

THE ANALYSIS OF CITIZENS' PREFERENCES FOR ENERGY INVESTMENT  
ALTERNATIVES IN TURKEY: NUCLEAR VERSUS RENEWABLE ENERGY

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## Thesis Abstract

Pınar Ertör Akyazı, “The Analysis of Citizens’ Preferences for Energy Investment Alternatives in Turkey: Nuclear versus Renewable Energy”

Climate change and energy security are the two central issues in today’s energy policies. Two main policies are increasingly considered as the way to deal with these issues: Expansion of nuclear energy and a greater reliance on renewable energy sources. Turkey, as a developing country with a growing population and economy, is facing a rapidly rising energy demand and carbon emissions, and is therefore confronted with a similar policy choice in relation to its future energy path. On the one hand, since the country has huge economic potential of renewable energy sources, the expansion of renewables is suggested as the “green” alternative. On the other hand, the government is focusing strongly on the nuclear energy with connotations of “technological advancement”, “modernization” and “prestige” for the country. However, how the public perceives these two alternatives has not been questioned by the energy policy makers yet. In fact, this should clearly be an element of the policy-making, given the fact that economic, environmental and social costs of the chosen energy path are to be borne heavily by the households.

This constituting our motivations, this study aims to provide the necessary insights into the nuclear versus renewable energy debate in the context of a developing country with rising energy needs by analyzing citizens’ preferences and their determinants for these two energy investment alternatives through a survey administered to 2422 respondents representative of urban Turkey. The findings demonstrate that there is large support for renewable energy sources, such as wind and solar, and that this support decreases only slightly even if electricity prices are to rise due to a wider utilization of these sources. Nuclear energy, on the other hand, is likely to be resisted by a large group of respondents with less techno-scientific optimism. Yet, knowledge of climate change increases the likelihood of support for both renewable and nuclear investments, whereas environmental concern is most likely to lead to persistent support for renewable energy sources. The results of the study are hoped to provide inputs for energy restructuring/reform in Turkey and in other countries with similar characteristics.

## Tez Özeti

Pınar Ertör Akyazı, “Türkiye’deki Enerji Yatırım Alternatifleri Hakkındaki Tercihler: Nükleer ve Yenilenebilir Enerji”

İklim değişikliği ve enerji arz güvenliği günümüzde enerji politikalarını etkileyen en önemli iki etkeni oluşturmaktadır. İki ayrı enerji politikası, nükleer enerji ve yenilenebilir enerji, iklim değişikliği ve enerji arz güvenliği konusunda çözüm olarak sunulmaktadır. Büyüyen bir nüfusa ve ekonomiye sahip gelişmekte olan bir ülke olarak Türkiye de giderek artan miktarlarda enerji talebi ve karbon salımıyla yüz yüze kalmakta, ve bu nedenle nükleer ve yenilenebilir enerji konusunda bir karar aşamasında bulunmaktadır. Ülkenin yenilenebilir enerjiler bakımından çok geniş ekonomik potansiyeli bulunmakta ve yenilenebilir enerji önemli bir “yeşil” alternatif olarak ortaya çıkmaktadır. Öte yandan hükümet güçlü bir şekilde “teknolojik gelişme”, “modernizasyon” ve “prestij” ile özdeşleştirdiği nükleer enerjiye odaklanmaktadır. Halkın bu iki alternatifi nasıl algıladığı ise şimdiye kadar enerji karar alıcıları tarafından sorgulanmamıştır. Ancak enerji politikalarının ekonomik, çevresel ve sosyal maliyetlerinin büyük miktarda hane halkları tarafından taşınacağı göz önünde bulundurulduğunda, halkın algılarının enerji politikalarının önemli bir bileşeni olması gerekliliği belirginleşmektedir.

Bu çalışma enerji talebi giderek artan bir gelişmekte ülke olan Türkiye için, nükleer ve yenilenebilir enerji tartışmasını derinleştirmek ve hane halklarının nükleer ve yenilenebilir enerji hakkındaki tercihlerini ve bu tercihlerin belirleyicilerini analiz etmek amacıyla 2422 katılımcıyla gerçekleştirilmiş ve şehirli halkı temsil eden bir anketi kullanmaktadır. Bulgular rüzgar ve güneş gibi yenilenebilir enerji yatırımlarının geniş kitleler tarafından desteklendiğini ve bu desteğin fiyatlarda orta seviyeli bir artışa sebep olsa dahi sadece çok kısıtlı miktarda azaldığını göstermektedir. Nükleer enerjiye ise daha az teknolojik çözümlere inanan geniş bir kitle tarafından karşı çıktığı bulunmuştur. Ancak küresel ısınma hakkındaki bilgi seviyesindeki bir artışın katılımcıların nükleer ve yenilenebilir enerjiyi destekler hale gelmesine sebep olabileceği bulunmuş ve çevre sorunları hakkındaki endişelerin ise yenilenebilir enerjiye olan desteği artırma ihtimalinin bulunduğu görülmüştür. Çalışma, enerji reformuna ihtiyaç duyan Türkiye ve benzeri ülkelerde enerji politikalarına yol gösterecek önemli bulgular sunmaktadır.

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# CHAPTER 1

## INTRODUCTION

Energy policies are increasingly constrained by several conflicting issues: Fossil resources are known to be finite; their prices are volatile; and policy-makers have to deal with problems of climate change and rising energy demand (IEA, 2009) simultaneously. Energy demand is expected to rise strongly in line with economic development especially in the non-OECD countries, and OECD countries continuously demand large levels of energy supply to meet their established needs and ensure economic growth.

Currently, the world energy demand is met largely with fossil fuels such as oil, coal, and natural gas (34%, 26.5% and 20.9% of world primary energy supply, respectively). Fossil fuels are followed by combustible renewables and wastes (9.8%), nuclear (5.9%), hydro power (2.2%) and wind, geothermal and solar (0.7%) (IEA, 2009). Fossil fuel resources have always played a dominant role in meeting worldwide rising energy demand. Yet, they are unevenly distributed among countries and are mostly situated in “unstable” regions of the world. Hence, on the one hand, the question of continuous availability of fossil fuels leads to energy security concerns for the Western governments; on the other hand, given the limited amount of fossil fuels, it is clear that energy demand cannot be met indefinitely using fossil resources. And perhaps more importantly, fossil fuels are shown to be contributing to the global climate change very severely. Therefore, policy-makers are forced to look for other alternatives, which are cleaner and contributing less to greenhouse gas emissions, more reliable, and more “local” with a potential to meet future energy demand of their countries.

Two main alternatives play a dominant role in the debates on future energy policies, namely nuclear energy and the renewable energy, defined as energy sources “derived from natural processes that are replenished constantly” (IEA Renewable Energy Working Party, 2002). Both alternatives are subject to support and opposition due to various reasons. Nuclear energy with its connotations of “modernization” and “technological advancement” is perceived as a clean, reliable and very efficient energy source and appeals both to developed and developing nations; while renewable energy sources are propagated as clean, endless energy sources without any harm to humans and to nature. Arguments of opposition to nuclear energy are mainly related with the risks of a large accident with severe consequences for the human life, whereas opposition to renewable energy sources originates from the arguments that these sources might provide energy on a less reliable basis compared to fossil fuels and are unable to meet peak energy demand.

The expansion of one of these two alternatives is likely to be at the expense of the other since it would be very difficult for any country to utilize these two energy sources simultaneously at full scale, given that both of them necessitate financial incentives and the financial resources of governments are limited. Hence, the debate between nuclear and renewable energy is perceived as a zero sum game, and different arguments are made by scientists, NGOs, politicians, and businessmen to convince the public of the merits of each alternative.

This study aims at understanding how the public at large is affected by this public debate, and more precisely, the study attempts to answer the following questions: To what extent are there preferences for nuclear versus renewable sources, and who supports and opposes which energy investment alternative and with which motivations? It is very likely that citizens’ energy preferences might not be fully

reflecting the debates in scientific circles, and the public might have different perceptions about these energy sources.

Why are citizens' energy preferences interesting to study? Although they largely seem to remain in the background when policy-makers decide on the energy paths of the countries, citizens' energy preferences clearly constrain the available choices of policy-makers. Policy-makers are increasingly forced to acknowledge that perceptions and energy preferences of the general public do, indeed, matter, and they are advised to take those preferences into consideration if energy policies are to be realized effectively (Business and Industry Advisory Committee to OECD, 2009). Sometimes these preferences manifest themselves directly through a referendum (Sweden's referendum on the future nuclear energy policy of the country, for instance [Jasper, 1990]), other times they become visible in public resistance such as the anti-nuclear movement in the US, Europe and Turkey. Either way, public opinion is and should be an important element of energy policies, since ignoring the public view may lead energy policies to be ineffective and "it is the essence of democratic society that elected officials should act upon the views of the public" (Business and Industry Advisory Committee to OECD, 2009, p.1).

Turkey is a developing country with a growing economy and population and has both the fastest energy demand growth rate in the OECD and the fastest greenhouse gas emissions growth rate in the world (MMO, 2009; Kumbaroğlu and Arıkan, 2009). As such it experiences a similar debate on energy source alternatives of nuclear and renewable energy. Although the government's energy policies have relied mainly on hydro power and on thermal power plants operated with coal and natural gas in the last decades, current government is considering other alternatives and is about to make a decision on nuclear and renewable sources to meet rising

energy demand of the country. Yet, citizens' preferences on this debate have not been investigated so far. Although public opinion is likely to become an important factor to influence government's energy policies in the near future, given international pressures coming from EU, from local and international NGOs and other international organizations to respect citizens' preferences in terms of public policies, how the public opinion is likely to affect the future energy path of the country is a question that remained unanswered so far.

In such a setting, this study aims to measure and analyze citizens' energy preferences for nuclear and renewable energy sources for a sample of 2422 respondents in Turkey. The survey used for this study was conducted in Turkey in 2007 within the research project of TÜBİTAK No:105K234 and has the power to represent urban Turkey with a 95% confidence level. By analyzing the survey data of this research project, the determinants of the energy preferences are identified using econometric analyses. More specifically, since knowledge of climate change and other environmental issues and concern about environment are used as the key arguments in favor of an expansion of both renewable sources and nuclear, the effects of knowledge of climate change and environmental concern on the energy preferences are analyzed. Despite the fact that the literature on energy preferences analyzes the trends in public opinion in developed countries such as the US and European countries, no such study has so far been undertaken which empirically measures and analyses energy preferences for a developing country. Hence, the results will fill this gap in the context of a developing country such as Turkey.

