

# Citizen Involvement and the Role of Experts in Finnish Energy Policy-Making

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**Abstract-** Finnish energy policy is characterized by special characteristics in international comparison. Even though the construction of nuclear power plants had almost ceased abroad, here the construction of a new plant was licensed by Parliament in 2002, which was followed by licenses for two reactors in 2010. The purpose of the present study is to discuss, whether Finn's attitudes on energy-policy have engendered conditions for "big" energy policy decisions which in most countries have been very difficult to make. The empirical analysis of the present study is composed of three parts: citizens' views on their possibilities to influence energy policy-making through representative democracy and political consumerism; their trust in the energy information produced by various actors, and their normative views on the role of experts and political decision-makers in energy policy-making. The study is based on a postal survey conducted among a random sample (N=4000) representing 18-75-year old Finns in 2007.

Finns prefer experts rather than politicians to be in charge of energy policy-making. Research institutions representing scientific expertise were seen by the citizenry the most reliable sources of energy information. On the other hand, individual consumption choices were rated to be more useful than, for instance, voting in elections or contacts with MPs, contacts with authorities and energy-producing companies. Hence, it is evident that the Finnish attitudinal climate has created a fruitful soil for decisions concerning energy policy, especially nuclear power.

**Keywords-** Energy Policy; Power; Expertise; Political Consumerism; Finland

## I. INTRODUCTION

Finnish energy policy is characterized by special characteristics in international comparison. Firstly, the electricity markets were liberalized (1995) very rapidly, Finland being among the first countries to do so, even before the EU directive came into force. Secondly, even though the construction of nuclear power plants had almost ceased abroad, here the construction of a new plant was licensed by Parliament in 2002, that is prior to a so-called nuclear renaissance, and international discussion about climate change. Moreover, Parliament licensed construction of two nuclear power plants in June 2010. Thirdly, Finland is the only country in the world where the commencement of process for the final disposal of spent nuclear fuel in the bedrock has been authorized both on national (Parliament in 2001) and a local (municipal council in 2000) level (e.g. [1], [2]).

The purpose of the present study is to discuss, whether Finn's attitudes to energy-policy have engendered

conditions for "big" energy policy decisions which in most countries have been very difficult to make. Finland's special position will be accounted for by attitudinal climate which frame the opportunity structure of political decision-makers. Citizens' attitudes on energy policy are important due to that big energy policy decisions are dependent on political acceptability. For instance, construction of every single nuclear reactor have to be ratified by Parliament on national level and by municipal council on local level by political decision-makers who are responsible for their decisions to the constituency.

Despite the wide-ranging powers of political decision-makers in energy policy, citizens have been dissatisfied with their role in energy policy. As early as 1988, two thirds of Finns held that citizens' opinions were not sufficiently heard in energy decisions. However, this dissatisfaction did not lead to the conclusion that the role of political decision-makers should be strengthened. On the contrary, when citizens were asked in 1989, at the moment of extensive governmental regulation of energy policy, when actor was the most competent to decide on the construction of the 5th nuclear power plant, the most common response was referendum, followed in order by independent experts, power-producing companies, Parliament, residents the municipality where the plant would be located, the Government and the council of the municipality of location. In other words, Finns were willing to assign authority on important energy policy decisions rather than experts and power-producers than politicians [3].

In fact, Finns' trust in political decision-makers has been exiguous in international comparison [4]. Voter turnout has decreased in Finland more radically than in many Western states during last decades and the country has dropped below the European mean since the 1980s [5]. Moreover, Finns' involvement with associational activities and unconventional civic activities, which have arisen alongside with the traditional citizen involvement, has been passive in international comparison [6, 7]. On the other hand, where Finns have trusted firmly in scientific institutions, even increasingly [8] citizens' trust in expert knowledge has decreased in many countries (e.g. [9]).

Thus, tension between Finns' possibilities to wield power as citizens (representative democracy) or consumers (political consumerism) and expert knowledge and power comes across in energy policy-making, which is commonly seen as a policy sector dominated by experts (e.g. [10]). Our

purpose is to analyse, in what extent Finns trust in experts and do they experience themselves as powerlessness in energy policy-making.

A framework for analysing the characteristics of the Finnish energy policy arena will be outlined in the next chapter in terms of politics of expertise and political consumerism. Thereafter the data are defined. The empirical analysis of the present study is composed of three parts: citizens' views on their possibilities to influence energy policy-making through representative democracy and political consumerism; their trust in the energy information produced by various actors; and their normative views on the role of experts and political decision-makers in energy policy-making.

## II. MATERIAL OF THE STUDY

Methodologically present study was based on a postal survey conducted among a random sample representing 18-75-year old Finns. The field work, including one reminder round, was carried out in May - October 2007. Even if the rate of response was rather low, 30.0, the large size of the sample (N=4000) ensures that the data adequately represent the Finnish population at large [11, 12, 13, 1].

