in Poland is based on an economic analysis that takes into account energy demand, external factors such as the need to protect climate protection, the need to diversify sources and ensure security of energy supply. “Supporters of producing electric power from nuclear fuel base their opinions on strong grounds, including Poland’s strategic energy security, profitability of electric power generation and strict environmental protection regulations” [49]. Energy security is much more emphasized in Polish discourses than in Russian ones. Nuclear energy development is associated with technological development in Polish discourses in a similar way as in Russian discourses. “Nuclear energy means high level of technology” [51, p. 7]. However, there is no specific emphasis on innovations in Polish discourses.

The presentation of nuclear energy development in terms of its economic value suggests a commodification of nuclear energy in official nuclear energy discourses in both Russia and Poland. Economic growth stands out as the crucial reasoning for nuclear energy development. The countries’ specificities are reflected in official nuclear energy discourses. While in Russia innovations and innovative economic development is emphasized, in Poland energy security and environmental protection are highlighted. These specificities could be understood through the broader context of these discourses. In Russia, the energy policy appeared when Dmitry Medvedev was the president. His presidential term is associated with a significant focus on modernization. In Poland, it is not only acknowledging the need for diversification of energy sources and electricity production, but also national identity and energy relations with Russia that helps to explain the emphasis on energy security. Seen as part of the larger discursive space of the European Union, climate change mitigation in official Polish energy discourses is not surprising. While economic arguments are expected in energy discourses since the energy sector is a part of the economy, these arguments take more space than any other possible reasoning in official nuclear energy discourses in Russia and Poland.

6. Market rationality and limited state engagement

The commodification of nuclear energy is closely connected to the marketization of nuclear energy, consideration of nuclear energy development in terms of market forces and related there to the decreased role of state. Markets and market forces are mainly presented when the international collaboration of Russia and Poland with other countries is discussed. In Russia, the purpose of the increase of innovations in the energy sector is international competitiveness of the Russian energy sector. Innovations in the energy sector are considered to lay out the foundation for the increased competitiveness of the Russian energy sector internationally. One of the tasks of the energy sector is to “increase of Russia's strategic presence in the markets of high-tech products and intellectual services in the energy sector, including through the deployment of globally-oriented specialized productions” [48]. As the result of the growth of innovations in the energy sector

> Russia will not only save its positions on the world energy market as the largest energy supplier but will also qualitatively change the nature of its presence by diversifying the commodity structure and

> directions of Russian energy exports, actively developing new forms of international energy business and expanding the presence of Russian companies abroad. This will reduce the risk of mono-dependence of the Russian energy sector from energy exports to Europe, as well as increase the profitability and efficiency of international activities of Russian fuel and energy companies without significantly increasing the volumes of primary energy exports [48].

This quote highlights that the goal of the energy sector is to retain its position in the world markets as well as showing that the current rate of export of natural energy sources is considered unsustainable. As nuclear energy is often presented as a commodity for international trade, it is part of this vision of Russia's position on the world energy market. In a similar vein, relations between nuclear energy development and the competitiveness of the Polish economy is presented, albeit with focus on energy security:

> It is necessary to think about the future of the Polish economy today, if Poland is to remain competitive on the world market for goods and services. Its development and condition are closely connected to a growing demand for electricity. In this context the nuclear power sector cannot be treated as unnecessary, as the title of the article suggest. Nuclear power is a potential element of the country's energy security system [49].

The emphasis on competitiveness of national economies in the world markets signals reasonings based on market rationality. Nuclear energy development is presented as necessary for keeping old and conquering new positions on world markets.