The study is structured as follows: Chapter 2 introduces the recent trends in the world energy policies, and Chapter 3 demonstrates how these policies are reflected in the public debates in Turkey. Chapter 4 introduces the empirical

literature on the energy preferences, and Chapter 5 presents the survey methodology and econometric models used in the study. The results of these analyses are presented in Chapter 6, and the last chapter discusses the results and concludes.

## CHAPTER 2

### RECENT DEVELOPMENTS IN WORLD ENERGY POLICIES

Global climate change and energy security concerns constitute the two central issues in today's world energy policies. These two concerns were evident in the recent International Energy Agency (IEA) Report, World Energy Outlook 2009, along with a suggestion towards policy change: "Continuing on today's energy path, without any change in government policy, would mean rapidly increasing dependence on fossil fuels, with alarming consequences for climate change and energy security" (p.6).

In fact, climate change and energy security concerns are used to justify two distinct energy proposals: A greater reliance on renewable energy sources such as wind, solar, hydro, biomass, and geothermal as opposed to an expansion of nuclear energy. But, prior to a discussion of these two energy proposals in general, it may be useful to introduce some facts about world energy trends at this point:

- Since 1981, 2009 was the first year in which there was a significant drop in the world energy demand, which was apparently the result of financial and economic crisis. However, as world economies are expected to enter the recovery phase, world energy demand is projected to continue growing at an annual rate of 2.5% beginning from 2010 (World Energy Outlook, 2009).
- Non-OECD countries are expected to contribute more strongly to the growing energy demand, as opposed to the OECD countries, in which energy demand will stay stable or will even fall. The rising demand will be met primarily with fossil fuels such as coal, oil, and natural gas according to the Reference Scenario of IEA (2009). However, as the latest report of Energy Information

Administration underlines (International Energy Outlook [IEO], 2009) alternatives to fossil fuels will attract a revived interest due to the rapid increase in world energy prices between the years 2003-2008, due to climate change concerns, and possibly due to presence of government incentives. Renewable energy sources such as wind and hydropower are expected to become the most important alternatives, since they are economically competitive with fossil fuels (EIA, 2009). Moreover, it is projected that renewable energy sources will be the fastest growing source of electricity generation. The share of renewable energy sources (including hydro power) in world electricity generation is expected to grow at an annual rate of 2.9% and to rise from 19% in 2006 to 21% by the year 2030 even according to the more conservative business-as-usual scenario of the Energy Information Administration. However, natural gas and coal will follow renewable sources being the second and third fastest growing electricity generation sources, respectively.

- Another important source of electricity generation is expected to be nuclear energy, since “concerns about rising fossil fuels, energy security, and greenhouse gas emissions support the development of new nuclear generation capacity” (p.4) according to IEO 2009. That is, despite the currently small share of nuclear energy in the world primary energy supply (5.9%) (IEA, 2009), the share of nuclear energy is expected to rise significantly. IEO 2009 report further states that “despite the relatively high capital and maintenance costs” (p.4), nuclear power might become economically competitive with other fossil fuels given the rise of fossil fuel prices continues. However, IEO 2009 report also explicitly refers to the “public concerns in many countries”

due to safety, radioactive waste disposal, and nuclear proliferation issues which “may hinder the development of new nuclear power reactors [...] despite the growing worldwide interest in nuclear power development” (p.5).

Having briefly summarized the recent trends, we may now turn to the discussion between renewable energy sources and nuclear energy.

### Nuclear Energy versus Renewable Energy

It is clear that “a low-carbon energy revolution” (World Energy Outlook, 2009, p.7) is required in order to achieve climate change mitigation. Whether this might be achieved via renewable sources or nuclear energy is debated widely by different stakeholders such as policy-makers, investors, scientists, NGOs and the public at large. Both sides, namely the proponents of renewable and of nuclear energy, try to appeal to the public by using scientific arguments referring to the climate change and to the danger of a future “energy crisis”. These elements of public debate are to be discussed below.

Renewable energy sources are argued to be expensive, and be requiring large financial incentives from the governments with the exception of wind and hydro power which are economically competitive (EIA, 2009). Another part of the debate concerning renewable energy sources are the local resistance movements resulting from “not-in-my-backyard” (NIMBY) attitudes, which are particularly directed towards wind power plants due to visual impact, noise, and environmental harm. Hydro power is expected to become the main source of renewable energy expansion in the non-OECD countries (EIA, 2009); yet, it is very much controversial and

creates local resistance due to severe environmental and social costs (DiFrancesco, 2007).

Numerous surveys attempting to measure public support for renewable energy sources consistently found out that there is strong and stable support for renewable energy sources since the end of 1970s (Farhar, 1996) both in the US and Europe, and the EU has set ambitious binding targets of increasing the share of renewable energy sources in final energy consumption to 20% by the year 2020 (European Renewable Energy Council, 2010). Several studies claim even more ambitiously that a “100% renewable energy future by the year 2050” (European Renewable Energy Council, 2010, p. 6) is not only technologically feasible, but also “the only viable option” (Jones, 2010) due to economic, social and environmental reasons. It is further argued that “[a] large-scale wind, water and solar energy system can reliably supply the world’s needs, significantly benefiting climate, air quality, water quality, ecology and energy security [...] [T]he obstacles [to renewable energy sources] are primarily political, not technical” (Jacobson and Delucchi, 2009).

These ambitious plans and studies are very often criticized by nuclear proponents for being too optimistic, or for being mere wishful thinking. Since storage of electricity remains a large problem, these renewable sources are blamed to be producing electricity on a very discontinuous basis, and hence, to be unable to replace the fossil fuels, while the nuclear energy apparently would be able to replace them according to those critiques. It is further claimed that a “nuclear renaissance” might be anticipated for the near future, which refers to the revived worldwide interest in nuclear energy. International Atomic Energy Agency (IAEA) report of 2008 projects a 100% increase in nuclear energy capacity by the year 2030, since 24 countries already with nuclear power plants are reconsidering their phase-out

decisions (like Germany and Sweden) and/or are inclined to encourage nuclear energy investments, and about 20 countries which do not have nuclear power plants are considering to support nuclear energy investments (Joskow and Parsons, 2009).

Energy security concerns of policy-makers are an important factor contributing to the nuclear support. Especially in the US, it is feared that flow of oil coming from “unstable” regions of the world may be disrupted having severe adverse effects on the US economy. This concern might further be extended to Europe, which is highly dependent on the natural gas imported from or through Russia. In fact, the energy security concept, which, according to Joskow and Parsons (2009), is a very poorly defined “phrase used to justify many policy initiatives” including the expansion of nuclear power. However, the authors claim that nuclear expansion “is not the path to a solution” (p.48). These authors refer to the “Update of the MIT 2003: Future of Nuclear Power” (2009) and claim that a nuclear renaissance would only be possible if a significant price is charged for carbon emissions, construction and financing costs decrease or at least stabilize, fossil fuel prices stabilize on moderate or high estimates, and significant progress is achieved in terms of long-term waste disposal and safety so that public acceptance may be enhanced.

More optimistic arguments are presented in the MIT study of 2003 and of 2009 by stating that “[i]n deregulated markets, nuclear power is not now cost-competitive with coal and natural gas. However, plausible reductions by industry in capital cost, operation and maintenance costs and construction time could reduce the gap. Carbon emission credits, if enacted by government, can give nuclear power a cost advantage”(p.6). This argument is based on the cost estimations for nuclear 8.4 US dollar cent/kWh, for coal 8.3 US dollar cent/kWh, and for natural gas 7.4 US

dollar cent/kWh, which change in favor of nuclear energy when there is a 25 US dollar charge per tCO<sub>2</sub> (MIT, 2009).

Beside all these obstacles to the expansion of nuclear energy, several environmentalists such as James Lovelock, one of the founders of Greenpeace, argue that in the face of climate change “we have no time to experiment with visionary energy sources [such as renewable sources], civilization is in imminent danger” (Lovelock, 2004). He further argues that nuclear energy is the only “green” solution to the problem of climate change. Moreover, policy-makers’ emphasis on the importance of nuclear energy due to energy security concerns remains a strong aspect to convince the public of the necessity of a nuclear expansion.

### Public Position on Energy Policies

Public opinion on energy policies began to be formed in the early 1970s. Until then, energy policies of the governments were largely treated as a technical issue outside the sphere of public view, but when the first severe oil crisis hit the world economies in 1973, energy policies gradually became a public issue.

Until the oil crisis, the peaceful use of nuclear energy was publicized with the promise “our children will enjoy in their homes electrical energy too cheap too meter” (Strauss, 1954) since the introduction of the “Atoms for Peace” program of US president Eisenhower in 1953. However, with the oil crisis, the media and the public at large were becoming increasingly aware of the fact that energy policies cannot be undertaken in isolation from public scrutiny, and “the new drama and importance of energy issues made the emerging antinuclear movement a visible force in policy discussions” in the US (Jasper, 1990, p. 107).

Today, energy preferences of the public are considered to be an important factor constraining and directing energy policies of the governments. A recent report by the Business and Advisory Committee to the OECD (2009) underlines this fact: “Perception holds great importance in energy policy decision-making. It is the essence of democratic society that elected officials should act upon the views of the public. Thus where public and consumer reaction to a certain type of energy is negative, politicians may in many cases have less inclination to pursue that energy type as they would if public perception were favorable” (p.2).

Perceptions, indeed, play a major role in terms of energy policy-making. While in the 1970s, policy-makers were uneasy to admit this fact, and energy policy was seen as the responsibility of more knowledgeable, scientifically qualified individuals, this does not comply with the rules of the game today. Hence, policy-makers are increasingly aware that energy preferences of the citizens do, indeed, matter, and that those preferences have to be identified and measured.