Nonetheless, the data deviate in minor respects from the whole population. Older people are somewhat overrepresented. People living in small municipalities (4000-8000 inhabitants) are also slightly overrepresented, while those living in large municipalities (more than 80000 inhabitants) are underrepresented. The highly educated are somewhat overrepresented; those who received their education in the technical sciences are clearly underrepresented but educated agriculture and forestry are overrepresented in the data compared to the population at large. As far as social stratification is concerned, lower functionaries are underrepresented. People living in their own flats are clearly overrepresented, while individuals living in rented flats or apartment houses are clearly underrepresented.

Furthermore, it seems evident that the respondents were somewhat more interested in energy issues than the Finns at large. As many as 44 percent replied that they were well acquainted with energy issues. As many as 39 per cent reported that they had asked for prize offers from different electricity suppliers and 26 percent had even changed their electricity supplier. These proportions are somewhat higher in the data compared to the population as a whole.

## III. THE POLITICS OF EXPERTISE

The concept of expertise is seen here generally as either experience-based or academically certified knowledge, skills and competences [14]. In other words, the expertise of energy policy can be acquired not only from relevant academic education but also from professional experience in research institutes, public administration, firms and organisations.

Western science and technology policy (S & T) has generally been seen as a policy sector dominated by experts

and public administration, where political decision-makers neither have played a role nor aspired to do so [15, 16]. This is the case in Finland as well: governmental policy-making in the field of science and technology has been dominated by experts, perhaps more so than any other policy sector. Despite its vital position in societal development, however, this has played only a marginal role in the agenda of political parties and Parliament (e.g. [17]).

The Finnish resistance to nuclear power has been evaluated to be low in international comparison [18]. Moreover, the relative "silence" of Finns with regard to the development and introduction of gene technology has been striking while at the same time a fierce public controversy about it raged in other parts of Europe. Finns seemed to approve of their public authorities and experts in spite of top-down biotechnology policy, when similar policies by their counterparts in many other countries had met with increased distrust and criticism [14]. In the case of information technology Finns have not only been trustful, but also eagerly utilized it (e.g. Nokia's mobile phones).

Fundamental to the critique of technocratic expertise is the argument that experts have relied excessively on and misused scientific and technical knowledge. Thus, technocracy has been seen as a deep-seated challenge to democracy and its political form of decision-making. However, rather than being a black-and-white phenomenon, i.e. good or bad as such, expertise has become more and more indispensable a precondition for decision-making as a result of the enlarged political agenda and increased complexity of the operational environment and interdependence between the politics, economy and nature. Rather, expertise becomes a problem if the decision-making processes are based on biased information wherever it is acquired [19].

Critique of technocracy has raised a question about the need for the expansion of expertise in the governance of science and technology. The concept of expansion of expertise refers to "the process of involvement of new actors and knowledge perspectives beyond the technically or professionally certified elites" [14]. Its parallel evolution can be followed through the development of several fields related to S & T policy, such as risk assessment, technology assessment, environmental impact assessment and foresight. Currently the trend of the expansion of expertise is widely established; it has a rather more pragmatic than ideological motivation. It refers to a multitude of practices and approaches, and there is an increasing interest in developing and evaluating those practices. The expansion of expertise is gaining terrain in the core work in S & T strategy-making [14]. Making professional expertise available to groups otherwise excluded from the process calls attention to the implicit, hidden elitist politics embedded in the ostensibly "consultative" relationship. It thus clearly constitutes an important political and methodological step toward a less elitist, more democratic practice of expertise [19].

The rationales for the expansion of expertise, especially for increasing participation in policy-making, can be divided into two broad lines of argument. The pragmatic argument

considers wider participation as a way to improve and facilitate decision-making by, for example, making decisions more informed and socially acceptable. The normative argument stresses the intended function of rendering the process of decision-making democratic [14].

Similarly, the limitations to expansion of expertise can be classified in two broad categories. According to pragmatic argument, the expansion of expertise may lead to technological paralysis which refers to decreasing productivity and efficiency due to the inclusions of public concerns. An increasing number of actors and viewpoints can make it difficult to reach either consensus or any kind of agreement. The normative argument refers to the negative quality of decision-making process itself. Participatory practices are seen to tend feed irresponsibility by shifting the responsibility for the consequences of the projects from agencies onto the people participating [14].

In his study of Environmental Impact Assessment (EIA), Hokkanen [20] has analysed public participation in two Finnish cases, a road construction project and the governmental plan for final disposal of spent nuclear fuel. His findings was that even if participation of the citizenry was carried out with great visibility, professional implementation and sufficient resources, the impact of public participation and lay people expertise was not so essential while economic and political interests of the project and the role of experts were in central role. EIA was seen as an open arena but political participation can be harnessed by the proponent of the project as well as it can feed the so called NIMBY phenomenon. It was also seen possible that IEA can create a new elite – active lay experts – due to that participation was cumulated to a small group of individuals. Thus, ideas of deliberative democracy or communicative planning are challenging to implement in practice.

#### IV. POLITICAL CONSUMERISM

In many Western democracies “new politics” has mounted a major challenge to the ‘official’ system and structures of “old politics” such as political parties. The focus of people’s attention to politics has moved to a large extent from mass meetings to private homes and from collective activity to individual attachment, as well as from ideologies to personalities. “New politics” is a style of participation which deliberately seeks to distance itself from established channels, thereby questioning the legitimacy as well as the decisions of the government [21, 22].