Market rationality is manifested through the relations between state and non-state actors in the energy sector. In Russia, it is said that the state program for the construction of nuclear power plants will be implemented as well on the basis of public-private partnership [25]. The limited role of the state appears when institutional environment and investments are discussed. State participation in the development of the energy sector is described as supporting "innovative directions for the development of the energy sector (non-hydrocarbon energy, etc.), and to regulate and ensure a stable institutional environment for the efficient operation of the energy sector" [25]. Investments for nuclear energy development are considered to come from "companies' own funds received from the investment component in tariffs, as well as from state budget funds, investment and financial structures, attracted on the terms of project financing under state guarantees" [48]. The state therefore seems to delegate parts of its functions, in particular the ones concerning attraction of investments, to other actors in society, as it appears here to energy companies and business sector. That signals prevalence of market forces instead of profound state engagement. This logic is reinforced through the governing arrangement of the nuclear energy industry. Previously organized as the Ministry of Nuclear Energy, the industry is now managed by the state company Rosatom. In Poland, engagement of non-state actors in nuclear energy development is emphasized as well. It is stated that nuclear energy will be subsidized and consequently will have important implications for the national economy [49,50,52]. It is said that the "decision to allocate funds for the construction of nuclear power plants will be made by the investor – PGE SA – on the basis of the economic analysis of the cost of construction and operation of nuclear power plants" [53]. That quote demonstrates that the economic analysis is the kind of analysis required for the decisions about building nuclear reactors, which points at the dominance of economic reasoning about nuclear energy development. Moreover, it also shows that the energy company will be taking the decision. As a state-owned company, it is controlled by the government. However, it is still a separate unit from the government.

In the official nuclear energy discourses of Russia and Poland, market rationality appears through attention to positions of these countries in world markets, the limited role of government, and leaving part of the functions to energy companies and external investors. While the official discourses of both countries are similar in that respect, there are also observable differences. Russia aims to keep its leading positions in the world energy market through nuclear energy development as well as through selling nuclear technologies to other countries and constructing nuclear power plants in the partner-countries. In fact, while Bouzarovski and Bassin refer to Russia as an "energy superpower" [54], official Russian nuclear energy discourses seem to extend this identity within the nuclear energy sector. The focus on expanding Russian nuclear technologies to other countries may be an expression of the discourse of Russian greatness.

Energy security concerns in official Polish nuclear energy discourses seem to intertwine with Polish national identity as the country whose energy security is affected by relations with other countries, in particular Russia [55]. The emphasis on energy security in Polish discourses suggests that official Polish nuclear energy discourses are based on market rationality to a lesser extent than Russian discourses. While national identity of "energy superpower" seems to reinforce market rationality in Russian official discourses, the Polish national identity with the emphasis on energy security downplays market rationality in official Polish discourses. It is important to remember that Polish energy security is framed as well in market terms, in particular when uranium supply is discussed. It is stated that uranium can be imported "from different world regions and politically stable countries" [56], which seems to implictly point to the opposite direction from Russia.

7. Nuclear energy governance and political consensus

The involvement of a range of actors in governing nuclear energy is one of the recurring themes in the official nuclear energy discourses of Russia and Poland. It is emphasized that companies and society in general should be included in discussions of nuclear energy. In Russia, it is argued that there is a need for "the expansion of the real interaction of the energy business and society in solving the problems of the functioning and development of the energy sector" [25]. Publicity for energy companies should be increased, "including through the information openness of their activities", according to Energy Strategy until 2030 [25]. "The principles of openness and absolute transparency should become the norm for all nuclear facilities in the world" [57]. It is noted that there is a "weak participation of society in supporting and developing the energy business in the country" [25]. It seems that the government would prefer if companies and citizens become more involved in the energy sector. Such interaction should take the form of social partnership between the energy industry and society "by means of more active participation of the population in the share capital of energy companies and public discussion of new energy projects in the regions" [25].

In Poland, public inclusion in nuclear energy development is instead framed in terms of social acceptance, which is required for the implementation of the energy program [24]. "Rational, safe and socially acceptable economy in this regard is one of the key elements of the energy sector functioning for social acceptance for nuclear power development" [50]. Social acceptance can be obtained as the result of "rational, safe and efficient waste management" [50]. Indeed, social acceptance of the nuclear energy program by the majority of Poles is "one of the key elements guaranteeing a successful completion of the whole enterprise" [49]. It may also serve as grounds for political consensus between state, market and civil society. However, social acceptance differ from consensus. The former means that other actors in society have to agree with the state position on nuclear energy development while the latter implies agreement between different sectors of society. It seems that there is an attempt to shift the focus from state governing of nuclear energy to inclusion of non-state actors in this process in official discourses of both countries. However, discourses seem to present a specific form of inclusion in nuclear energy governance, and this rather implies the limited understanding of public participation in governance.