Following the two oil crises in the 1970s, and the Three Mile Island nuclear accident in Pennsylvania, the US, surveys trying to measure public attitudes peaked in numbers. After the Chernobyl accident in 1986, construction of new nuclear power plants were found to be opposed by 69% of the US respondents, and this opposition continued to exist in a significant way until 2000s (Bolsen and Cook, 2008).

In the EU, surveys such as “Eurobarometer” of the European Commission are conducted in order to measure energy preferences on a continuous basis. A Special Eurobarometer of 2008 “Attitudes towards radioactive waste” measures nuclear energy attitudes of EU citizens. It is pointed out that there is a “nuclear divide” among Europeans, meaning that the public is very much split between opposition and

support to nuclear. The report states that compared to the last Eurobarometer survey of 2005, the trend of nuclear support increased from 37% to 44%, and opposition decreased from 55% to 45% in 2008. For US respondents, a similar slight increase in nuclear support is found to be present as well (MIT, 2007).

For renewable energy, several surveys conducted with European and US respondents come to the same conclusion: There is a clear and stable support for renewable energy sources (Special Eurobarometer, 2006; Farhar, 1996; Greenberg, 2009; Ek, 2005). However, as already mentioned, the perceptions regarding costs may differ, and not-in-my-backyard attitudes are found out to be the main obstacles in terms of renewable energy expansion. The next chapter will introduce the main findings of the energy preferences literature which goes beyond a measurement of support/opposition to specific energy options by analyzing the determinants of those preferences using econometric analyses.

## CHAPTER 3

### LITERATURE ON ENERGY PREFERENCES

In line with the public debates on energy policy, the literature on energy preferences focused on nuclear opposition and tried to link nuclear opposition with the more general views of environmentalism in the 1980s.

Later in the 1990s, with the decision to phase-out nuclear energy in several European countries, the nuclear energy opposition was replaced by an interest in renewable energy, and particularly, researchers focused on those aspects of renewable energy sources such as wind and solar related to the local acceptance and resistance. These studies were mainly concerned with the so-called “not-in-my-backyard” attitudes towards wind farms and other renewable sources. In line with this literature, other studies began to adopt a more holistic view on energy preferences by incorporating a wide range of energy investment alternatives such as natural gas, coal, and oil.

Coming to the 2000s, two main strands of literature seem to be especially important: Those studies aiming at explaining energy preferences with a specific focus on nuclear energy like the MIT study of 2007 (Ansolabehere, 2007), and other studies which attempt to measure the willingness to pay for renewable energy sources and climate change (Longo et al., 2008; Adaman et al, 2010). In fact, these two strands of literature are again in line with the present public debates on the energy sector and environment, and reflect the revived interest in nuclear energy due to climate change and energy security concerns. Moreover, the trend of increasing number of willingness to pay surveys relates to the relatively high costs of renewable

energy sources, which is feared to be one of the major constraints to the expansion of renewable energy investments.

The first world energy crisis of the 1973 gave rise to a number of public opinion surveys which tried to measure the level of opinion and support for energy investment alternatives, since citizens, especially in the US, became more concerned and more involved in energy policies of the governments (Bolsen and Cook, 2008). Until today, these surveys remain an important “barometer” which indicates the pressure of the citizens on the policy-makers in terms of energy policy in Europe, the US and Australia.

In addition to the general public opinion surveys on energy preferences, several studies tried to explain these preferences more systematically using econometric analyses. These studies incorporated mainly socio-economic factors such as age, education, income, gender, and race, but a few studies also included items for specific factors such as environmental harm, costs of energy alternatives, trust to government authorities, risk perceptions, proximity to the power plants (Ansolabehere and Konisky, 2009; Ek, 2005; Ansolabehere, 2007). Only few studies considered energy-related environmental attitudes such as environmental optimism, activism in environmental issues, and environmental quality as possible predictors of energy preferences (Greenberg, 2009; Ek, 2005).

Socio-economic factors most often produced mixed results (Ansolabehere and Konisky, 2009). Ek (2005) found that age and income are negatively related to the support for wind power, whereas Greenberg’s (2005) findings for these variables were insignificant for renewable energy support, but education was found to be positively associated with support. Ansolabehere and Konisky (2009) found that income, education and age are insignificant for the opposition to wind power, but

Firestone and Kempton (2007) were able to show that opponents to offshore wind power are likely to be wealthier. Longo et al. (2008) could support the hypothesis that respondents with children are in favor of a policy to expand renewable energy sources, and that having children increases the willingness to pay for such a policy.

For nuclear energy, the findings are not very consistent with each other either, with the exception of gender. Greenberg's (2009) results indicate that nuclear energy investments are supported by older, white respondents with a higher annual income, which Ansolabehere (2007) confirms by stating that respondents with higher income and education support the expansion of nuclear energy. However, in an earlier study of nuclear opposition Webber (1982) found out that opposition to nuclear energy is related positively to age and education, and negatively to income and gender.

Ansolabehere and Konisky (2009) could not support this finding; they found that opposition is related negatively to age, and that education is not a significant predictor of nuclear opposition. Only in the case of gender the results of different studies seem to be in line with each other. Women are found to be less likely to support nuclear energy, to be more undecided, or more likely to oppose this energy (Kasperson et al., 1980; Webber, 1982; Ansolabehere and Konisky, 2009; Greenberg, 2009).

These results imply that socio-economic factors are not sufficient to explain energy preferences of citizens. Instead, other explanatory variables specifically related with energy alternatives such as costs and environmental harms are suggested to be playing a major role, with the latter being the central issue (Ansolabehere, 2007). Ansolabehere (2007) was able to demonstrate that perception for the costs of energy investment alternatives are not always right, instead, for the US sample, he

found out that the respondents were on average underestimating the costs of renewable energy sources and overestimating the costs of coal.

Greenberg (2009) included the opinion of the respondents on the statement “local environment will be better in next 25 years”, which may be referred to as “environmental optimism”, and also the respondents’ stated level of activism in environmental issues as explanatory variables of his study. His findings show that environmental optimism is not a significant factor for renewable and nuclear support, but it is positively related with the support for fossil fuels, and that those respondents characterizing themselves as active in environmental issues are rather supportive of renewable energy sources and not of nuclear energy. Trust to governmental authorities is another independent variable used by Ansolabehere and Konisky (2009) and by Greenberg (2009). In Ansolabehere and Konisky’s regressions estimated for nuclear opposition and renewable opposition, trust is not found to be a significant factor, but Greenberg finds that trust to nuclear-related authority is positively related with the support for nuclear energy investments.

In the environmental psychology literature, it is suggested that environmental attitudes and beliefs, and knowledge are predictive of pro-environmental behavior and of recycling behavior in particular (Nixon et al. 2008). However, the literature does not further relate those to energy preferences. Nixon et al. (2008) calculate composite indices for the “money matters”, environmental quality attitudes, and environmental activism and uses them as independent variables in the regressions for willingness to pay for recycling. Further, environmental concern is identified to be a determinant of environmental behaviors by affecting the cognition for specific situations (Bamberg, 2003), but it has not been used in energy preferences literature

so far, although it is possible that it might directly explain some part of energy preferences as well.

It has to be noted that energy preferences literature is simply non-existent for the context of developing countries including Turkey, although similar debates are present in developing countries since the rise in energy demand is expected to be strong due to economic growth objectives. Turkey experiences a similar public debate on “renewable versus nuclear energy” as well. The country has huge economic potential for renewable energy sources such as wind, solar, and geothermal, and no nuclear power plant has been constructed despite several tender processes with firms from Canada, US, Germany, Argentina, Korea, and Russia, each of which were suspended due to several financial disagreements in the negotiations and international concerns of proliferation since the 1980 (Kibaroglu, 1997). The main motivation of the next chapter is to demonstrate how this debate is reflected in the Turkish context.

## CHAPTER 4

### ENERGY POLICIES IN TURKEY

Two main issues, namely energy security and climate change, which are central for the world energy trends, are also influential for the energy policies in Turkey.

Rapidly rising energy demand, actually the highest in the world after China for the last decade (MMO, 2009), leads to concerns about energy security and about a future energy crisis. Further, international pressure coming from EU and other international organizations gradually places climate change problem on the political agenda of the country.

In addition to these dynamics of the energy sector, the government has other important concerns as well. It has dedicated itself to the objective of becoming an “energy bridge” and the fourth main artery of energy supply to Europe after Norway, Russia, and Algeria (Ministry of Foreign Affairs, 2009; ETKB, 2010). In response to the pressures coming from EU and the US, energy sector liberalization has become another priority of the government, on which significant progress is reported in the Turkey 2009 Progress Report (Commission of the European Communities, 2009). In fact, all energy policies are evaluated within the context of economic growth; energy is seen as the main engine of economic growth and development, since economic growth and development “are and will remain the single most important national aspirations”(Arsel and Kaygusuz, 2005, p. 154). However, all these objectives of energy security, climate change, market liberalization and the strategic role of becoming an energy bridge are usually in conflict with each other, and the government’s energy policies seem to be “undertaken without a strategic plan”(Shaffer, 2006, p. 97).

Despite the economic crises in 1994, 1998 and 2001, installed capacity for electricity generation continued to increase steadily in Turkey, and increased more than four-fold in the last 25 years (Price Water House Coopers, 2009). An inspection of the Five-Year Development Plans of the country since the 1960s reveals the fact that energy policies have been mostly relying on the indigenous sources of thermal and hydro power, emphasizing that “energy independence” has been one of the primary concerns of the governments. However, with the introduction of the natural gas into the energy mix, the reliance on imported energy sources has increased significantly.

In fact, the country has huge economic potential for renewable energy sources such as wind, solar, and geothermal, which are not yet utilized on a large scale together with a large hydro power potential, of which 38% is already utilized (Price Water House Coopers, 2009). Yet, very low natural gas and oil reserves lead to a high dependence rate on imported natural gas and oil (97% and 93%, respectively). Further, the country has low-quality coal and lignite reserves, which are, despite the severely high contribution to the greenhouse gas emissions of the country, aimed to be utilized fully in the coming years according to the Strategic Plan of the Ministry (ETKB, 2010).

