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# THE PUBLIC PERCEPTION OF NUCLEAR ENERGY IN LITHUANIA

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**Abstract.** The relevance of this article is based on the aim to fulfil the lack of understanding of public perception on nuclear energy in Lithuania. The results of the empirical survey (public poll carried out in 2013) are used to explain the public perception of nuclear energy and its contextual aspects (safety, economic benefit, possible new challenges, personal knowledge). To show the distribution of the attitude among the public cluster analysis was performed through which respondents were divided into two groups. The 1st cluster represents that part of the public which is well educated, actively working and actively contributing to the state economy. Meanwhile the 2nd is less educated, less active economically and more dependent on social security programs part of the public. The cluster analysis reveals small, but statistically significant differences in attitude between the clusters.

**Keywords**: public perception, nuclear energy, cluster analysis, Lithuania

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**JEL Classifications:** Z13

## 1. Introduction

The perception of nuclear energy is notable topic in academic literature not only in Lithuania (Balzekiene 2006; Balžekienė, Butkevičienė, Rinkevičius, Gaidys 2009; Rinkevičius, Baločkaitė 2009; Pilibaitytė 2011;), East Middle Europe (Novikau 2016; Wagner et al 2016; Strielkowski, Lisin, Tvaronavičienė 2016; Šincāns, Ivančiks 2017), but all over the Europe (Poortinga et al 2005; Sovacool et al 2012; Mulder 2012; Knox-Hayes et al 2013; Demski et al 2014; Goodfellow et al 2014).

Nuclear energy throughout its development in Lithuania could be characterized by dichotomic consequences for energy security and country's development in general. On the one hand it hugely contributed to economic sustainability and country's prosperity after the reestablishment of Independence. It was the most important electricity producer and key factor for liberation from former Soviet Russia energy blockade[1]. And on the other hand – having such a huge contributor in country's energy balance it had let to uncontested problems like market concentration and isolation from EU, and after Ignalina's nuclear power plant (INPP) decommissioning in 2009 (which was one of the key requirements for Lithuania to join EU) we've faced extra challenges like, increasing energy prices and unreliable energy supply. In 2010 Lithuania's dependence on the external energy

[1] http://www.larouchepub.com/eiw/public/1990/eirv17n18-19900427/eirv17n18-19900427_028-moscow_imposes_blockade_to_stran.pdf

supplies has reached critical level (80% of totally consumed energy). Due to the existing power system to the East and the absence of interconnections with the West, Russia has remained the main supplier of electricity (as well as natural gas) and became the key player in Lithuanian energy market at the time (Augutis et al 2013). This was threatening situation from both energy security and political independence point of view.

Having in mind the importance, it doesn't surprise, that even after the decommissioning of INPP, nuclear energy in Lithuania remained as one of the key factor for energy security at the long-term strategic interest (Nacionalinė energetikos strategija [National energy strategy] 1994; 1999; 2002; 2007; 2012).

The previous research on public attitudes towards nuclear energy in Lithuania showed that during the twenty years of independence Lithuanians were supportive towards development of nuclear energy (Rinkevičius, Gaidys 2008). But in 2012, the public referendum was held, during which society expressed negative will (62.68 % vs. 34.09 %) against construction of new Visaginas nuclear power plant (VNPP). Therefore, the aim of this paper is to reveal the public perception of nuclear energy in Lithuania and explain the distribution of attitudes among the public.

The paper is based on empirical research[2] (public poll) carried out in 2013.

The paper starts with general tendencies of public perception of nuclear energy as well as some associational aspects. Then, with the help of cluster analysis respondents were divided into two groups based on income, education and occupation. Finally, to demonstrate different rationalization of nuclear energy between the clusters the evaluation of additional aspects (regarding self-evaluation of personal awareness, assessment of media performance and trust in the role of various institutions/organizations for Lithuanian energy policy) were discussed. The paper ends with main conclusions.

## 2. Tendencies of Public Nuclear Energy Perception

To identify the most important aspects of energy security for Lithuanian society, the vast variety of different aspects[3] of energy security were provide for respondents. As we mentioned elsewhere (Leonavičius, Genys, Krikštolaitis 2015) energy security is perceived rather broadly by the public, but in this case we'll focus only on public perception of nuclear energy and related aspects.

In the rating[4] of the most important aspects of energy security in Lithuania, "The prices of energy resources" was evaluated the highest (4.35), while the lowest – "Development of shale gas extraction" (3.08). "Development of nuclear energy" (3.30) took next to the last position (Leonavičius, Genys, Krikštolaitis 2015: 313). 49.1% supported this kind of energy, 24.1% - did not and 26.8% had no opinion on the issue.