Modes of civic participation can be classified with many ways into different categories (see e.g. [23]). Our aim in this study, however, is not to analyse the whole wide spectrum of political participation but focus on the electoral channel and political consumerism which represent both traditional and new modes of political participation.

According to Micheletti, citizens in the Western world are moving away from many traditional forms of political participation focusing on the political system per se. People are now increasingly attracted to less bureaucratic,

hierarchical modes of involvement characterized by looser egalitarian, and informal structures which allows them to express themselves more individually and experience the thrills of participation. They now seek issues and arenas for involvement which are more flexible, network-oriented, hands-on and allow them to combine their daily living with political causes. Concepts such as the citizen-consumer, business ethics, corporate citizenship, social responsible investment, and political consumerism, among others have been created to identify globalization and the changed relationship between consumers and business [24].

Political consumerism concerns the politics of products, which in a nutshell can be defined as power relations among people and choices as to how resources should be used and allocated globally. Political consumers choose products, producers and services more on the basis of the politics of the product than the product as a material object per se. Their choices are informed by political values, virtues and ethics. They differ from economic consumers, who are simply looking for a good buy, that is, a satisfactory relationship between material quality and economic costs. Political consumers also tend to differ from lifestyle consumers who shop for products with the sole aim of helping to define and enhance their self-identity [24].

According to Micheletti, there are five basic reasons which theoretically justify conceiving of consumption as politics. Firstly, consumption is at times an access point or venue for people to express themselves politically. It may be that they have tried unsuccessfully to enter more traditionally political arenas, or that they have been excluded from these arenas from the start. Consumption offers these people an arena to work on their political issues and helps them exercise influence to solve their problems. Secondly, people can use consumption to set the political agenda of other actors and institutions and to pressure them to the negotiating table. When they shop smartly they combine their role as consumers and citizens and have the potential to act as citizen-consumers with the power of agents to develop new content, forms, and coalitions to solve problems of risk society and global injustices. Their actions, which combine the public role of citizens with the private role of consumers, can be seen as having agency in that they can help unfold new structures of operation and build new institutions to tackle global problems. Thirdly, consumption is politics in that there is a politics of products which involves classical political issues regarding power relations and the allocation of values in society which are to large degree decided by private corporations. Private corporations are thus vested with political power and can be considered private governments. This means that it is justifiable for citizens to be concerned about corporate policy and practices and to seek to influence them politically. Fourthly, consumption offers people market-based political tools like boycotts and buycotts which can be used to engage in political issues and struggles. They may use these means to influence a variety of actors and institutions,

including private corporations, governments and civil society. Fifthly, consumption is becoming more political in consequence of political landscape changes and the increasing global presence of transnational enterprises [24].

Political consumerism has been shown to be connected to the citizen agency of young people and of women. The attractiveness of political consumerism for young people is not well researched, but it would appear that an important explanation is the appeal of life-style politics among the young, trends towards individualization, and their tendency to find the formal political sphere alienating. Three factors explain the role of women in political consumerism. Firstly, women are assumed to have responsibility for shopping for the family on a daily basis. They are thus more involved with consumer issues than men or children. Secondly, studies show that women have a lower risk perception threshold than men. Thirdly, because women have historically been excluded from institutions in the public sphere and their issues have been seen as non-political, they have been forced to create other sites to express their political concerns and work for their political interests [24].

#### V. CITIZENS' POSSIBILITIES TO INFLUENCE ENERGY POLICY-MAKING THROUGH ELECTIONS

The mechanism of citizens' influence through the general elections is based on that in principle the Finnish Parliament has an important role in energy policy making. For instance, amount of energy investment subsidies and energy taxes are decided by the Parliament in the context of annual budget proceedings. Parliament has also discussed about strategic goals of the energy policy based on the accounts and strategy reports presented by the Government. Especially in the case of nuclear power the role of Parliament is pronounced: construction of every single nuclear power plant has to be ratified by Parliament.

Energy policy has, however, never dominated Finnish electoral campaigns even if the construction of the 5th nuclear power was debated heatedly in the 1980s and 1990s. This is a result of that even if the Greens is a anti-nuclear power party the Finnish major political parties (excluding the Conservatives) are more or less internally split as far as construction of new nuclear power plants are concerned. According to one survey study, only 15-23 percent of respondents reported that "energy/nuclear power" was an important issue affecting their electoral choices in 1991-2003 [25]. Furthermore, even if the Parliament discussed heatedly on construction of the 5th nuclear power plant, the interest of most MPs has been minor on many strategically important energy issues. This was seen, for instance, in parliamentary debates in the 1990s dealing with passing the Electricity Act which liberalized the electricity markets and the Governmental bill merging two state-owned power companies (Neste, Imatran Voima) [26].

Respondents in the present study were presented the statement that "energy issues affected my electoral choice in the general elections of 2007"; 24.5 percent agreed (totally or partly) with the statement while 61.4 percent disagreed (totally or partly). With respect to sex 28 percent of women

but 22 percent of men reported that energy issues had an effect on their electoral choice. Vocational education played a minor role. However, 42 percent of those who had taken the highest level (university or polytechnics) education admitted the effect, while in other educational groups the proportions were about 20 percent. With respect to occupation, the effect of energy issues on electoral choices was highest among students (43%) and lowest among farmers and the unwaged (15%). However, age had the strongest and statistically very significant effect (.000): energy issues affected most the electoral choices of the youngest groups, albeit that the effect was not altogether linear: it was not the highest among the youngest but among 27-31 year olds.