Currently, installed capacity for primary energy sources, which only covers 27% of the primary energy demand of the country, is distributed among these resources as follows: 35% natural gas, 33% hydro, 24.4% coal, 4.3% liquid fuels, 0.9% geothermal, and 0.1% wind power, making up 41817 MW of total installed capacity for the year 2008 (TEİAŞ, 2008). The share of these sources in the electricity generation show a similar pattern: Natural gas has the highest contribution to electricity generation with 48.6%, followed by coal with 28.3%, hydro power with

18.5%, liquid fuels with 3.4%, and a small contribution comes from the renewable sources of wind power with 0.8% and geothermal 0.3% (EÜAŞ, 2009).

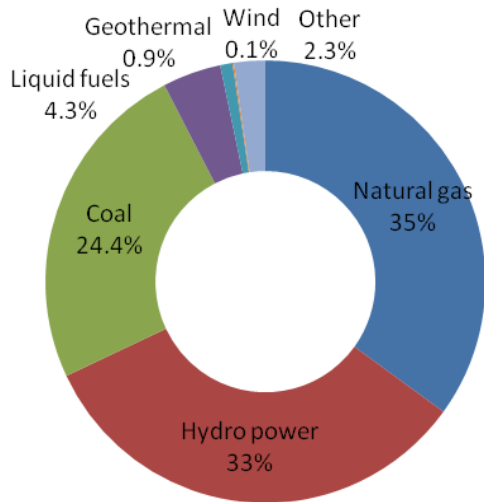


Figure 1. Installed capacity by primary energy source (TEİAŞ, 2008)

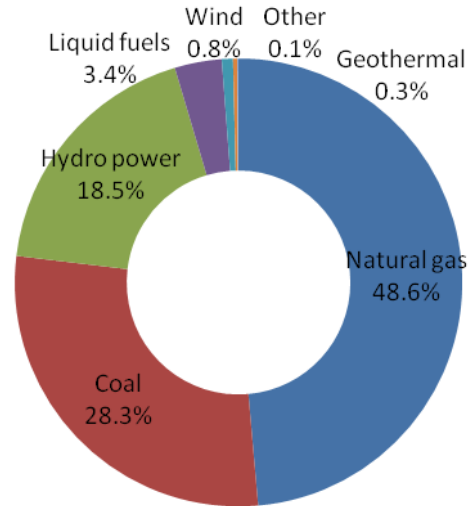


Figure 2. Electricity generation by primary energy source (EÜAŞ, 2009)

Nuclear power is not present in these figures, because, despite successive governments' efforts since the 1960s, no nuclear power plant has been constructed in the country. However, the current government has recently set the target of 5% of the total electricity production for nuclear power by the year 2020, and makes intergovernmental negotiations with the Russian government aiming at the construction of a nuclear power plant at the very much debated site of Akkuyu, Mersin. The figures indicate that the contribution of non-hydro renewable energy sources to both energy and electricity production has been very limited.

Turkey's greenhouse gas emissions made a huge jump from 1990 to 2007 by 119%, representing the highest rate among OECD countries (Adaman et al, 2010; TÜİK, 2009; Kumbaroğlu and Arıkan, 2009). However, the country does not have any concrete targets concerning carbon emission reductions yet, and instead, the Ministry of Energy and Natural Resources sets targets for nuclear and renewable

energy as a possible solution to the climate change problem (ETKB, 2010). These two energy sources are further mentioned in the recent Strategic Plan of the Ministry of Energy and Natural Resources under the title of “energy supply security”. It is argued that energy policies, which relied on the three major sources of coal, natural gas and hydro power until today, are to be extended to include renewable energy sources and nuclear energy in order to achieve a diversification of resources and energy security (ETKB, 2010).

Since 2005 there is a revived interest in the renewable energy directed towards non-hydro sources such as wind, solar and geothermal mostly, but a significant expansion of these renewable energy sources is apparently constrained by ineffective legislation (Price Water House Coopers, 2009), which is why many scientists and investors complain about the negligence of the government for the non-hydro renewable energy sources. It is further claimed that certain individuals in the government are consistently blocking the appropriate legislation, and according to these critics, an amendment to the 2005 Renewable energy law is blocked since the financial incentives in this proposal would constitute a burden to the government’s treasury. Nevertheless, international incentives such as the recent World Bank loan amounting to \$700 Million supporting renewable energy development and energy efficiency in Turkey (World Bank, 2010) might convince the government of the necessity to create a favorable environment to renewable energy investors.

Although the government’s official reports and strategy documents seem to favor a simultaneous expansion of non-hydro renewable sources and nuclear energy, it is clear that both of these objectives cannot be realized at the same time on a large-scale, since both require financial incentives from the government. But given the

limited resources, the government will have to choose which one to prioritize more. Currently, this preferred choice seems to be nuclear energy despite the public opposition to nuclear energy since the 1970s.

Public opposition is also visible for hydro power plant projects in the eastern Black Sea region, in the south-east and central Anatolia. Current government has sold numerous licenses for new hydro power plants corresponding to 49% of Turkey's technical potential, with the slogan that "the water sources of the country are flowing away [for nothing]" if these new hydro power plants are not built (Milliyet, 2005; Arsel and Kaygusuz, 2005, p. 159). Recently, the local resistance seems likely to turn to a more general public opposition as the "Water Assembly" brings many local opposition groups onto the same platform with the slogan "water does not flow away for nothing" and attracts much attention from the media as well.

The question of how the public perceives the non-hydro renewable energy sources such as wind, solar, and geothermal is still to be answered, yet, to the best of our knowledge, no survey explicitly asked questions on this aspect in Turkey. One might assume that the public is rather favorable towards these sources, given the fact that Western regions already use solar energy for heating purposes, and some wind farms on the Western Marmara region (Bozcaada, for instance) are popular touristic sights. However, it might also be the case that the public perceives these sources as very expensive compared to other sources and might oppose any financial incentives of the government for the renewable energy projects.

More can be said for nuclear energy since a public opposition movement is visible since the 1970s, yet, nuclear support is also strong among nuclear scientists, businessmen, some NGOs and policy-makers. Proponents see it as a "necessity" for economic development and in dealing with the energy shortage of the country.

Among the proponents there is only disagreement on the legal and scientific conditions under which nuclear energy should be utilized. Proponents argue that Chernobyl accident has created a “nuclear phobia” in Turkey (Akçay, 2009), which is claimed to be “irrational” given the energy shortages of the country. Nuclear energy is further seen as a sign of “modernization” and “prestige” (Akçay, 2009). This is reflected in the statement of the President of the Turkish Atomic Energy Commission as well: “Nuclear technology makes our country honorable and strong, because nuclear technology consists of strategic and economic components” (ANKA, 1998; Akçay, 2009, p. 351). However, after the Chernobyl accident, the government has not been honest about the possible impacts of the accident on human health and created huge distrust. The Minister of Industry and Trade argued that “anyone claiming that radiation [from Chernobyl] affected Turkey is an atheist and a traitor, [...] all meat, milk, water, fish, vegetables from all over our country are totally clean.” (Akçay, 2009, p.348). But later in 1992, it was admitted that the government had indeed hidden the consequences of the accident (Keskin, 1996; Akçay, 2009). Today, concerns related to the safety of the power plants, nuclear proliferation, seismic risk, radioactive waste, and high costs continue to exist and those arguments are used against the construction of a nuclear power plant in Akkuyu by civil society groups, NGOs such as Greenpeace, the Green Party, and several technical specialists (Akçay, 2009).

Arsel and Kaygusuz (2005) conceptualize this public debate on “nuclear energy versus the renewable energy” by characterizing two opposing groups of the debate with the labels of the “Greens” versus the “Developmentalists”. They characterize the Greens as favoring small-scale and alternative technologies such as non-hydro renewable sources and energy efficiency measures, while the

Developmentalists emphasize the importance of “mega-projects” such as large-scale hydro and nuclear power. When it comes to a trade-off between environmental objectives and economic objectives, the Greens are more likely to support the former, while the Developmentalists favor the latter. This typology allows the interpretation that nuclear proponents are likely to be Developmentalists prioritizing economic objectives, although usually, environmental concern and climate change arguments are used when nuclear proponents attempt to justify a nuclear expansion. The Greens are rather skeptical about technological solutions for environmental problems and this techno-scientific skepticism is in line with the Ulrich Beck’s risk society thesis according to the authors (Beck, 1999).

This typology might be an oversimplification of the debate on energy policies in Turkey, nevertheless, it provides the insights necessary to understand the public debate. Arsel and Kaygusuz (2005) further argue that the “fact” of electricity shortage should not be used to justify any specific energy proposal. Instead, a “national debate” (p. 159) is necessary when the government is to decide on these “competing technological solutions”(p. 156) in order to respond to the problems of energy security and climate change.

The “nuclear versus renewable” debate in the world energy context is clearly reflected in the Turkish setting. However, as a developing country and with growing energy needs, the country may also have some distinct features in terms of energy preferences. The debate described in this chapter is likely to be influential on the public opinion, yet, little is known on the direction of its effect.

The following chapters analyze the determinants of the energy preferences for nuclear and renewable energy investments using econometric analyses. Socio-economic factors and energy-related environmental attitudes, as in line with the

literature and the public debates in the world and in Turkey, serve as potential explanatory variables of the citizens' energy preferences. But first, the research methodology that is adopted for this study is presented in the following chapter.

## CHAPTER 5

### RESEARCH METHODOLOGY

The main research objective is to measure and explain citizens' energy preferences for renewable energy sources and nuclear energy in urban Turkey given the fact these preferences are likely to constrain and shape the future energy path of Turkey. Understanding those preferences is necessary in order to make any projections about the country's future energy policies, about the debate on the environment and the economy of the country.

With this aim, this study uses the relevant modules of the survey which has been designed for the research project No: 105K234 of The Scientific and Technological Research Council of Turkey (TÜBİTAK) with the following questions in mind:

- What are the preferences regarding renewable energy sources and nuclear energy in Turkey? Is there wide support for renewable energy sources as it is the case with European and US respondents?
- How do urban respondents perceive these two energy investment alternatives? What are the main reasons of opposition and support to these energy investment alternatives? Are those related to the perceived costs or are they related to other concerns?
- How does environmental knowledge and environmental concern shape those preferences?
- Which other characteristics of the respondents play a role in shaping those preferences?