Nuclear energy is complicated issue and let alone the general attitude of the public might be less informative.

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[2] Representative survey was conducted by public opinion research company "Vilmorus" in May and June 2013. Number of respondents: N = 2002; interviewed 18 years old and older residents of Lithuania. The method of survey: questioning respondents at home using pre-made questionnaires. Method of selection: multi-stage, probabilistic sampling. Selection of respondents was prepared so that each resident of Lithuania should have an equal chance of being questioned. The results reflect the opinion of the entire population of Lithuania and distribution by age, sex, place of residence, education, purchasing power. Error of survey results – 3% (probability – no less than 97%).

[3] The aspects of energy security were formed in line with Lithuanian strategic interests and covered different angles of energy security: diversification (of energy suppliers as well as resources), reliability (of supply and infrastructure), independence (from foreign states (mainly Russia) as well as monopolistic practices), ability to take advantage of international political relations (e.g., EU, NATO) to defend Lithuanian interests, lastly – evaluation of strategic projects to be implemented in upcoming future (renewable energy, shale gas, nuclear energy) (Leonavičius, Genys, Krikštolaitis 2015).

[4] The five point Likert scale was used for the creation of the rating: respondent disapproval of a particular issue was marked 1, indecisiveness / not knowing – 3 and approval - 5. Increased average of the responses (e.g., when responses average is approaching 5) means a higher importance of the particular aspect from the point of respondents opinion and conversely, lower average – lower importance (e.g., when responses average is approaching 1).

Studies[5] in other countries show that distribution of public attitude divides society to different size groups of those who support, who do not support and those who unaware. Therefore Lithuanian case is no exception, only the proportions of the groups might be different. To better understand public's attitude to nuclear energy and its associational aspects, respondents were asked to evaluate statements regarding personal knowledge of nuclear advantages and disadvantages, safety evaluation, economic benefit, and its relation to some other issues (Table 1).

**Table 1.** Evaluation of the statements (%)

| | I know the advantages and disadvantages of nuclear energy | I think, than Visaginas NPP will be safe | I think that Visaginas NPP will be economically beneficial for Lithuania | I think, that VNPP will cause some extra troubles in the country (i.e. oligarchy widespread) |
|---|---|---|---|---|
| Totally disagree | 13.2 | 12.1 | 12.0 | 3.7 |
| Disagree | 40.9 | 28.1 | 25.2 | 14.1 |
| Agree | 26.9 | 21.1 | 22.5 | 34.5 |
| Totally agree | 3.9 | 2.7 | 4.3 | 13.6 |
| Don't know/undecided | 15.1 | 36.0 | 36.0 | 34.1 |

The first thing that becomes obvious is the lack of information among the public. 54.1% *disagreed* or *totally disagreed* with the statement "I know the advantages and disadvantages of nuclear energy". Almost third part (30.8%) of respondents *agreed* or *totally agreed* with the statement and 15.1% were *undecided* or *did not answer*. This show that people lacks clear and understandable information regarding the issue. It seems that large part of the public comes up with a decision regarding nuclear energy without necessary information or having only partial understanding of the issue.

According to public view the safety of VNPP is also troubling: 40.2% of respondents *disagreed* or *totally disagreed* with the statement "I think, than Visaginas NPP will be safe". 23.7% *agreed* or *totally agreed* with the statement and even 36% were *undecided* or *did not answer.* Having in mind that 49.1% of respondents support nuclear energy and think that it is important aspect of Lithuanian energy security such results reveal sort of contradiction in public perception.

The same part of respondents 36% *didn't have* opinion (or *did not answer)* to the statement "I think that Visaginas NPP will be economically beneficial for Lithuania". 37.2% *disagreed* or *totally disagreed* and almost fourth part of respondents 26.8% *agreed* or *totally agreed*. Such almost equal division of attitudes to economic benefit of NPP among the public reflects the struggle of vivid public debate (Genys 2014) and oppositions towards possible VNPP economic benefit (when proponents emphasized the positive impact on country's economy, while opponents – on the opposite, not only questioned possible benefit of the project, but set a doubt about the uncertainty of nuclear energy in upcoming future and its decreasing economic benefit in general). The big part of those who are undecided show, that some part of the public weren't persuade by neither side of argumentation and they still lack the information.