Such a limited view on public participation is reinforced through the stated need for education of the population. Active participation of society is conditioned by the need for relevant knowledge and education. In Russia, Medvedev observes

> "I often hear that "green" ideas are not popular in Russia because our people are not ready for them. To some extent, this may be true. That is why, as I have mentioned, the role of environmental education is crucial. We have to take that into account in our new educational standards" [58].

This quote suggests politicians consider that in order for there to be an active discussion with society, the society first needs to be educated. Civil society more specifically is also mentioned. "As for environmental non-governmental organizations, if those people genuinely care for the environment, we need to have detailed discussions with them and find mutually acceptable solutions before we start building industrial or infrastructure facilities" [58]. This quote indicates that dialogue is possible only with those environmental NGOs that "genuinely care". This implies that others not considered as "genuinely caring for the environment" would not be allowed to participate in such discussions. In official Polish nuclear energy discourses, the importance of education for establishing a dialogue in society is marked:

> We cannot deny that the plan to erect the first nuclear power plant in Poland evokes strong emotions in the public, which is uncharacteristic of other projects of this type, such emotions often result from the lack of basic knowledge of nuclear power generation [49].

Similar to the Russian discourses, the distinction between those who could be included and excluded in the public discussions about nuclear energy is made:

> Recent public opinion polls have shown that the level of knowledge about nuclear energy, ionizing radiation and nuclear physics in Poland is very low. Therefore, it is necessary to conduct a continuous educational campaign. The aim of this campaign is to raise public awareness about nuclear power which will assure that the decisions regarding nuclear energy - support or negation - will have a stronger evidence base, and will not be based on myths and false assertions, and they will resist populist actions, ideological and irrational [51, p. 104].

This quote demonstrates that those who do not have some specific level of knowledge about nuclear energy base their ideas on myths and false assertions and carry out populist actions. It is particularly interesting here that the division of rational/irrational is reiterated here. Drawing on these ideas further, it is possible to think that those who do not possess some specific knowledge are not rational in their thinking. It seems that there is no need to gain social acceptance from them or, even more, establish a consensus with them.

In brief, the official nuclear energy discourses of Russia and Poland demonstrate that apart from market rationality these discourses incorporate ideas about the need for public involvement in nuclear energy governance. This corresponds to Brown's argument about the role of governance for transposition of neoliberal rationality [19]. It is not only political consensus, as Foucault wrote about this feature of neoliberalism, but involvement of a variety of actors as well. A somewhat paradoxical picture about consensus in society regarding nuclear energy development is provided. On the one hand, active participation of society and social acceptance of nuclear energy development is foregrounded. It is acknowledged that nuclear energy development is not only the business of the state but it also concerns the market and society in general. On the other hand, there seems to be no need to achieve consensus with actors in society who are not educated enough or those who can be considered irrational or act without genuine care for the environment. Nuclear energy governance and political consensus is thus sustained through the exclusion of these "other" actors from consensus. Therefore, it is possible to talk about a democratic deficit in these discourses in a similar vein as observed in the previous research.

8. Inevitability of nuclear energy development: securitization and depoliticization

Nuclear energy development is presented as inevitable in the official nuclear energy discourses of Russia and Poland. In Russia, "there is no alternative to nuclear power in the foreseeable future. Without it, it is impossible to respond to the challenge of the energy supply of mankind. To date, of all significant energy sources, nuclear power is not only environmentally friendly, economically efficient, but it is also a safe energy source if treated with a responsible attitude" [59]. "Nuclear energy remains the most cost-effective way to generate electricity" [57]. The inevitability of nuclear energy is further expressed as follows:

> Despite the tragedy at the Fukushima-1 nuclear power plant in Japan, most countries today come to the conclusion that the use of nuclear technology and materials is inevitable; they need to be improved but there can be no progress for the humanity without using them. This technology is in great demand in a wide range of areas. Naturally, we must ensure the physical and technological security of nuclear facilities, which we have been discussing over these past two days, including their security on a global scale [59].