In designing the survey, the following points were considered:

Although the survey asks the respondents about their preferences on five energy investment alternatives, namely coal, natural gas, hydro power, renewable sources such as wind, solar, and geothermal, and nuclear energy, the results will be presented in a way that emphasizes the debate between the non-hydro renewable energy sources and nuclear energy, because this is the main issue that is discussed in the country in line with the world trends. Further, without understanding the overall energy preferences of the respondents, it would be misleading to just ask preferences on renewable and nuclear energy.

Another important point to make here is that in the energy investment alternatives presented to the respondents hydro power is not included as part of renewable energy sources and is identified as a different category. The reason for this is twofold: First, it is assumed that hydro power is perceived differently in Turkey because since 1960s, large dams are seen as an important sign of the “catching-up” of the modern Turkey (Arsel and Kaygusuz, 2005). Therefore, it is not just another source of clean energy like wind power, instead, it has other connotations such as economic development. Second and perhaps more importantly, hydro power, and especially large-scale hydro power plants are increasingly considered to be unsustainable and hence, “non-renewable” with a life time of 40-50 years at most. With this in mind, it is possible to see that in Turkish setting hydro-power is creating local resistance due to large environmental and social costs. That is why the study uses hydro power as a distinct category and in fact, some preliminary tests to econometric analyses (Hausman tests) also confirm that hydro power is perceived by the respondents as an independent alternative.

The following sub-sections first introduce the survey design and the sampling procedure, and then describe and explain the survey’s main modules. Specific

hypotheses, which are derived from the public debates on energy policies, are then presented along with the econometric model used in analyzing the survey data.

### Survey Design and Sampling

This study is based on the survey data of the research project No: 105K234 of The Scientific and Technological Research Council of Turkey (TÜBİTAK). Although the primary objective of this research project was to measure the willingness to pay of the urban households for CO<sub>2</sub> emission reduction; one module of the survey was designed to measure respondents' energy preferences. So, the relevant parts of the survey data were used with the permission of the project manager with the aim of measuring support and opposition to specific energy investment alternatives and identifying the determinants of the energy preferences for nuclear and renewable energy in Turkey. Within this above mentioned research project, a questionnaire was administered via face-to-face interviews to a total of 2,422 respondents representative of the urban population in Turkey. A professional research company was appointed to carry out the fieldwork between July, 4 and August, 21 2007. The research was conducted in 26 cities representative of urban Turkey at the NUTS II level<sup>1</sup> using random stratified sampling. The unit of analysis was chosen as the household, and one respondent was chosen from each household randomly among those aged 18 years and above.

The sample of this research project represents urban Turkey at the household level with a confidence level of 95 percent, and an error margin of  $\pm 1.9$  percent.

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<sup>1</sup> NUTS (the Nomenclature of Territorial Units for Statistics) is a geocode standard used for statistical purposes that has been developed and regulated by the European Union. According to the NUTS standards, Turkey is comprised of 26 NUTS II level regions, in line with this, one city was chosen from each region (weighted according to population figures) and included into the sample.

Survey participants were presented an official letter stating that the survey results will be used in a scientific research of the university and the answers will be kept strictly confidential. The interviews took approximately 40 minutes, and the total rejection rate was 12 percent. Random phone-checks have been undertaken after the fieldwork in order to make sure that the interviews were administered appropriately.

The part of the survey that is used for this study is structured as follows: First, a set of questions on the general problems of the country were asked, which was followed by the energy preferences module. In the energy preferences module, the respondents were first asked to point out the energy investment alternative(s) that they are opposing (if any). Based on the literature (Ansolabehere and Konisky, 2009; Ansolabehere, 2007), a full set of energy options relevant for Turkey's case was presented to the respondents. The respondent selected his/her most vetoed energy investment(s) among the following alternatives: coal, natural gas, dams, renewable sources (such as wind, solar) and nuclear energy. Moreover, for each type of energy investment the respondent was asked via an open-ended question to indicate the underlying reason behind his/her opposition.

The next question was designed to gather information about which type of energy investment the respondent is supportive of. That is, which type of energy investment should be given first and then second priority in the country. Again, the same set of energy investment options were presented to the respondent so that the respondent could choose his/her two most preferred alternatives, indicating which one is the first and which one is the second most favored energy investment. An open-ended question was asked on the main reason behind this choice here as well. For those respondents who have indicated renewable energy sources as their first or second mostly favored energy investment alternative, a follow-up question checked

whether this choice was persistent even in the face of a moderate increase in electricity prices. That is, the respondent was asked if he/she would still support renewable energy investments if this would lead to a 25% increase in his/her electricity bill. The reason of asking that follow-up questions is related to the fact that the pilot studies undertaken prior to the actual survey indicated that a large part of the respondents support renewable energy sources such as wind and solar due to their perception that those energy sources are very cheap to utilize. Hence, we were able to identify that there is a certain degree of misperception regarding the costs of the non-hydro renewable sources which is in line with the findings of Ansolabehere (2007) for the US respondents, and the follow-up question was asked in order to eliminate this misperception.

The energy module was followed by two further modules one of which aimed to capture the socio-economic characteristics of the respondents while the other module consisted of questions measuring the energy-related environmental attitudes of the survey participants. A detailed definition of each variable in these modules follows in the next sub-section where the variables are also categorized into dependent and independent variables.

### Dependent Variables

Dependent variables of the study are based on energy preferences, namely opposition and support for non-hydro renewable energy and nuclear energy. The dependent variables are categorized as follows:

- Support for renewable sources (such as wind, solar)

- Support for nuclear energy
- Opposition to renewable sources (such as wind, solar)
- Opposition to nuclear energy

At this point, it has to be noted that the wording of the questions may change the results to a certain degree. The questions on support and opposition are asked in our study by presenting five different options to the respondent. Hence, the respondent is free to choose as many alternatives as possible in terms of opposition. In terms of support, the respondent is again presented these five alternatives, yet, he/she has to choose the first two mostly preferred alternatives. This provides the respondent with more flexibility, since he/she does not have to decide on the most preferred or least preferred alternative, which might have produced arbitrary choices. For instance, Eurobarometer (2008) asks the respondents more directly on support and opposition to nuclear energy. This might be a good method to learn about general attitude about nuclear energy, but since our focus is more on support and opposition to specific investment alternatives, it is more appropriate to present different alternatives and to let the respondents choose among them.

### Independent Variables

A set of independent variables was also constructed based on the literature which may explain the energy preferences for these two alternatives. In line with the literature we categorize these independent variables into two groups: Socio-economic variables and individual energy-related environmental attitudes.

### Socio-economic Variables

- Gender (male, female)
- Age (18-82)
- Education (categorized as no diploma, primary education, secondary education, or university education)
- Household wealth as measured by ownership of a number of items (factor loadings of possessing a personal computer, internet access, a car, a dishwasher, a credit card, and the possibility of taking a holiday in a foreign country, a greater value corresponding to higher wealth)<sup>2</sup>
- Region of residence (categorized as the NUTS-I regions, namely, Istanbul, Western Marmara, Aegean, Eastern Marmara, Western Anatolia, Mediterranean, Central Anatolia, Western Black See, Eastern Black See, Northeastern, Central Eastern and Southeastern)

### Energy-related Environmental Attitudes

- Knowledge of climate change (factor loadings based on the items of knowledge of Kyoto Protocol and knowledge of the primary gas causing global climate change; a higher value corresponding to higher levels of climate change knowledge)

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<sup>2</sup> The study does not use a direct measure of household income, and uses instead a measure for the possession of several household items due to the fact that informal economic activities, which are found to be frequent in Turkey, are very unlikely to be reported correctly and due to the fact that a significant amount of goods and services are exchanged outside the market mechanism, which would not be easily estimated by the respondents if asked directly about the real income levels of each household.

- Environmental activism (factor loadings of participation in a signature campaign to protect nature, and individual petition to help prevent the destruction of the nature, and membership of an environmentalist group/NGO; a higher value corresponding to higher levels of environmental activism)
- Environmental concern (a dummy variable for identification of the environmental problems as one of the two most important problems of the country)
- Environmental optimism (the respondents were asked how the environment in Turkey will look like in 10 years compared to today, 1 indicating much worse, 5 indicating much better)
- Techno-scientific optimism (the respondents were asked whether it is possible to solve all environmental problems through technological advancement, 0 indicating No, 1 indicating Yes)
- Economy-orientation (a dummy variable for the respondents who prioritize economic objectives of the country over the environmental objectives)

Although energy-related environmental attitudes look very similar, they are obviously measuring different aspects that may be of relevance for energy preferences. Confirming this, correlations among those independent variables are found to be relatively small (See Appendix).

### Econometric Analysis

Given the binary nature of the dependent variables and in line with the literature (Ek, 2005), we chose a binary logit model for the analysis of the determinants of the

preferences for renewable and nuclear energy. The binary logit model is used to estimate qualitatively dependent variables as it is the case with the energy preferences in our study; 1 indicating support/opposition for an energy investment, and 0 indicating the opposite.

Four binary logit models are estimated separately for the four dependent variables, namely renewable support, nuclear support, nuclear opposition and renewable opposition. It is important to emphasize that unlike the rest of the dependent variables, for renewable support we only analyze those respondents who are persistently supporting renewables even in the face of an increase in the electricity bill such that it becomes possible to eliminate the misperception regarding the costs of renewable energy sources.

The next section provides the results of these estimations together with descriptive statistics.

## CHAPTER 6 RESULTS

This chapter first briefly introduces some descriptive statistics of the study in order to provide an overall understanding of the survey data at hand and second, it presents the results of the econometric analyses.

### Descriptive Results

The first part of Table 1 provides the sample's socio-economic characteristics, which conform to census data compiled by TÜİK (Statistical Institute of Turkey). Table 2 demonstrates respondents' energy-related environmental attitudes.