Finally, trying to identify the broader context in which VNPP is being evaluate, respondents were asked to identify some of the possible associations that the project might be related to. Almost half of respondents 48.1% *agreed* or *totally agreed* with the statement "I think, that VNPP will cause some extra troubles in the country (i.e. oligarchy widespread)". Only 17.8% *disagreed* or *totally disagreed* and almost third part 34.1% *didn't have opinion* (or *did not answer*). And on the contrary the findings of earlier research (carried out in 2008) showed that nuclear energy at that time in public was associated with positive connotations (like economic country's autonomy and energy independence) (Balžekienė, Butkevičienė, Rinkevičius, Gaidys 2009: 242). Such sig-

[5] http://ec.europa.eu/public_opinion/archives/ebs/ebs_271_en.pdf ; https://www.oecd-nea.org/ndd/reports/2010/nea6859-public-attitudes.pdf

nificant changed in public attitude towards nuclear energy might be related with scandalous[6] government's attempts to start the process of the construction of new NPP in 2008-2009.

## 3. Two groups - different nuclear energy reasoning?

To better understand the distribution of attitudes to nuclear energy between different social groups, it was decided to perform cluster analysis. The clusters were formed accordingly to the concept of socio-economic status deriving from the basis of the American social stratification research tradition (Ganzeboom et al 1992). The concept of socio-economic status is based on three variables, i.e., education, income and occupation. Therefore three empirical questions (What is your educational background? What are your main activities? What is your income?) served as independent variables for the creation of two clusters.

Hierarchical cluster analysis was performed to identify the number of clusters. Between groups linkage method with Chi-square measure as linkage measures was used. 2 different clusters were distinguished. Subsequently a K-means cluster analysis was performed using 2 as the pre-defined number of clusters. The descriptive statistics for each cluster are displayed in table below (Table 2).

**Table 2.** Final Cluster Centers

| | Clusters | |
|---|---|---|
| | 1 | 2 |
| **What is your educational background?** | | |
| Primary education | | |
| Secondary education | | |
| Vocational training | 4 | 3 |
| Further education | | |
| Unfinished higher education | | |
| Higher education | | |
| Other | | |
| **What is your occupation?** | | |
| State enterprises employee | | |
| Private business owner | | |
| Private company employee | 2 | 6 |
| Student / Pupil | | |
| Unemployed | | |
| Retired | | |
| Other activities | | |
| **What is your family income (per person after taxes)?**[7] | | |
| Under 86,89 Eur | | |
| 87.18 - 173.77 Eur | | |
| 174.06 - 260.66 Eur | | |
| 260.95 - 347.54 Eur | 4 | 3 |
| 347.83 - 434.43 Eur | | |
| 434.72 - 521.32 Eur | | |
| 521.61 - 608.20 Eur | | |
| 608.49 Eur and more | | |

[6] In 2008 the new electric company LEO LT (Lithuanian Electricity Organization) was established. Part of the shares (38.3%) acquired private investor and the rest (61.7%) – the government. The establishment of the company and the worth allocation between shareholders led to questions about the transparency from the beginning and eventually caused public dissatisfaction with the project. With the disclosure of the circumstances that company's establishment took place undermining many procedural steps the public dissatisfaction with the project has increased. Finally, after the term of the office expired and the government of Socialdemocrats (ruling period 2004-2008) were switched by Conservatives (ruling period 2008-2012), shortly the electric company has been disbanded by mutual agreement.

[7] The public poll was carried out in 2013 when national currency Litas was still in use, therefore in further analysis in this article income in Litas is used as a category. The analogue amount in Euros is provided in the brackets.

The 1st cluster consists of people with higher education, who are richer and are owning private companies (or are working in it). Meanwhile, the 2nd cluster is dominated by people with lower education (mainly vocational training) and with lower income who are retired, unemployed or students. Through cluster analysis the respondents were divided in two distinct parts when the 1st cluster represent that part of the public which is well educated, actively working and actively contributing to the state economy. Meanwhile the 2nd is less educated, less active economically and more dependent on social security programs part of the public. The size of the 1st cluster is 853 individuals or 42.61% of the surveyed population, 2nd – 916 individuals or 45.75% and 233 – missing (11.64%).

To crystalize the differences and have a broader understanding every each of them we decided to analyze additional correlations regarding living area and age.