In Poland, nuclear energy development is presented as "a rational answer to the needs of electricity consumers under the present and future conditions of the Polish economy" [49]. Presenting nuclear energy as rational solution implies that alternative scenarios of future energy may not be rational and perhaps should not be considered. Official Polish nuclear energy discourses present nuclear energy as without alternatives because its development will contribute to implementing the tasks of the energy policy, such as ensuring energy security, increasing competitiveness within the economy and its energy efficiency, protecting the environment, according to the Energy Policy of Poland [24]. "Supporters of producing electric power from nuclear fuel base their opinions on strong grounds, including Poland's strategic energy security, profitability of electric power generation and strict environmental protection regulations" [49]. Presenting nuclear energy in this way seems to be linked to energy security. Poland is to develop and implement a program of building nuclear power plants "in order to improve the security of power supply" [50]. Among all the outlined arguments for considering that there is no alternative to nuclear energy development, the environmental aspects stand out as particularly significant, specifically in the case of Poland. Nuclear energy development is presented through its potential contribution to reducing CO2 emissions [51]. Framing nuclear energy development through its contribution to economic growth and competitiveness, energy security and environmental security presents nuclear energy development as inevitable. Nuclear energy development presented as inevitable is the sign of nuclear energy becoming securitized. As these aspects are inherent to the present-day world order, their coupling to nuclear energy discourses indicates the securitization of nuclear energy. Securitization implies the construction of something as an issue of security, as an existential threat. Securitization of nuclear energy points at the spread of neoliberal rationality to official nuclear energy discourses in Russia and Poland, in Brown's definition [19].

Securitization of nuclear energy development as an inevitable solution is reinforced by the depoliticization of nuclear energy development in official discourses. It is argued that the decisions to build new nuclear reactors are viable solutions based on cost-efficiency reasoning rather than political solutions. The Energy strategy until 2030 lies out "politicization of Russia's energy relations with foreign countries" is considered as one of the challenges of the energy sector [25]. Political aspects of foreign trade relations in the nuclear energy industry are hardly mentioned in the corpus of Russian materials. In Russia, depoliticization of nuclear energy development is more explicit than in

Poland, where energy security concerns and relations with other countries suggests that some political aspects of nuclear energy development are mentioned. As discussed in the previous section, while some actors are discursively included in discussions about nuclear energy development, others are delegitimized. Depoliticization of nuclear energy development put forward non-political and non-alternative views on the role of nuclear energy in energy transitions. Securitization and depoliticization of nuclear energy development provides no leeway for discussion of political, environmental in a broad sense or ethical aspects of nuclear energy development. This may have far-reaching implications for energy policies and energy transitions in general.

9. Neoliberal energy transitions?

Here it has been demonstrated that the combination of market rationality, commodification of nuclear energy, securitization and references to political consensus and energy governance in the official nuclear energy discourses of Russia and Poland suggest that neoliberal rationality underpins these discourses. Market rationality is foregrounded in comparison to other possible rationalities. The presence of market rationality, the economic value of nuclear energy, technological development and consequent competitiveness of economy in the official nuclear energy discourses of Russia and Poland are in line with previous related research which shows that nuclear energy is often discussed in terms of cost-effectiveness and progress [e.g. 42] as well as world markets and competitiveness [e.g. 44]. As Foucault argues, references to competitiveness is a crucial marker of neoliberalism [18]. However, identifying these features is not enough for considering the underlying rationality to be neoliberal.

Rather, it is in combination with references to political consensus, governance and securitization of nuclear energy that it is possible to consider it to be neoliberal. Emphasis on governance structures signals limited state intervention, and this is an important characteristic of neoliberal rationality, one that is observable in the studied cases. Depoliticization of nuclear energy development in Russia and Poland is related to reliance on governance structures and limited state intervention among other factors, similar to the previous studies [7,14]. Securitization and depoliticization of nuclear energy development seem to be the new features of nuclear energy discourses in the Nuclear Renaissance period.

Neoliberal rationality as well as the securitization and depoliticization of nuclear energy development close down opportunities to change how nuclear energy is discussed. If nuclear energy discourses based on market rationality were not securitized, there would be possibilities for renegotiation of market and neoliberal rationalities. But since these discourses are securitized and nuclear energy development is depoliticized, the space for re-negotiating the use of this rationality becomes significantly limited. Neoliberal rationality embedded in discourses of nuclear energy transitions implies that further discussions will be based on market rationality since this is the crucial feature of neoliberalism. The domination of one rationality affects the presence of other rationalities, such as the political, social, ecological, and ethical. Market rationality and the limited role of the state could be contested if there was space for that. However, when coupled with references to political consensus, governance and securitization of nuclear energy, this space is limited in the official nuclear energy discourses of Russia and Poland. The democratic deficit in nuclear energy discourses, identified both in previous research and in this study, seems to be another manifestation of the extension of neoliberal rationality to nuclear energy discourses.