Table 1. Socio-economic Factors

|                      |                          |                |                    |                        |                   |                       |
|----------------------|--------------------------|----------------|--------------------|------------------------|-------------------|-----------------------|
| Gender (%)           | <i>Male</i>              | <i>Female</i>  |                    |                        |                   |                       |
|                      | 49.7                     | 50.3           |                    |                        |                   |                       |
| Age (%)              | <i>18-24</i>             | <i>25-34</i>   | <i>35-44</i>       | <i>45-54</i>           | <i>55+</i>        |                       |
|                      | 23.1                     | 27.6           | 20.2               | 15.0                   | 14.1              |                       |
| Education (%)        | <i>No diploma</i>        | <i>Primary</i> | <i>Secondary</i>   | <i>University</i>      |                   |                       |
|                      | 8.0                      | 49.0           | 32.0               | 12.0                   |                   |                       |
| Household wealth (%) | <i>Personal Computer</i> | <i>Car</i>     | <i>Credit Card</i> | <i>Internet access</i> | <i>Dishwasher</i> | <i>Holiday abroad</i> |
|                      | 38.1                     | 30.1           | 43.8               | 28.4                   | 41.9              | 6.6                   |

Table 2. Energy-related Environmental Attitudes

|                                 |   |      |
|---------------------------------|---|------|
| Knowledge of climate change (%) | <i>Knowledge of the primary gas causing climate change</i>                                | 28.8 |
|                                 | <i>Knowledge of Kyoto Protocol</i>  | 5.2  |
| Environmental activism (%)      | <i>Participation in signature campaign for nature</i>                                     | 12.4 |
|                                 | <i>Individual petition for nature</i>   | 3.7  |
|                                 | <i>Membership in an environmentalist group/NGO</i>  | 2.2  |
| Environmental concern (%)       | <i>Environment is one of the two most important problems of the country</i>               | 23.5 |
| Environmental optimism (%)      | <i>Environment in Turkey will be worse in 10 years</i>                                    | 63.3 |
|                                 | <i>Environment in Turkey will be the same in 10 years</i>                                 | 12.4 |
|                                 | <i>Environment in Turkey will be better in 10 years</i>                                   | 24.3 |
| Techno-scientific optimism (%)  | <i>All environmental problems can be solved by technological advancement</i>              | 30.6 |
| Economy-orientation (%)         | <i>Prioritization of economic objectives over environmental objectives of the country</i> | 22.9 |

The principal factor analysis was used to create an index of knowledge of climate change and of environmental activism. This method creates scores for each individual based on the responses given to the components of each variable. These individual scores are then used as continuous independent variables in binary logit models. Environmental optimism was measured as an intervally-scaled variable ranging from 1 to 5. The remaining independent variables, namely environmental concern, environmental optimism, techno-scientific optimism, and economy-orientation were used as dummy variables.

Table 3. Opposition and Support to Energy Investment Alternatives

|             | Opposition (%) <sup>1</sup> | Support (%) <sup>1</sup> |
|-------------|-----------------------------|--------------------------|
| Coal        | 82.9                        | 3.6                      |
| Natural gas | 17.6                        | 37.3                     |
| Hydro power | 6.0                         | 65.2                     |
| Renewable   | 4.0                         | 60.4                     |
| Nuclear     | 62.5                        | 7.2                      |

<sup>1</sup>Percentages do not add up to 100%, since respondents were instructed to check as many alternatives as they wish for opposition, and to check up to two alternatives for support.

Table 3 summarizes the findings on support and opposition to energy investment alternatives in Turkey. Coal investments are clearly opposed the most by 82.9% of the sample followed by nuclear energy investments with 62.5%. Renewable energy sources such as wind, solar, and geothermal are supported by a large majority of the respondents: 70.2% of the respondents choose renewable energy sources as their first-best or second-best alternative, and this percentage fell down to 60.4% when the respondents were asked whether they would still support renewable energy sources even if this leads to a moderate increase in electricity prices. solar. Hence, it is clear that renewable support is rather persistent since 85% of renewable proponents continue to support renewable energy investments despite this hypothetical electricity price increase due to renewables. So, as the table above indicates, eliminating the misperception regarding the costs of renewables does not significantly undermine the large support for renewables which then becomes the second-mostly preferred alternative after the hydro power. Renewable sources are opposed the least with only 4%.

These first descriptive results indicate that there is a clear support for renewable energy sources with 60.4% support (after correcting the misperception regarding the costs) and with only 4% opposition. This picture is reversed for nuclear

energy: There is a strong opposition to nuclear energy with 62.5% against, and only 7.2% in favor.

Compared to the Eurobarometer survey of 2008, this picture is rather surprising. In this survey, European respondents are shown to be split between opposition and support with 44% in favor and 45% against nuclear energy. Yet, in terms of support to renewable energy, the respondents in our survey demonstrate a similar preference as their European and US counterparts (Farhar, 1996; Ansolabehere, 2007).

Table 4. Results of Open-ended Questions on the Reasons of Support and Opposition

| Reasons behind opposition to renewables |                       |      | Reasons behind support for renewables |                       |      |
|---|-----------------------|------|---------------------------------------|-----------------------|------|
|   | Number of respondents | %    |                                       | Number of respondents | %    |
| Not needed                              | 54                    | 60.0 | Clean, harmless                       | 1091                  | 65.8 |
| Not effective/not efficient             | 9                     | 10.0 | Cheap                                 | 408                   | 24.6 |
| Environmental harm                      | 8                     | 8.9  | Abundant in the country               | 77                    | 4.6  |
| Expensive                               | 5                     | 5.6  | Infinite                              | 46                    | 2.8  |
| Not continuous                          | 1                     | 1.1  | Climate change                        | 11                    | 0.7  |
| Other/Missing                           | 13                    | 14.4 | Other/Missing                         | 24                    | 1.4  |
| Total                                   | 90                    | 100  | Total                                 | 1657                  | 100  |

| Reasons behind nuclear opposition |                       |      | Reasons behind nuclear support |                       |      |
|-----------------------------------|-----------------------|------|--------------------------------|-----------------------|------|
|                                   | Number of respondents | %    |                                | Number of respondents | %    |
| Harmful for humans                | 894                   | 63.9 | Efficient                      | 38                    | 22.4 |
| Dangerous, risky                  | 297                   | 21.2 | Cheap                          | 26                    | 15.3 |
| Expensive                         | 13                    | 0.9  | Harmless, clean                | 23                    | 13.5 |
| Proliferation issue               | 11                    | 0.8  | Military power                 | 8                     | 4.7  |
| Energy dependence                 | 3                     | 0.2  | Modern, Westernization         | 9                     | 5.3  |
| Other/Missing                     | 181                   | 12.9 | Climate change                 | 1                     | 0.6  |
| Total                             | 1399                  | 100  | Other/Missing                  | 65                    | 38.2 |
|                                   |                       |      | Total                          | 170                   | 100  |

The answers given to the open-ended questions about the underlying reason of opposition and support are categorized and then coded under common labels as shown above. According to these results, renewable opposition was not found to be explicitly related with the perceived high costs. Instead, only 5 out of the 90 renewable opponents stated “expensiveness” of renewable energy sources as the main reason of opposition. 60% of the opponents stated that “the country does not need any renewable energy investments”, and 10% pointed to the “ineffectiveness of the renewable energy sources” as their main motivation behind opposition. These two responses might be interpreted as a disbelief in the renewable energy sources as an energy alternative able to meet growing demand of the country.

In terms of support for renewable energy, a surprising result is the perceived “cheapness” of renewable energy sources. 25% of the renewable proponents state this as the underlying reason of renewable support. Yet, this result was not unexpected as the pilot studies were able to demonstrate a similar result. A further analysis of open-ended questions reveals the fact that many of these respondents are associating renewable energy with an “endless, abundant resource” which may be utilized at almost no cost. This clear underestimation of the costs of renewable energy has been also evidenced in a survey with US respondents in the MIT Study of 2007 (Ansolabehere, 2007).

As expected, nuclear opposition is mainly related to the perceived “harm for humans” and its “dangers and risks”, while the main reason of nuclear support is related to the efficiency and “cheapness”. Again, here, another misperception about costs is evident in the data, but this time for nuclear energy. So clearly, one of the reasons of nuclear support is underestimation of the costs of nuclear energy. Only 1 respondent out of the 170 nuclear proponents names “climate change” as the

underlying reason; however, it may be argued that climate change as primary reason of nuclear support would have been named by more respondents in a more recent survey, since the media along with politicians associates nuclear energy with the aim of climate change mitigation in more recent public debates (Habertürk, September 13, 2009; Hürriyet, September 9, 2009; ETKB, 2010). Further, the issue of climate change was not widely known in media in 2007, when this survey was conducted.

This sub-section summarized the preferences regarding nuclear energy and renewable sources, the next sub-section introduces the findings of the econometric analyses and explains the energy preferences using the results of binary logit estimations.

### Econometric Results

This sub-section presents the analyses aimed at identifying and explaining the preferences for and against renewable and nuclear energy. The results of the logit estimations are presented for renewable support, nuclear support, renewable opposition and nuclear opposition.

#### Support for Renewables

Table 5 presents the results of the first binary logit model<sup>3</sup> estimated for the dependent variable of renewable support. The model is estimated for proponents of the renewable energy investments versus the rest of the sample. Descriptive statistics

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<sup>3</sup>The results of the logit estimations are often conventionally reported as the marginal effects, but since the focus of this study is on the significant determinants of energy preferences rather than on magnitudes of these determinants, and since the marginal effects and coefficients do not differ from each other in terms of the significance and sign of the independent variables, the results are presented in terms of coefficients and their standard errors in this study.

on support and opposition made it clear that a large share of the respondents (60.4%) is in favor of renewable energy investments even in the face of a moderate rise in electricity bills.

Open-ended questions on the reasons of renewable support demonstrated the misperception regarding the costs of renewable energy sources. One quarter of the proponents stated that the main motivation behind their favorable attitude toward renewable energy investments is the perceived low costs of renewable energy sources. It is naively believed that, since renewable sources are very much abundant in the nature and in the country, their conversion into electricity would be very cheap, or almost “costless”. The question is now whether other motivations are likely to explain renewable support as well. This question is answered by analyzing the answers of the renewable proponents who are in favor of renewable energy investments even in the face of a moderate rise in their electricity bills. The results of this analysis are provided in Table 5.