**Table 3.** Distribution of living are among each cluster (crosstab)

| | 30. Living area | | | | Total |
|---|---|---|---|---|---|
| | Big cities | Centre of region | Small cities | Rural areas and Countryside | |
| 1 | **43.4%** | 29.9% | 2.8% | 23.9% | 100.0% |
| 2 | 33.3% | 29.5% | 2.6% | **34.6%** | 100.0% |
| Total | 38.2% | 29.7% | 2.7% | 29.5% | 100.0% |

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 28.990[a] | 3 | **.000** |
| Likelihood Ratio | 29.158 | 3 | .000 |
| Linear-by-Linear Association | 28.178 | 1 | .000 |
| N of Valid Cases | 1769 | | |

By comparing two clusters we see that representatives of the 1st cluster more frequently live in bigger cities and more seldom in rural areas, while of the 2nd on the contrary – most of them live in rural areas and in district centers. And also notable part live in cities as well (Table 4).

**Table 4.** Age distribution within each cluster (crosstab)

| 18 - 25 | Age groups | | | | | | Total |
|---|---|---|---|---|---|---|---|
| | 26 - 35 | 36 - 45 | 46 - 55 | 56 - 65 | 66 and more | | |
| 1 | 12.2% | **20.5%** | **24.6%** | **27.0%** | 13.4% | 2.3% | 100.0% |
| 2 | 9.2% | 5.3% | 8.2% | 10.6% | **20.9%** | **45.9%** | 100.0% |
| Total | 10.6% | 12.7% | 16.1% | 18.5% | 17.2% | 24.9% | 100.0% |

**Chi-Square Tests**

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 572.603[a] | 5 | **.000** |
| Likelihood Ratio | 664.254 | 5 | .000 |
| Linear-by-Linear Association | 357.905 | 1 | .000 |
| N of Valid Cases | 1769 | | |

The representatives of the 1st cluster are relatively young and mature, the three largest groups are of 26-35, 36-45 and 46-55 years old. Meanwhile the two largest groups of the 2nd cluster are – elders 56-66 years old and the oldest (66 and more) group.

Having these two different clusters it is interesting to explore what kind of difference it will reveal regarding their attitude towards nuclear energy and VNPP (Table 5).

**Table 5.** Evaluation of the statements, both clusters (%)

| Question | Chi-Square | Asymp. Sig. (2-tailed) | | 1st % | 2nd % |
|---|---|---|---|---|---|
| 9.3. I know the advantages and disadvantages of nuclear energy | 25.183 | **.000** | Absolutely / disagree | 51.8 | 56.1 |
| | | | Don't know/ not responded | **12.6** | **18.2** |
| | | | Absolutely / agree | 35.6 | 25.7 |
| 20.1. I think that Visaginas NPP project will be safe | 18.799 | **.000** | Absolutely / disagree | 43.1 | 39.2 |
| | | | Don't know/ not responded | **30.0** | **39.5** |
| | | | Absolutely / agree | 26.9 | 21.3 |
| 20.2. I think that Visaginas nuclear power plant will be economical beneficial for Lithuania | 15.566 | **.000** | Absolutely / disagree | 38.6 | 36.7 |
| | | | Don't know/ not responded | **30.7** | **39.0** |
| | | | Absolutely / agree | 30.7 | 24.3 |
| 20.3. I think that Visaginas NPP project will cause additional problems in the country (eg., oligarchy widespread). | 22.445 | **.000** | Absolutely / disagree | 18.8 | 17.2 |
| | | | Don't know/ not responded | **28.0** | **38.5** |
| | | | Absolutely / agree | 53.2 | 44.3 |
| 1.7. The development of nuclear energy | 26.488 | **.000** | Absolutely / disagree | 25.4 | 22.5 |
| | | | Don't know/ not responded | **21.5** | **32.3** |
| | | | Absolutely / agree | 53.1 | 45.2 |

First, the analysis showed that every question was evaluated somehow different between the clusters. A chi-square test for homogeneity to determine whether 1st clusters members opinion differed significantly from 2nd clusters members opinion. From Table 5 we could see that for all 5 questions we are observing statistically significant differences between clusters members' opinions. Second, as it was possible to predict, the respondents of the 2nd cluster are much more indecisive and frequently don't have an opinion (differences bolded in the table). Most of the time it exceeds 30% (with exception of the first statement – "I know the advantages and disadvantages of nuclear energy", 18.2%). Third, the respondents of the 1st cluster are more positive towards every statement (including "I think that Visaginas NPP project will cause additional problems in the country (eg., oligarchy widespread"). However, this doesn't mean that the respondents of the 2nd cluster eventually are more sceptical regarding every statement. Even though the 1st cluster has more positive attitude at the same time it is more sceptical. It seems that the 1st cluster, whether the answers are positive or critical, it is more decisive than the 2nd.