However, Finns experienced mainly positively their chances to influence energy policy-making through elections. Two thirds of Finns evaluated voting as a useful (very useful 26%, somewhat useful 31%) means of influencing while more than a third evaluated it as useless (totally useless 14%, somewhat useless 24%).

#### VI. CITIZENS' POSSIBILITIES TO INFLUENCE ENERGY POLICY-MAKING THROUGH THEIR CONSUMPTION CHOICES

As the effect of energy issues on citizens' electoral behaviour in the general elections of 2007 was minor but voting was seen as a useful means for influencing energy policy, do people feel that they can influence the Finnish energy policy more as consumers?

The respondents in present survey were presented the statement "I can influence Finland's energy policy by my own action". A quarter of respondents agreed and half disagreed (of respondents 19.5% disagreed totally, 29.8% disagreed partly, 25.6% can't say, 18.8% agreed partly, and 6.3% agreed totally with the statement). The hypothesis presented by political consumerism that female sex and young age increase civic efficacy was verified; 28 percent of women but only 22 percent of men feel that they could influence energy policy by their own action. There is a statistically very significant (.001) dependence between age and civic efficacy: younger people were more confident than older people of their chances to influence energy policy by their own action. However, the dependence was not linear: confidence in one's own influence was highest among the age group 32-26 years (30%) and lowest among those 21 years old or younger (13%) and those 72 years old or older (14%). The low share among the youngest age group of 21 years old or younger can be explained partly by uncertainty concerning chances to influence, as 47 percent of respondents replied with "can't say".

Education is generally seen to enhance civic participation by developing skills which are relevant to politics (e.g. analytical and rhetorical skills). In the Finnish case education increased civic efficacy, but not straightforwardly. The proportion of those who feel that they could influence energy policy was clearly the highest among those with a university degree (32%) but not the lowest among people who had no vocational education at all but among those who had taken a vocational course (22%).

High professional position in working life, however, did not increase confidence in civic efficacy: the share of people who felt that they could influence energy policy was lowest among leaders (20%) and blue-collar workers (20%) but highest among lower functionaries (31%), upper functionaries, (29%) and students (28%).

Citizens' views on the usefulness of concrete modes of influencing, however, change the picture of political consumerism in the field of energy policy. The respondents were presented a structured question "Every citizen/consumer can in principle on his/her account influence energy policy through his/her choices. How useful do you experience the following devices in this respect?" The response alternatives were "very useful, fairly useful, fairly useless, very useless, can't say".

Citizens' attitudes regarding their possibilities to influence energy policy by consumption choices were very positive. All listed devices based on individual consumption choices were seen rather as useful than useless (Table 1). The most useful device was instructing children on energy issues, as 94 percent of respondents experienced it as useful. This was followed by choosing scanty energy-consuming machines, choosing pro-environmental products, walking or cycling instead of driving, reducing private by favouring public transport and generally lowering personal consumption standards.

TABLE I USEFULNESS (VERY USEFUL OR FAIRLY USEFUL) OF VARIOUS DEVICES FOR INFLUENCING ENERGY POLICY (%)

	men	women	all
Instructing children on energy issues	93	96	94
Choosing scanty spending/ "energy-pinching" machines	90	94	92
Choosing pro-environmental products	86	95	90
Walking or cycling instead of driving	88	93	90
Reducing private driving by favouring public transport	82	90	86
Generally lowering personal consumption standards	83	88	86
Dropping or supervision of dwelling temperature	81	86	84
Using so-called green electricity (produced by renewable energy)	72	81	77
Reducing air travels	70	66	68
Reducing the use of consumption electronics	61	72	67
Asking for competitive tenders from electricity companies	63	67	65
Reducing the use of sauna heated by electricity	60	65	62
Voting in elections	57	58	57
Discussion of energy issues with other people/ friends	52	60	56
Acting in civic associations	35	47	41
Writing letters about energy issues to the editors of newspapers	35	42	39
Writing about energy issues on Internet discussion sites	29	32	30
Contacts with MPs	27	29	28
Contacts with representatives of energy producer firms	22	29	25
Contacts with authorities	19	26	23
Participation in demonstrations	9	17	13
Radical environmental activism	11	14	13
N	579	578	1157

All in all, views on the usefulness of various devices strongly supported statements proposed by political consumerism. Personal consumption choices were seen as more useful than influencing energy policy through political, administrative or mass media institutions. All individual devices were rated to be more useful than voting in elections or contacts with MPs, contacts with authorities and energy-producing companies, writing letters to the editor of a newspaper about energy issues, writing about energy issues on the Internet discussion pages. The least useful devices were radical environmental activism and participation in mass demonstrations. This favouring of peaceful devices is congruent with the tradition in the Finnish civil society, which has preferred conventional, peaceful, serious, objective and state-focusing modes of influence (see [27]).