The analysis signals that neoliberal trends have penetrated Russian and Polish energy sectors to a larger extent than perhaps has been noticed. It seems that the presence of neoliberal rationality in Russian and Polish nuclear energy discourses is a rather new development, hardly considered in previous energy policies. Therefore, it is possible to believe that neoliberal rationality can penetrate new sectors in a comparatively short time.

The representation of nuclear energy development as inevitable development in official nuclear energy discourses is important not only for the energy sector but also extends beyond that, to the general context of national development. Presented as the only possible way of development, it provides a distinct picture of the national project. As the official discourses of nuclear energy are based on neoliberal rationality, then it is logical to assume that this rationality also underpins national development projects. However, there are three main circumstances that bring a different light to such a conclusion.

First, the national contexts bring specific features to rationality in energy transitions. Although nuclear energy development is discussed in Russia and Poland in a similar manner (as well as in other cases, such as the UK [7]), it is necessary to remember that neoliberal rationality is to some extent shaped by national contexts, as, for instance, with market rationality adjusted to the larger national identities of Russia and Poland. Neoliberal rationality seems to manifest more often in Russian official nuclear energy discourses than in Polish ones, as it is more in line with national identity and public discourse.

Second, it is difficult to think of the energy sectors of Russia and Poland as not being based on political rationality. The current energy policies and speeches of politicians in Russia and Poland are hardly non-political. Particularly in the case of Russia, it has been said many times that the energy relations are used in a political way [e.g. 60]. This mainly concerns the gas and oil trade with the European Union and neighboring countries such as Ukraine and Belarus. Judging from the example of these relations, it is hardly possible to argue that political rationality is not involved in the decision-making regarding the nuclear energy programs. Depoliticization of nuclear energy development thus could be seen as a political development in itself.

Moreover, in order to discuss neoliberal rationality in energy transitions and its role in national projects, nuclear energy development would need to be discussed together with other technologies of electricity production and energy sources, in particular natural gas in Russia and coal in Poland. Neoliberal reasoning in the presentation of nuclear energy development may not be the reasoning regarding other technologies of electricity production and energy sources. Depoliticization of nuclear energy development and neoliberal rationality in nuclear energy discourses perhaps do not extend to the energy sector as a whole.

Third, neoliberal rationality in the energy transitions of these countries also needs to be observed over time. Several years after the policy changes towards the introduction and increased share of nuclear energy in the energy mix, the situation with the construction of nuclear reactors remains unclear. This leads to concerns about whether neoliberal rationality is a superficial turn in the official nuclear energy discourses of Russia and Poland. Even if it is superficial, it may have more meaningful or significant implications in the future. Neoliberal rationality in nuclear energy discourses is important not only for immediate developments in the energy sector, such as in Nuclear Renaissance rhetoric, which is unclear at the present time, but also for its role in shaping future energy policies and energy transitions and national projects in general. There may be tensions between the national projects of nuclear energy development and the national projects in the mainstream political discourse in Russia and Poland. It may depend on different rationalities underpinning these discourses.

Overall, when considered in relation to other technologies for electricity production, energy sources, in the general political context and other rationalities underpinning political decision-making, it is hardly possible to think that neoliberal rationality in official nuclear energy discourses and depoliticization of nuclear energy development will not be contested. The question remains as to how it will take place. Even though nuclear energy development is presented as inevitable development, it remains to be seen whether this energy transition will indeed occur. The spread of neoliberal rationality seems to shut down the political discussion about energy transitions and the energy future.

The absence of open political debates about energy sources limits opportunities and solutions that may arise as the result of such debates. However, potential conflicts with other rationalities may create an opening. If we want to understand what drives energy transitions and how they may look like in future, further research that broadens its scrutiny of the rationality that influences energy transitions in other energy technologies or sources appears to be most fruitful.