Table 5. Binary Logit Estimation for Renewable Support

|                             | Support for Renewables |            |       |
|-----------------------------|------------------------|------------|-------|
|                             | Coefficient            | Std. Error | P     |
| Age                         | 0.001                  | 0.004      | 0.714 |
| Household wealth            | -0.036                 | 0.060      | 0.548 |
| Woman                       | 0.143                  | 0.101      | 0.156 |
| Primary school              | 0.881***               | 0.314      | 0.005 |
| High school                 | 0.942***               | 0.326      | 0.004 |
| University                  | 1.197***               | 0.349      | 0.001 |
| Aegean                      | -0.001                 | 0.181      | 0.997 |
| Western Marmara             | -0.257                 | 0.274      | 0.349 |
| Eastern Marmara             | -0.052                 | 0.198      | 0.795 |
| Western Anatolia            | -0.026                 | 0.186      | 0.890 |
| Mediterranean               | -0.009                 | 0.182      | 0.962 |
| Central Anatolia            | 0.156                  | 0.238      | 0.512 |
| Western Black Sea           | -0.140                 | 0.246      | 0.570 |
| Eastern Black See           | -0.152                 | 0.267      | 0.570 |
| Northeastern                | 0.242                  | 0.325      | 0.456 |
| Central eastern             | -0.171                 | 0.264      | 0.517 |
| Southeastern                | 0.217                  | 0.212      | 0.304 |
| Knowledge of climate change | 0.355***               | 0.129      | 0.006 |
| Env activism                | -0.086                 | 0.100      | 0.391 |
| Env optimism                | -0.125***              | 0.043      | 0.004 |
| Techno-scientific optimism  | -0.079                 | 0.110      | 0.472 |
| Env concern                 | 0.301**                | 0.123      | 0.014 |
| Economy-oriented            | -0.389***              | 0.118      | 0.001 |
| Knowledge * Concern         | 0.846***               | 0.325      | 0.009 |
| Constant                    | -0.193                 | 0.396      | 0.626 |
| Number of observations      | 1781                   |            |       |
| LR Chi-Square               | 83.79                  |            |       |
| P-value                     | 0.000                  |            |       |
| Pseudo-R Square             | 0.036                  |            |       |

Dependent variable: probability of renewable support. \*, \*\* and \*\*\* denote significance at 10 percent, 5 percent, and 1 percent, respectively.

The main motivation behind renewable support was stated as “cleanness” and “harmlessness” of renewable sources. Hence, it might be expected that

environmental concerns are of importance in terms of renewable support. This is actually confirmed by the findings: Respondents with more environmental concern are found to be more likely to support renewable energy investments. One point to be made here is that environmental concern was defined rather strictly in this study: Remember that only those respondents who are considering environmental problems as one of the two most important issues of the country are defined as environmentally concerned. A weaker definition of environmental concern would probably be unlikely to differentiate between those who are really concerned and those who would state that they are concerned about environment due to the inherent political correctness to state such an attitude.

In line with this finding, renewable proponents are found to be more likely not to prioritize economic objectives over environmental objectives of the country. Further, they are likely to know more about climate change. Techno-scientific optimism does not seem to have an effect on the preferences in favor of renewable energy sources. Yet, optimism for the future of the environment in the country is less likely to be possessed by the proponents of renewable energy sources. For the renewable proponents household wealth is not a significant factor. However, proponents are likely to be more educated compared to the rest of the sample. Proponents of renewable energy investments are not likely to be active in environmental issues, and this may undermine the effectiveness of the large support. Further, since there is no sign that renewable proponents are wealthy, this might mean that proponents may not have the necessary means to contribute financially to informational campaigns in favor of renewable energy sources. That is, this support is facing the danger of remaining “quiet” in public debates.

As to be seen from the significantly positive interaction term of knowledge of climate change and environmental concern, a higher level of knowledge together with more environmental concern is likely to increase the probability of renewable support, which might indicate that respondents with both more knowledge and more concern for environment may be a unique group which persistently has preferences in favor of renewable energy investments, whereas the next table on the nuclear support will demonstrate that nuclear support cannot be associated with more environmental concern.

#### Support for Nuclear

Table 6 presents the results of the logit estimations for the dependent variable of nuclear support.

Table 6. Binary Logit Estimation for Nuclear Support

|                             | Support for Nuclear |            |       |
|-----------------------------|---------------------|------------|-------|
|                             | Coefficient         | Std. Error | P     |
| Age                         | -0.005              | 0.007      | 0.497 |
| Household wealth            | -0.094              | 0.109      | 0.390 |
| Woman                       | -0.467**            | 0.188      | 0.013 |
| Primary school              | -0.161              | 0.625      | 0.797 |
| High school                 | 0.026               | 0.643      | 0.968 |
| University                  | 0.394               | 0.665      | 0.554 |
| Aegean                      | 0.013               | 0.323      | 0.968 |
| Western Marmara             | 0.554               | 0.430      | 0.197 |
| Eastern Marmara             | -0.206              | 0.384      | 0.592 |
| Western Anatolia            | -0.210              | 0.359      | 0.559 |
| Mediterranean               | -0.023              | 0.329      | 0.944 |
| Central Anatolia            | 0.593*              | 0.353      | 0.093 |
| Western Black Sea           | -0.439              | 0.473      | 0.353 |
| Eastern Black See           | 0.111               | 0.449      | 0.805 |
| Northeastern                | -0.237              | 0.636      | 0.710 |
| Central eastern             | -0.151              | 0.479      | 0.753 |
| Southeastern                | -1.017**            | 0.500      | 0.042 |
| Knowledge of climate change | 0.613***            | 0.174      | 0.000 |
| Env activism                | 0.305**             | 0.153      | 0.046 |
| Env optimism                | 0.179**             | 0.078      | 0.021 |
| Techno-scientific optimism  | 0.211               | 0.198      | 0.287 |
| Env concern                 | -0.490**            | 0.248      | 0.049 |
| Economy-oriented            | -0.084              | 0.222      | 0.707 |
| Knowledge * Concern         | -0.113              | 0.394      | 0.774 |
| Constant                    | -2.504***           | 0.762      | 0.001 |
| Number of observations      | 1798                |            |       |
| LR Chi-Square               | 59.82               |            |       |
| P-value                     | 0.000               |            |       |
| Pseudo-R Square             | 0.062               |            |       |

Dependent variable: probability of nuclear support. \*, \*\* and \*\*\* denote significance at 10 percent, 5 percent, and 1 percent, respectively.

The results show no significant effect of wealth on the preferences in favor of nuclear energy, yet, another socio-economic factor, namely gender, plays a central role in terms of nuclear support. As it is well-founded in the literature (Kasperson et al., 1980), women tend to be either more opposed to or less decided on nuclear energy. The results of this study confirm these earlier findings by showing that females are less likely to be supportive of nuclear energy.

Preferences in favor of nuclear energy investments do not seem to be shaped by concerns for the environment. That is, although a higher level of knowledge of climate change is a characteristic of nuclear proponents, this higher than average knowledge is unlikely to be coupled with serious concerns about environmental problems. It was expected that nuclear proponents would possess more techno-scientific optimism and would be more economy-oriented. However, these variables were not found to be significant. Hence, a greater level of knowledge along with more optimism about the future of the environment seem to be the most important factors that might explain the preferences for nuclear energy, but as opposed to the one of the main arguments of nuclear proponents, the preferences in favor of nuclear energy investments are not found to be driven by environmental concerns.

### Opposition to Nuclear

Table 7 demonstrates the results for nuclear opposition. As already mentioned, 62.5% of the sample is against nuclear energy investments. Nuclear opponents are more likely to be wealthy individuals, yet, there is no evidence that they are likely to be active in environmental issues. This clearly might reduce opponents' influence in the public debate for energy investments.

Table 7. Binary Logit Estimation for Nuclear Opposition

|                             | Nuclear Opposition |            |       |
|-----------------------------|--------------------|------------|-------|
|                             | Coefficient        | Std. Error | P     |
| Age                         | 0.004              | 0.004      | 0.354 |
| Household wealth            | 0.232***           | 0.062      | 0.000 |
| Woman                       | -0.095             | 0.104      | 0.361 |
| Primary school              | -0.018             | 0.325      | 0.956 |
| High school                 | 0.048              | 0.337      | 0.887 |
| University                  | 0.205              | 0.360      | 0.569 |
| Aegean                      | -0.026             | 0.186      | 0.889 |
| Western Marmara             | -0.084             | 0.283      | 0.768 |
| Eastern Marmara             | 0.153              | 0.214      | 0.475 |
| Western Anatolia            | -0.272             | 0.190      | 0.153 |
| Mediterranean               | -0.131             | 0.189      | 0.487 |
| Central Anatolia            | -0.419*            | 0.232      | 0.071 |
| Western Black Sea           | 0.319              | 0.271      | 0.240 |
| Eastern Black Sea           | -0.412             | 0.270      | 0.128 |
| Northeastern                | 0.521              | 0.348      | 0.135 |
| Central eastern             | 0.045              | 0.277      | 0.872 |
| Southeastern                | -0.152             | 0.210      | 0.469 |
| Knowledge of climate change | 0.018              | 0.127      | 0.888 |
| Env activism                | -0.052             | 0.103      | 0.614 |
| Env optimism                | -0.190***          | 0.045      | 0.000 |
| Techno-scientific optimism  | -0.232**           | 0.113      | 0.039 |
| Env concern                 | 0.218*             | 0.122      | 0.075 |
| Economy-oriented            | -0.097             | 0.124      | 0.434 |
| Knowledge * Concern         | -0.357             | 0.247      | 0.149 |
| Constant                    | 1.012**            | 0.410      | 0.014 |
| Number of observations      | 1719               |            |       |
| LR Chi-Square               | 71.40              |            |       |
| P-value                     | 0.000              |            |       |
| Pseudo-R Square             | 0.032              |            |       |

Dependent variable: probability of nuclear opposition. \*, \*\* and \*\*\* denote significance at 10 percent, 5 percent, and 1 percent, respectively.