To sum up main differences between at least two groups of respondents, we could say, that representatives of the 1st cluster (who are better educated, richer, frequently working in private sector, frequently living in big cities and are in the age range from 26 to 55) are more positive as well as more critical about every statement. They tend to agree with the advantages (safety, economic benefit) as well as disadvantages (VNPP contribution to oligarchy widespread). Finally, this cluster has less doubts regarding the development on nuclear energy and tends to support it.

On the other hand, the representatives of the 2nd cluster (who are somehow less educated, have lower income, mainly retired, unemployed or studying, frequently living in rural areas and are older (56 and more)), first of all, have less information and frequently are unaware about nuclear energy issues. The respondents of this cluster are less critical to every statement (with the exception of "I know the advantages and disadvantages of nuclear energy"). Finally, this cluster has more doubts regarding the development on nuclear energy.

As it was mentioned in the beginning the paper doesn't seek to explain the cause of nuclear energy perception of the public or different its reasoning between the clusters, but aims to reveal existing differences. The final table (below) provides contextual information representing broader scope to self-evaluation of personal awareness on energy issue, assessment of media performance, and trust in the role of various institutions/organizations for Lithuanian energy policy (Table 6).

**Table 6.** Evaluation of contextual statements, both clusters (%)

| Statement/Question | Chi-Square | Asymp. Sig. (2-tailed) | Response | **1st %** | **2nd %** |
|---|---|---|---|---|---|
| 9.1. I am very well informed about energy problems. | 21.409 | **.000** | Absolutely / disagree | 68.7 | 68.1 |
| | | | Don't know/ not responded | 9.7 | 16.1 |
| | | | Absolutely / agree | 21.6 | 15.8 |
| 9.2. I think that media reflects the energy issues in detail. | 22.137 | **.000** | Absolutely / disagree | 57.8 | 56.7 |
| | | | Don't know/ not responded | 12.1 | 19.5 |
| | | | Absolutely / agree | 30.1 | 23.8 |
| 6.2. Do You Trust the Influence of these Institutions and Organizations on Lithuanian Energy Policy? Lithuanian Government. | 8.864 | **.012** | Absolutely / disagree | 36.2 | 29.6 |
| | | | Don't know/ not responded | 18.2 | 19.7 |
| | | | Absolutely / agree | 45.6 | 50.7 |
| 6.4. Do You Trust the Influence of these Institutions and Organizations on Lithuanian Energy Policy? Municipalities. | 9.523 | **.009** | Absolutely / disagree | **43.6** | **38.4** |
| | | | Don't know/ not responded | **25.2** | **23.5** |
| | | | Absolutely / agree | **31.2** | **38.1** |
| 6.5. Do You Trust the Influence of these Institutions and Organizations on Lithuanian Energy Policy? Scientists. | 0.161 | .922 | Absolutely / disagree | 8.2 | 8.4 |
| | | | Don't know/ not responded | 16.4 | 17.0 |
| | | | Absolutely / agree | 75.4 | 74.6 |
| 6.6. Do You Trust the Influence of these Institutions and Organizations on Lithuanian Energy Policy? Lithuanian Energy Ministry. | 3.460 | .117 | Absolutely / disagree | 31.4 | 27.4 |
| | | | Don't know/ not responded | 24.3 | 26.0 |
| | | | Absolutely / agree | 44.3 | 46.6 |
| 6.7. Do You Trust the Influence of these Institutions and Organizations on Lithuanian Energy Policy? NGOs. | 11.117 | **.004** | Absolutely / disagree | 30.2 | 23.9 |
| | | | Don't know/ not responded | 33.3 | 39.4 |
| | | | Absolutely / agree | 36.5 | 36.7 |
| 6.9. Do You Trust the Influence of these Institutions and Organizations on Lithuanian Energy Policy? Private Energy Companies. | 12.082 | **.002** | Absolutely / disagree | 50.3 | 46.3 |
| | | | Don't know/ not responded | 31.1 | 38.6 |
| | | | Absolutely / agree | 18.6 | 15.1 |
| 6.17. Do You Trust the Influence of these Institutions and Organizations on Lithuanian Energy Policy? International/global energy organizations (i.e., IAEA, WEC). | 7.387 | **.025** | Absolutely / disagree | 18.8 | 17.1 |
| | | | Don't know/ not responded | 43.4 | 49.8 |
| | | | Absolutely / agree | 37.9 | 33.1 |

Only in two cases (Do You Trust the Influence of these Institutions and Organizations on Lithuanian Energy Policy? "Scientists" and "Lithuanian Energy Ministry"), there are no statistically significant differences between the answers. Both clusters express strong support towards scientists' role in energy policy (75.4% 1st and 74.6% 2nd *absolutely agreed* and *agreed*). This aspect left the less amount of those who don't have an opinion or those who disagree among all statements/questions.