Acknowledgements

The author would like to thank the anonymous reviewers for the valuable comments.

References

[1] K. Araújo, The emerging field of energy transitions: progress, challenges, and opportunities, Energy Res. Soc. Sci. 1 (2014) 112–121.
[2] H. Flam (Ed.), States and Anti-Nuclear Movements, Edinburgh Univ. Press, Edinburgh, 1994.
[3] W. Rüdig, Anti-Nuclear Movements: A World Survey of Opposition to Nuclear Energy, Longman, Harlow, 1990.
[4] W. Rüdig, Anti-nuclear movements, in: D.A. Snow, D. Della Porta, B. Klandermans, D. McAdam (Eds.), The Wiley-Blackwell Encyclopedia of Social and Political Movements, Wiley-Blackwell, Chichester (UK), 2013, pp. 86–91.
[5] J. Ritch, The Future of Nuclear Energy in an Era of Environmental Crisis and Terrorist Challenge, (2001) http://www-pub.iaea.org/MTCD/publications/PDF/ss-2001/PDF%20files/Session%2018/Paper%2018-01.pdf . (Accessed 13 May 2013).
[6] R. Darst, J.I. Dawson, Waiting for the nuclear renaissance: exploring the nexus of expansion and disposal in Europe, Risk Hazard. Crisis Public Policy 1 (4) (2010) 49–82.
[7] P. Johnstone, The nuclear power renaissance in the UK: democratic deficiencies within the 'consensus' on sustainability, Hum. Geogr. 3 (2) (2010) 91–104.
[8] A.N. Stulberg, M. Fuhrmann (Eds.), The Nuclear Renaissance and International Security, Stanford University Press, Palo Alto, 2013.
[9] D.J. Hess, Sustainability transitions: a political coalition perspective, Res. Policy 43 (2) (2014) 278–283.
[10] J. Meadowcroft, What about the politics? Sustainable development, transition management, and long term energy transitions, Policy Sci. 42 (4) (2009) 323–340.
[11] M. Nilsson, L. Nilsson, R. Hildingsson, J. Stripple, P.O. Eikeland, The missing link: bringing institutions and politics into energy future studies, Futures 43 (10) (2011) 1117–1128.
[12] E. Shove, G. Walker, Caution! Transitions ahead: politics, practice, and transition management, Environ. Plan. A 39 (2007) 763–770.
[13] A. Blowers, Why dump on us? Power, pragmatism and the periphery in the siting of new nuclear reactors in the UK, Integr. Environ. Sci. 7 (3) (2010) 157–173.
[14] A. Baigorri, M. Caballero, M. Chaves, States and the nuclear power. An international perspective, Int. Rev. Sociol. 22 (3) (2012) 446–470.
[15] K. Bickerstaff, I. Lorenzoni, N.F. Pidgeon, W. Poortinga, W.P. Simmons, Reframing nuclear power in the UK energy debate: nuclear power, climate change mitigation and radioactive waste, Public Underst. Sci. 17 (2) (2008) 145–169.
[16] E. Tarasova, Anti-nuclear Movements in Discursive and Political Contexts: Between Expert Voices and Local Protests, Södertörn Doctoral Dissertations, Södertörns högskola, Huddinge, 2017.
[17] T. Teräväinen, M. Lehtonen, M. Martiskainen, Climate change, energy security, and risk/debating nuclear new build in Finland, France and the UK, Energy Policy 39 (6) (2011) 3434–3442.
[18] M. Foucault, The Birth of Biopolitics: Lectures at the Collége de France, 1978-1979, Palgrave Macmillan, Basingstoke, 2018.
[19] W. Brown, Undoing the Demos: Neoliberalism's Stealth Revolution, Zone Books, New York, 2015.
[20] B. Arifi, Ph. Späth, Sleeping on coal: trajectories of promoting and opposing a lignite-fired power plant in Kosovo, this issue.
[21] D.J. Hess, Electricity transformed: neoliberalism and local energy in the United States, Antipode 43 (4) (2011) 1056–1077.
[22] P. Newell, J. Phillips, Neoliberal energy transitions in the south: Kenyan experiences, Geoforum 74 (2016) 39–48.