One striking difference between men and women supported the hypothesis presented by political consumerism. Excluding one device (reducing air travel), women experienced all devices as more useful than men. The differences were even higher, as presented in Table 2 if we analyse exclusively the response alternative "very useful". For instance, as 65 percent of women perceived choosing pro-environmental products as very useful, the share of men was only 45 percent. The difference between the sexes was greatest in the case of functioning in civic associations and reducing the use of consumption electronics, but smallest in the case of voting in elections and contacts to MPs.

TABLE II THE RELIABILITY OF INSTITUTIONS AS INFORMATION SOURCES IN ENERGY ISSUES (%)

	reliable	unreliable	can't say
Governmental research institutes	84	9	7
Universities/polytechnics	75	15	10
Ministry of the Environment	74	20	6
The Government	71	23	5
Parliament	70	25	5
Environmental authorities in general	68	24	7
Consumer authorities	64	26	10
Research institutes in the private sector	62	26	13
Associations for environmental protection	60	32	8
European Union	60	32	8
Ministry of Trade and Industry	58	31	10
Ministry of Finance	56	31	13
Consumers/citizens	42	41	17
Regional councils	40	38	22
Energy-producer firms	39	50	11
Municipal administration	38	44	18
Forest industry firms	33	55	13
Employee organizations	29	50	21
Metal industry firms	28	58	14
Other civic associations	27	47	26
International energy companies	27	62	11
Big firms	27	66	7
Electronics industry firms	26	58	16
Employer organizations	21	59	20
Political parties and politicians in general	21	70	10
N			1180

The connection between young age and the experienced usefulness of influencing based on consumption proposed by political consumerism was not clearly supported by the Finnish data. In the case of 10 out of 22 devices mentioned in Table 2, there was a statistically significant connection between age and the perceived usefulness of devices. However, the correlations were low; in the case of the above-mentioned 10 it was negative. In other words, older people stress more the usefulness of these devices (choosing scanty energy-consuming machines, generally reducing one's own consumption standards, contacts with MPs, writing about energy issues on Internet discussion sites, voting in elections, reducing use of consumption electronics and reducing the use of the sauna heated by electricity) than younger people.

It is striking that the youngest (21 years old or younger) stressed least the usefulness of many devices compared to older people. For instance, the second youngest age group (22-26 years old) stressed most (20%) but the youngest (21 years or less) least (3%) the usefulness of radical environmental activism. As many as 47 percent feel it totally useless and 32 percent somewhat useless in the youngest group! The same pattern also emerged in voting in general elections; the second oldest age group stressed its usefulness most (65%) but the youngest least (47%). Even if the respondents included in this youngest age group were clearly the smallest ( $N=38$ ), this may indicate a sense of powerlessness and weak civic efficacy with regard influencing energy policy. Such a conclusion is also supported by the surprising finding that older people stressed more the usefulness of writing about energy issues in Internet discussion sites.

The effect of education on perceptions of the usefulness of modes of influence based on personal choices was stronger compared to the effect of age. In 17 out of 22 devices the dependence was statistically significant (Pearson Chi-Square  $<0.05$ ) even if correlations were low. In most cases the correlation was negative; that is the higher the level of vocational education was, the lower trust in the usefulness of devices was. Correlations were positive in only seven cases (choosing pro-environmental products, walking or cycling instead of driving, dropping or supervision of dwelling temperature, generally lowering personal consumption standards, acting in civil associations, contacts with authorities, and voting in elections). However, even if the effect of education was not linear, the group with the highest education (university or polytechnics degree) stressed most the usefulness of devices based on personal choices. In fact, this group viewed activities in civil society (especially voting in elections and acting in civil associations but also contacts with authorities, participation in demonstrations and radical environmental activism) as more significant than people with lower education. Furthermore, the highest educational group stressed more the usefulness of walking or cycling instead of driving and using green electricity than people with lower education. This means that education increases the sense of civic efficacy, that is, confidence in one's own chances to influence energy policy.

## VII. CITIZENS' TRUST IN ENERGY INFORMATION

Trust can be seen as an invisible institution which controls information [28]. Finns did not hold that energy information was concealed and that they lived in a knowledge vacuum. In 2007 about a half (46%) agreed with a statement that sufficient and reliable information on energy issues was available for every one. One third (32%) were not satisfied with the provision of energy information. This attitude on energy information has remained particularly stable. However, citizens' trust in the availability of reliable information rather increased step by step than decreased in the period 1996-2000. Since then changes have been rather un-systematic [29].

Scientific institutes, i.e. governmental and private research institutes as well as universities and polytechnics were evaluated by the Finns less influential in energy policy-making than the Government, Parliament, energy producer firms, big firms, European Union and some ministries [12]. Now we can ask, do Finns trust the information on energy issues produced by scientific institutions, that is, the experts?

Respondents were presented the structured question "What is your opinion as to how important a role the following actors/activities play in solving environmental problems caused by energy production and consumption". The response alternatives were "very important, somewhat important (important), somewhat negligible, totally negligible (negligible) and can't say". "New technology and inventions (e.g. in energy production)" were seen clearly playing the most important role in solving environmental problems; 92 percent (very or somewhat important) perceived it as an important device. This is congruent with the findings in previous studies (e.g. [3]) that Finns trust firmly in experts, even more than in politicians in terms of energy policy-making.