Another similarity between clusters it's both quite critical attitude towards the role of "Lithuanian Energy ministry". Even though the 2nd is more supportive and little less critical (27.4% *absolutely disagreed* and dis*agreed* and 46.6% *absolutely agreed* and *agreed*) than the 1st (31.4% *absolutely disagreed* and *disagreed* and 44.3% *absolutely agreed* and *agreed*), the answers do not indicate statistical significance in those differences.

The 1st cluster seems to be more confident regarding personal awareness about energy problems (21.6% 1st vs. 15.8% 2nd *absolutely agreed* and *agreed*). But it trust (45.6% 1st vs. 50.7% 2nd *absolutely agreed* and *agreed*) less in "Lithuanian government influence on energy policy" as well as is more critical to "municipalities role in energy policy" (43.6% 1st vs. 38.4% 2nd *absolutely disagreed* and *disagreed*).

Both clusters are lacking information regarding "NGO" (33.3% and 39.4%), "Private companies" (31.1% and 38.6%), and "International organizations" (43.3% and 49.8%) role in Lithuanian energy policy. The 1st cluster is little more critical as usual than the 2nd. It is worth mentioning that "Private companies" are strongly lacking support from both clusters (50.3% 1st and 46.3% 2nd).

## Conclusions

The analysis of public perception of nuclear energy revealed diverse attitude among the public. For example, 49.1% supported this kind of energy, 24.1% - did not and 26.8% had no opinion on the issue. For deeper analysis of public perception additional questions (regarding respondents' knowledge of nuclear advantages and disadvantages, safety evaluation, economic benefit, and its relation to some other issues) were provided. The lack of information among the public is obvious: 54.1% *disagreed* or *totally disagreed* with the statement "I know the advantages and disadvantages of nuclear energy", 36% didn't have an opinion on "I think, than Visaginas NPP will be safe" and "I think that Visaginas NPP will be economically beneficial for Lithuania" and 34.1% on "I think, that VNPP will cause some extra troubles in the country (i.e. oligarchy widespread)". This somehow echoes the findings of public perception across various countries, that large sections of public have no firm views for or against nuclear energy in many countries.

40.2% of respondents *disagreed* or *totally disagreed* with the statement "I think, than Visaginas NPP will be safe". Only 26.8% *agreed* or *totally agreed* with the statement "I think that Visaginas NPP will be economically beneficial for Lithuania". While almost half of respondents 48.1% *agreed* or *totally agreed* with the statement "I think, that VNPP will cause some extra troubles in the country (i.e. oligarchy widespread)" (on the contrary, only 17.8% *disagreed* or *totally disagreed*).

To show the distribution of public attitude among the public cluster analysis were performed through which respondents were divided into two groups. The 1st cluster represents that part of the public which is well educated, actively working and actively contributing to the state economy. Meanwhile the 2nd is less educated, less active economically and more dependent on social security programs part of the public. The cluster analysis reveals small, but statistically significant differences in attitude between the clusters. The respondents of the 2nd cluster are much more indecisive: most of the time they *don't know* answers exceeds 30% (with exception of the first statement – "I know the advantages and disadvantages of nuclear energy", 18.2%). The respondents of the 1st cluster are more positive towards every statement (including "I think that Visaginas NPP project will cause additional problems in the country (eg., oligarchy widespread").

The 1st cluster is be more confident regarding personal awareness about energy problems (21.6% 1st vs. 15.8% 2nd *absolutely agreed* and *agreed*), but it trust less (45.6% 1st vs. 50.7% 2nd *absolutely agreed* and *agreed*) in "Lithuanian government influence on energy policy" as well as is more critical to "municipalities role in energy policy" (43.6% 1st vs. 38.4% 2nd *absolutely disagreed* and *disagreed*). Both clusters are lacking information regarding "NGO" (33.3% and 39.4%), "Private companies" (31.1% and 38.6%), and "International organizations" (43.3% and 49.8%) role in Lithuanian energy policy.

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