[23] Decree 605, Федеральная целевая программа "Развитие атомного энергопромышленного комплекса России на 2007–2010 годы и на перспективу до 2015 года" ["On the Federal Target Program "Development of Nuclear Power Industry of Russia in 2007–2010 and until 2015"], Government of Russian Federation, Moscow, 2006.
[24] Energy Policy of Poland, Polityka Energetyczna Polski do 2025 r. Obwieszczenie Ministra Gospodarki i Pracy z dnia 1 lipca 2005 r. w sprawie polityki energetycznej pamstwa do 2025 r., Monitor Polski, Nr. 42 poz. 562, (2005) p. 1436.
[25] Energy strategy until 2030, Энергетическая стратегия России на период до 2030 года [Energy Strategy of Russian Federation in the Period until 2030], Government of Russian Federation, Moscow, 2009.
[26] D. Elliott, Fukushima: Impacts and Implications, Palgrave Macmillan, Basingstoke, 2012.
[27] M. Sarrica, S. Brondi, P. Cottone, B.M. Mazzara, One, no one, one hundred thousand energy transitions in Europe: the quest for a cultural approach, Energy Res. Soc. Sci. 13 (2016) 1–14.
[28] R. Allen, Backward into the future: the shift to coal and implications for the next energy transition, Energy Policy 50 (2012) 17–23.
[29] R. Fouquet, P.J.G. Pearson, Editorial. Past and prospective energy transitions: insights from history, Energy Policy 50 (2012) 1–7.
[30] B.K. Sovacool, What are we doing here? Analyzing fifteen years of energy scholarship and proposing a social science research agenda, Energy Res. Soc. Sci. 1 (2014) 1–29.
[31] F. Geels, The multi-level perspective on sustainability transitions: responses to seven criticisms, Environ. Innov. Soc. Transit. 1 (2011) 24–40.
[32] M.G. Pollitt, The role of policy in energy transitions: lessons from the energy liberalisation era, Energy Policy 50 (2012) 128–137.
[33] A. Smith, A. Stirling, The politics of social-ecological resilience and sustainable socio-technical transitions, Ecol. Soc. 15 (1) (2010) [online].
[34] C. Kuzemko, M. Lockwood, C. Mitchell, R. Hoggett, Governing for sustainable energy system change: politics, contexts and contingency, Energy Res. Soc. Sci. 12 (2016) 96–105.
[35] K. Szulecki, European energy governance and decarbonization policy: learning fromthe 2020 strategy, Clim. Policy 16 (5) (2016) 543–547.
[36] J.C. Stephens, E.J. Wilson, T.R. Peterson, Socio-Political Evaluation of Energy Deployment (SPEED): an integrated research framework analyzing, Technol. Forecast. Soc. Change 75 (2008) 1224–1246.
[37] M. Foucault, The Archaeology of Knowledge, Routledge, London, 1989.
[38] K. Edberg, E. Tarasova, Phasing out or phasing in: framing the role of nuclear power in the Swedish energy transition, Energy Res. Soc. Sci. 13 (2016) 170–179.
[39] F. Geels, B. Verhees, Cultural legitimacy and framing struggles in innovation journeys: a cultural-performative perspective and a case study of Dutch nuclear energy (1945-1986), Technol. Forecast. Soc. Change 78 (6) (2011) 910–930.
[40] A. Smith, F. Kern, The transitions storyline in Dutch environmental policy, Environ. Polit. 18 (1) (2009) 78–98.
[41] A. Wagner, T. Grobelski, M. Harembski, Is energy a public issue discourse? Nuclear power in Poland and implications for energy transitions in Central and East Europe, Energy Res. Soc. Sci. 13 (2016) 158–169.
[42] W.A. Gamson, A. Modigliani, Media discourse and public opinion on nuclear power: a constructionist approach, Am. J. Sociol. 95 (1) (1989) 1–37.
[43] M. Maciejewska, M. Marszałek, Lack of power or lack of democracy: the case of the projected nuclear power plant in Poland, Econ. Environ. Stud. 11 (3) (2011) 235–248.