Respondents were further asked: "Knowledge of energy issues mediated by the mass media is based largely on information produced by other actors (various experts, authorities and interest groups). How reliable as information sources do you experience following the actors?" Response alternatives were very reliable, somewhat reliable (reliable), somewhat unreliable, very unreliable (unreliable) and can't say (Table 2).

Those evaluated more often as reliable than unreliable can be divided into five groups. Generally all expert institutions were seen as very reliable. Governmental research institutes were rated clearly as the most reliable institutions. As many as 84 percent evaluated them as reliable and 30 percent as "very reliable", which was also the highest score among all listed institutions. The second reliable group was composed of universities/polytechnics, political institutions (Cabinet, Parliament) and environmental authorities (ministry, sector authorities in general). The thirdly most reliable group comprised consumer authorities, research institutes functioning in the private sector, associations for environmental protection and the European Union. In fact, all institutions functioning in environmental protection were clearly seen as more reliable

than business institutions, energy producers and energy authorities. The fourth reliable group was composed of the ministries in charge of the planning and execution of energy policy (Trade and Industry) and energy taxation and subsidies (Finance). Consumers/citizens and regional councils formed the fifth most reliable group. All other institutions were perceived as rather unreliable than reliable.

The most unreliable institution was seen to be political parties and politicians, which 70 percent of citizens evaluated as unreliable, a quarter as even "very unreliable". Strikingly, Finns' attitudes to the politics of energy are ambivalent: political institutions are reliable, but not individuals carrying these institutions! This situation has not changed since the late 1980s.

Level of education generally increases trust in energy information produced by most institutions. Trust was weakest among those with the lowest education, that is, no vocational education at all. However, the connection between trust and education was linear in only four institutions out of 24: the higher the level of education was, the higher the trust was in scientific research (universities/polytechnics, governmental research institutes but also environmental authorities in general and consumer authorities). Moreover, those who had taken a university or polytechnics degree trusted most in information produced by private sector research institutes.

Education, however, increased not only trust in scientific research but also critical attitudes on some established actors in the energy sector. In other words, trust in firms functioning in forestry, metal, electronics and energy production as well as in international energy companies, municipal administration, regional councils, employer and employee organizations was the lowest among citizens who had taken a university degree.

Not only the level of education but also the particular discipline affected citizens' views on the trustworthiness of information produced by institutions. In terms of research institutions, the trust in universities/polytechnics was highest among social scientists and natural scientists (88%) but least among those who were educated in the service branch (67%). Trust in governmental research institutes was clearly highest among citizens educated in pedagogics (95%) but weakest among those educated in the service branch (81%). Natural scientists and the technically educated ranked the reliability of private sector research institutes as lowest (60%), while educationists' trust in them was clearly highest (75%).

Citizens educated in most disciplines trusted more in the universities and polytechnics than average citizens. The same concerned governmental research institutes; only citizens educated in the service branch trusted them less than citizens on average. The effect of discipline was, however, much weaker in the case of private sector research institutes.

Social scientists formed the contrast to commercially educate in the sense that they were skeptical of the trustworthiness of many institutions. They trusted less than

other educational groups in information produced by all branches of business (- 9-18 percentage points), consumers and corporatist institutions. They also trusted political institutions and lower administrative institutions less than average citizens. On the other hand, they trusted more than other educational groups in universities but also more in political parties and politicians and consumer authorities than average citizens. Humanists came close to social scientists: they also trusted less in all branches of business but more, for instance, in associations for environmental protection and other civic associations than average citizens.

A special characteristic of the technically educated was that universities and governmental research institutes were the only institutions they trusted slightly more than average citizens. Their trust in research institutes functioning in the private sector was even less than that of citizens in general. In other words, their trust in firms was near the mean. However, they adopted a special attitude to environmental institutions: they trusted less than other educational groups in environmental associations, but also in lower authorities and political parties and politicians. Moreover, their reliance on information produced by environmental authorities in general, by other civic associations and consumers/citizens was less than that of average citizens. Natural scientists viewed energy producers as less reliable than did other educational groups, and the difference from average citizens was as high as -19 percentage points.

Citizens educated in agriculture and forestry came close to the technically educated in the sense that their trust in environmental institutions was low. Their reliance on information produced by environmental authorities, consumer authorities and all research institutions was lower than other educational groups. Moreover, they trusted less in associations for environmental protection and other civic associations than average citizens. This attitude may be explained by an interest conflict: people working in agriculture and forestry take the view that environmental protection, for instance the EU Natura program, confines their possibilities to carry on their business. On the other hand, they were very business-oriented in their reliance on institutions.

In fact, in terms of occupation, farmers trusted most in the forest industry, the metal industry, employer organizations, consumers/citizens and lower authorities. Managers, that are those in leading positions, were also a distinguishable occupational group as far as reliance on information is concerned. While it might be assumed that high social position leads to high trust in most institutions, this was not the case. Managers trusted political institutions, employee organizations, regional councils, the Ministry of the Environment and other civic organizations less than did other occupational groups. On the other hand, they trusted more in big firms, the Ministry of Trade and Industry and governmental and private sector research institutes. Reliance on universities was highest among upper functionaries but surprisingly low among managers; it was lower only than farmers and blue-collar workers. Among students reliance on information produced by all environmental institutions and civic associations was highest, but lowest in the case of

most business branches, including energy production and international energy companies and the Ministry of Trade and Industry.