[44] A. Mert, Hybrid governance mechanisms as political instruments: the case of sustainability partnerships, Int. Environ. Agreem. 14 (3) (2013) 225–244.
[45] N. Fairclough, Analyzing Discourse Textual Analysis for Social Research, Rutledge, London & New York, 2003.
[46] D.R. Howarth, Y. Stavrakakis, Introducing discourse theory and political analysis, in: D.R. Howarth, A.J. Norval, Y. Stavrakakis (Eds.), Discourse Theory and Political Analysis: Identities, Hegemonies and Social Change, Manchester University Press, Manchester, 2000, pp. 1–23.
[47] M. Krzyżanowski, The EU-convention, its discourse and the recent EU/Europe conceptual puzzle, in: M. Krzyżanowski, F. Oberhuber (Eds.), Un)Doing Europe: Discourses and Practices of Negotiating the EU Constitution, Peter Lang, Bruxelles, 2007, pp. 123–144.
[48] Energy strategy until 2020, Энергетическая стратегия России на период до 2020 года [Energy Strategy of Russian Federation in the period until 2020], Government of Russian Federation, Moscow, 2003.
[49] H. Trojanowska, The Atom is the Energy of the Future, (2008) http://www.gkpge.pl/press-center/press-releases/others/the-atom-is-the-energy-of-the-future-hanna-trojanowska-gazeta-wyborcza . (Accessed 15 September 2017).
[50] M. Kasprzak, Odpowiedź sekretarza stanu w Ministerstwie Gospodarki–z upoważnienia ministra–na interpelację nr 766 w sprawie zamiaru posadowienia elektrowni atomowej w miejscowości Gąski k. Mielna, (2012) http://www.sejm.gov.pl/sejm7.nsf/InterpelacjaTresc.xsp?key=61794612 . (Accessed 24 January 2017).
[51] Polish Nuclear Power Program, Monitor Polski, poz. 502, (2010) http://www.monitorpolski.gov.pl/MP/2014/502 . (Accessed 25 January 2017).
[52] Resolution of the Council of Ministers, Uchwala Nr 4/2009 Rady Ministrow z dnia 13 stycznia 2009 w sprawie dzialan podejmowanych w zakresie rozwoju energetyki Jàdrowej, (2009) Kancelaria Prezesa Rady Ministrow, RM 111012-09.
[53] H. Trojanowska, Odpowiedź podsekretarza stanu w Ministerstwie Gospodarki–z upoważnienia ministra–na interpelację nr 9647 w sprawie planów budowy elektrowni atomowej w Polsce, dnia 30 października 2012 r, (2012) http://www.sejm.gov.pl/sejm7.nsf/InterpelacjaTresc.xsp?key=04739418 . (accessed 25 January 2017).
[54] S. Bouzarovski, M. Bassin, Energy and identity: imagining Russia as a hydrocarbon superpower, J. Ann. Assoc. Am. Geogr. 101 (4) (2011) 783–794.
[55] C. Johnson, T. Boersma, Energy (in)security in Poland the case of shale gas, Energy Policy 53 (2013) 389–399.
[56] H. Trojanowska, Odpowiedź podsekretarza stanu w Ministerstwie Gospodarki–z upoważnienia ministra–na zapytanie nr 2383 w sprawie budowy elektrowni atomowych w Polsce, dnia 29 listopada 2012 r, (2012) http://www.sejm.gov.pl/sejm7.nsf/InterpelacjaTresc.xsp?key=669C107E . (Accessed 25 January 2017).
[57] D. Medvedev, Обращение к гражданам России в связи с годовщиной аварии на Чернобыльской АЭС [Address to the Nation on the 25th Anniversary of the Chernobyl NPP Disaster], (2011) http://kremlin.ru/events/president/news/11085 . (accessed 29 January 2017).
[58] D. Medvedev, Послание Президента Федеральному Собранию [Presidential Address to the Federal Assembly of the Russian Federation], (2010) http://kremlin.ru/events/president/transcripts/messages/9637/photos . (Accessed 29 January 2017).
[59] D. Medvedev, Пресс-конференция по итогам саммита по ядерной безопасности [Press Conference after Nuclear Security Summit] (2012) http://kremlin.ru/events/president/news/14859 . (Accessed 29 January 2017).
[60] P. Rutland, Russia as an energy superpower, New Polit. Econ. 13 (2) (2008) 203–210.