#### VIII. ROLE OF EXPERTS AND POLITICIANS IN DECISION-MAKING IN ENERGY POLICY

After analysing citizens' reliance on information produced by various actors in the field of energy policy we may now address more narrowly the role of experts and political decision-makers in the decision-making processes in energy policy. Respondents were presented the structured question: "How important do you rate the following principles concerning decision-making in energy policy?" (Table 3)

TABLE III THE PROPORTION OF THE POPULATION WHO PERCEIVED SOME PRINCIPLES AS IMPORTANT OR UNIMPORTANT IN THE CONTEXT OF THE DECISION MAKING IN ENERGY POLICY (%)

	Important	unimportant	can't say
Decisions should be announced as openly as possible	96	3	2
Experts should be in charge of the preparation of decisions	96	3	2
Environmental effects of decisions should be taken substantially into account	95	4	2
Social effects of decisions should be taken substantially into account	93	4	2
Experts should in charge of the decision-making	91	7	3
Preparation process of the decisions should be open	90	8	3
Citizens should be able to influence decisions	75	21	4
Decisions should take into account of various interest groups	67	26	7
Decisions should be made by general consent as a result of negotiations	65	29	7
Representatives of the firms should take part in decision-making	62	34	5
Environmental organizations should play a central role in the decision-making	54	40	7
Those politically responsible to the constituency should be in charge of the decision-making	54	39	8
Business organizations should play a central role in the decision-making	41	48	11
Energy policy should be determined free of state direction	29	51	21
N			1180

Response alternatives were very important, somewhat important (important), nor very important, not at all important (unimportant), can't say.

Citizens singled out openness and expertise as the most important principles guiding decision-making in energy policy. The result is quite as expected: few will disagree that decisions should be announced openly and that the preparation of decisions should be based on the best possible knowledge; 96 percent of citizens agreed with these

principles. Support for the principle that decisions should take substantial account of their environmental and social effects was almost as firm.

The most surprising finding here concerned the pivotal role which citizens ascribed to the experts: the fifth important principle was that "experts should be in charge of decision-making". Nine out of ten respondents viewed this as an important principle. How we can explain this finding, which implies that citizens do not have a high opinion of democracy in energy policy-making?

The first conceivable explanation may be that citizens are unaware of the formal role of experts and politicians in political decision-making processes. Such an interpretation is supported by the finding that Finns' political literacy is rather low: for instance, three out of four Finns do not know which parties belong to the present Cabinet coalition [30].

This explanation, however, is not completely adequate. As the principle of "experts should be in charge of the preparation of decisions" was presented in the questionnaire prior to the principle that "experts be in charge of decision-making", respondents could deduce that the preparation of decisions is not the same as decision-making. In fact, it seems that the high importance ascribed to the experts was not a result of respondents' weak knowledge of policy-making processes. It is likely that they really meant that experts are more legitimate decision-makers than politicians in energy policy. Namely, only a half of citizens agreed that "those politically responsible to the constituency should be in charge of decision-making". Two-fifths of respondents disagreed with this. The support for this principle was third lowest. This finding is in congruence with the previous finding (Table 2) that citizens trust political institutions but not politicians. Support for the conception that business representatives should take part in decision-making and that environmental organizations play a central role in decision-making was higher than that for the proposition that politicians are in charge of decisions.

Even if 67 percent of Finns agreed with the claim that "citizens' opinions have not been heard sufficiently in energy policy decisions" [29], the low importance ascribed to politicians indicates that citizens do not wish to augment the role of representative democracy in energy policy-making. In our data three fourths of citizens felt it important that citizens are able to influence decisions while as many as a fifth viewed this as unimportant.

However, Finns are not willing to assign power in energy policy-making totally to business, as a half disagreed and two-fifths agreed with the proposal that business organizations should play a central role in decision-making. This was reflected in the low support for the principle that energy policy should be determined free of state control. A half viewed it as unimportant but less than a third as important. In fact, Finns' support for governmental control in energy policy increased in the 2000s [29].

Attitudes on energy policy-making do not depend linearly on level of education. However, the extreme educational groups had some special characteristics.



Citizens who had no vocational education at all stressed less the role of experts and business but more citizens' influence in decision-making than the highly educated. However this does not mean that they stressed the importance of the politicians' role. Thus, attitudes of citizens with low education reflected a sense of powerlessness in terms of energy policy-making.

The highly educated (university degree) supported the formal role of the experts: they stressed more than the less educated the importance of experts being in charge of the preparation of decisions but they did not wish to give them the role of decision-maker. Moreover, they stressed less the importance of consensual decision-making, the role of environmental associations and citizens in decision-making as well as the state's minimal role in energy policy than the less educated. In other words, the highly educated were characterized most clearly by reliance on governmental control of energy policy-making.

As high education is often intertwined with high professional position it is no surprise that these groups share similarities – but also differences – concerning attitudes to energy policy-making. Citizens in leading vocational position did not stress more than others the role of experts in the preparation of decisions but that in decision-making. However, managers stressed least the role of environmental associations and openness in the preparation of decisions.

There are some differences between educational disciplines concerning views on the principles guiding energy policy, even if they are not systematic. Citizens educated in the natural sciences stressed most that experts should be in charge of preparation of decisions and cognizance of decisions' environmental effects. On the other hand, they stressed less than other educational groups the role of experts, interest groups and consensus in decision-making as well as marginal governmental guidance in energy policy determination.

The technically educated stressed the importance of all principles less than average citizens and even six principles less than other educational groups. They stressed least the importance of the role of experts in preparation and that of experts, firms, business organizations and environmental associations in decision-making. The same, moreover, concerned the importance of the open announcement of decisions and cognizance of their social effects. Technically educated respondents evinced a strikingly low profile: they stressed any principle more than other educational groups. This would imply a laissez-faire attitude on energy policy-making.

Citizens educated in social welfare formed a contrast to the technically educated in the sense that they stressed the importance of six principles more than other educational groups. Especially they stressed the importance of general consent, which characterizes more generally the attitudes of this educational group: they stressed most the role of politicians, citizens, interest groups and business organizations and the minimal role of the state in energy policy direction. However, these consensual attitudes do not cover preparation of decisions: they stressed least experts'

role in preparation and in cognizance of environmental and social effects. Social scientists surprisingly stressed least openness of preparation, the role of politicians and business organizations in decision-making as well as citizens' influence.

## IX. DISCUSSION

The purpose of the present study was to discuss, whether Finn's attitudes to energy-policy have engendered conditions for "big" energy policy decisions which in most countries have been very difficult to make. More specifically, in what extent Finns trust in experts and do they experience themselves as powerlessness in energy policy-making.

The majority of Finns experienced elections as a useful means of influencing energy policy and a half distrusted the effect of their own activities. Citizens' views on the usefulness of concrete modes of influencing, however, change the picture of political consumerism in the field of energy policy. Citizens' attitudes regarding their possibilities to influence energy policy by consumption choices were very positive. Personal consumption choices were rated to be more useful than voting in elections or contacts with MPs, contacts with authorities and energy-producing companies, writing letters to the editor of a newspaper about energy issues, writing about energy issues on the Internet discussion pages.

Finns do not want to consolidate the role of representative democracy in energy policy-making. By contrast, the citizens prefer experts to politicians to be in charge of energy policy-making. Research institutions representing scientific expertise were seen by the citizenry the most reliable sources of energy information. Hence, it is evident that the Finnish attitudinal climate has created a fruitful soil for decisions concerning technology policy, especially nuclear power. While 43 percent of Finns were willing to increase utilization of nuclear power in 2007, the proportion among the energy elite, composing of leaders representing industrial firms, energy producers, civic associations, public administration and Parliament, was as high as 84 percent in December 2008 – March 2009 [13].

In fact, energy attitudes of the citizenry – differing from the energy elite [1] – refer to support of "stealth democracy". Supporters of this democracy model do not want to routinely participate in political decision-making or to continuously control and evaluate politicians' activities. Rather, they prefer that political decision is made effectively and objectively without too much quarrelling. Their desire is that representative democracy is functioning better and political issues are decided by disinterested and competent politicians. They have positive attitudes on increased participation of experts representing various spheres and business professionals in political decision-making at the expense of politicians. (see [31, 32])

As a broad majority of Finns have experienced for long time that they haven't been adequately heard in energy policy-making [29], it is evident that their positive attitudes on expert power are rather result from their distrust in

political decision-makers than their unwillingness to participate themselves in decision-making. As far as democracy is concerned, firm trust in experts may be seen as problematic if it is assumed that there exists in every single decision an objective piece of expert information which is independent of values and interests.

Finns' energy attitudes refer to a deficit of legitimacy of energy policy-making. Energy information produced by experts is trusted and their role is emphasized- not only in preparation but also decision-making of energy policy - but their influence is seen rather modest. The role of political parties and politicians are seen unimportant, even in decision-making of energy policy and they are experienced as most unreliable source of energy information. The attitudinal climate is inconsistent due to that the Government and Parliament, which are run by politicians, are seen not only very influential in energy policy-making [29] but they are also experienced as reliable sources of energy information. The legitimacy deficit of energy policy is a result of that as citizens are experiencing political institutions very influential, they are focusing great expectations on political parties and politicians and are calling for responsibility from them (see [28, 30]). However, it seems that the citizenry do not feel that these expectations are fulfilled.

Finns are characterised in international comparison firmer trust in science and technology but lesser trust in political decision-makers and their own possibilities to influence. In this kind of context individual consumption choices may function as a more and more important arena for influencing which can be used as a means for fixing and complementing traditional representative politics which many citizens experience as unreliable. Although Finns' attitudes on energy policy reflect support on political consumerism, so far, the extent and effectiveness of this direct influencing has remained exiguous. For instance, Finns have been more unresponsive in requesting competitive electricity price offers and changing the electricity supplier than their Scandinavian counterparts [33].

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