Further, in terms of knowledge of climate change, nuclear opponents cannot be distinguished from the rest of the sample in any significant manner. Instead of the level of knowledge, the perceived dangers and harms of nuclear energy seem to be influential factors in terms of negative attitudes towards nuclear energy investments. This is evident in the significantly negative coefficient for the independent variable techno-scientific optimism which was used as a proxy for the risk perception of the respondents. Hence, respondents with a lower degree of techno-scientific optimism may be likely to oppose nuclear energy investments. Moreover, probably in line with the lower level of techno-scientific optimism, nuclear opponents are likely to be less optimistic about the future of the environment. Furthermore, environmental concern is found to be a significant factor, which along with a lower level of techno-scientific optimism plays a central role in terms of nuclear opposition. However, since economy-orientation is not found to be significant, we cannot conclude how economic concerns shape preferences against nuclear energy.

#### Opposition to Renewables

As Table 8 indicates, renewable opponents are likely to be wealthier than the rest of the sample. Despite their small share in the sample (only 4%), this finding implies that this opposition is not negligible, since renewable opponents might be influential in the public debates due to their material wealth. It was expected that the driving force behind renewable opposition would be the perception of high costs, but the findings of open-ended questions do not seem to support this. Hence, a separate binary logit model for the dependent variable of renewable opposition is necessary to clarify the determinants of these preferences.

Table 8. Binary Logit Estimation for Renewable Opposition

|                             | Renewable Opposition |            |       |
|-----------------------------|----------------------|------------|-------|
|                             | Coefficient          | Std. Error | P     |
| Age                         | -0.023*              | 0.012      | 0.054 |
| Household wealth            | 0.720***             | 0.162      | 0.000 |
| Woman                       | -0.366               | 0.283      | 0.196 |
| Primary school              | 0.150                | 1.077      | 0.889 |
| High school                 | -0.209               | 1.107      | 0.850 |
| University                  | 0.821                | 1.120      | 0.463 |
| Aegean                      | -0.889*              | 0.479      | 0.064 |
| Western Marmara             | 0.136                | 0.545      | 0.804 |
| Eastern Marmara             | -1.142**             | 0.566      | 0.043 |
| Western Anatolia            | -0.783*              | 0.458      | 0.087 |
| Mediterranean               | -0.791*              | 0.460      | 0.086 |
| Central Anatolia            | -2.164**             | 1.044      | 0.038 |
| Western Black Sea           | -1.290*              | 0.774      | 0.096 |
| Eastern Black See           | -0.818               | 0.767      | 0.287 |
| Northeastern                | -                    | -          | -     |
| Central eastern             | -                    | -          | -     |
| Southeastern                | -2.456**             | 1.039      | 0.018 |
| Knowledge of climate change | -1.311***            | 0.484      | 0.007 |
| Env activism                | -0.257               | 0.327      | 0.431 |
| Env optimism                | 0.396***             | 0.116      | 0.001 |
| Techno-scientific optimism  | 0.555*               | 0.284      | 0.051 |
| Env concern                 | -0.700               | 0.472      | 0.138 |
| Economy-oriented            | 0.798***             | 0.284      | 0.005 |
| Knowledge * Concern         | -1.381               | 1.586      | 0.384 |
| Constant                    | -3.421***            | 1.278      | 0.007 |
| Number of observations      | 1596                 |            |       |
| LR Chi-Square               | 115.05               |            |       |
| P-value                     | 0.000                |            |       |
| Pseudo-R Square             | 0.214                |            |       |

Dependent variable: probability of renewable opposition. \*, \*\* and \*\*\* denote significance at 10 percent, 5 percent, and 1 percent, respectively.

The results demonstrate that it is likely that renewable opponents are less knowledgeable about climate change. Further, opponents of renewable energy investments are clearly more likely to prioritize economic objectives over environmental objectives of the country. The results also reveal that this group of renewable opponents is likely to be younger than the rest of the sample. This might be related to the fact that as a young group the opponents do not consider renewable energy investments as a solution to the growing energy needs of the country, since a possible energy shortage is more likely to affect the younger respondents more severely due to the possible consequences of unemployment. Moreover, renewable opponents are likely to be optimistic about the future of the environment, which might be related to their high levels of techno-scientific optimism. Summing up, the main factors leading to renewable opposition seems to be the lack of knowledge of climate change problem combined with a strong economy-orientation and optimism about both the future of the environment and about technological solution to environmental problems. If provided with more knowledge on climate change, whether this group of renewable opponents would converge to nuclear support or to renewable support is not very clear; yet, it might be argued that their higher level of optimism about the future of the environment would lead this group to become proponents of nuclear energy investments since this factor is positively significant for nuclear proponents whereas for renewable proponents environmental pessimism is one of the distinguishing factors.

## CHAPTER 7 DISCUSSION AND CONCLUSION

The results of this study enable us to think in a new light about the debate between renewable and nuclear energy. It becomes apparent that concern about environmental problems such as climate change, pollution and others is not the driving force behind nuclear support for the public at large. Nuclear proponents are more knowledgeable about climate change, yet, if this knowledge is combined with more concern about the environment in an individual, this individual is not likely to support nuclear energy investments, but instead, he/she is more likely to support renewable energy investments even in the face of a negative effect on the electricity bill of the respondent. Although both the renewable and nuclear proponents are found to possess more knowledge on climate change, environmental concern is likely to differentiate between nuclear and renewable energy proponents.

The findings seem to confirm to the public debate between the Greens and the Developmentalists in Turkey which was discussed in Chapter 4. Assuming that Greens represent the renewable proponents and the Developmentalists represent the nuclear proponents, some parallels might be drawn between the findings of this study and the simplified picture of the energy investment debate in Turkey:

In their work, Arsel and Kaygusuz (2005), for instance, argue that Greens privilege environmental integrity if it comes into conflict with economic growth objectives of the country. This is in line with the results of this study: More environmental concern and less economy-orientation are found to increase the likelihood of renewable support. Moreover, as mostly argued, Developmentalists are proponents of “mega-projects” such as nuclear energy investments. Their “belief in the Promethean promise of risk-prone technologies” (Arsel and Kaygusuz 2005, p.

158) is not found to be significant for nuclear proponents in this study; yet, it may be argued that there should be a link between techno-scientific optimism and nuclear support; however, the techno-scientific optimism variable used in this study was probably unable to capture this effect.

The results might be taken as a sign that renewable energy investments will not be supported very “actively” by the public in the coming years. Although renewable energy investments are supported persistently to a large extent even in the face of a moderate price increase, this support is very “quiet”, and is not likely to direct the public strongly if we consider that proponents are likely to be less active than the rest of the sample. On the contrary, nuclear proponents are much more “active”, that is, they are likely to participate in signature campaigns, to write individual petitions to governmental authorities, and to be member of environmental NGOs. Further, nuclear support is likely to come from males rather than females. This characteristic along with activism make nuclear proponents a potential influential group in the future public debate between nuclear versus renewable energy.

Further, renewable opponents, although a relatively small group of 4%, are likely to be wealthier than the rest of the sample, which is a sign that this small group cannot be ignored and that the group may have the means for participating in the public debate. Their knowledge level on climate change is significantly less than the rest. Yet, whether more knowledge about climate change would lead them to support renewable energy or nuclear energy is unknown, since the results demonstrate that more knowledge increases the likelihood of both nuclear and renewable support. Nevertheless, given that renewable opponents are likely to be optimistic about the future of the environment, and given that environmental concern is not significant for

this group, it would be more likely for them to join the nuclear support group if they receive some information regarding climate change via the media or through some informational campaigns.

The above explained results might be drawing a pessimistic picture for an expansion of renewable energy sources such as wind and solar. Yet, it is also important to note that renewable support is rather persistent. Despite a hypothetical moderate increase in electricity prices 85% of renewable proponents continue to support renewable energy investments. This very favorable opinion towards renewable energy sources might be interpreted as follows: The public acceptance for renewable energy is currently at the first stage of development in Turkey. This wide and robust support might be undermined as more renewable energy projects are realized. The public will then gather much more experience with these power plants and might develop local resistance if renewable energy projects are undertaken without considering potential environmental problems or potential disturbances to the everyday life of those residents living near the power plants. This might then lead to the second stage of public opinion for renewable sources, under which many Western countries are suffering right now. Local resistance movements might get powerful and might demand other alternative energy investments instead of renewables. It is to be emphasized that before this second stage arrives in Turkey, the public has to be provided with the necessary information as to the pros and cons of renewable energy sources, about recent developments in technology (about the decreasing costs and increasing efficiency), and the renewable energy projects have to be designed carefully according to the needs and concerns of the residents such that local resistance is less likely to emerge. Otherwise, huge economic potential of the country for renewable sources cannot be realized even if there is the political will

and support and even if the public is right now demanding a “time for change” in the energy investment decisions of the government towards a stronger reliance on renewable energy sources such as wind, solar and geothermal.

## APPENDICES

### APPENDIX A: CORRELATION MATRIX OF INDEPENDENT VARIABLES

|                                   | Age    | Household<br>wealth | Woman  | Education | Knowledge<br>of climate<br>change | Env<br>activism | Env<br>optimism | Techno-<br>scientific<br>optimism | Env<br>concern | Economy-<br>orientation |
|-----------------------------------|--------|---------------------|--------|-----------|-----------------------------------|-----------------|-----------------|-----------------------------------|----------------|-------------------------|
| Age                               | 1.000  |                     |        |           |                                   |                 |                 |                                   |                |                         |
| Household<br>wealth               | -0.069 | 1.000               |        |           |                                   |                 |                 |                                   |                |                         |
| Woman                             | -0.045 | -0.019              | 1.000  |           |                                   |                 |                 |                                   |                |                         |
| Education                         | -0.346 | 0.348               | -0.029 | 1.000     |                                   |                 |                 |                                   |                |                         |
| Knowledge<br>of climate<br>change | -0.070 | 0.174               | -0.036 | 0.305     | 1.000                             |                 |                 |                                   |                |                         |
| Env<br>activism                   | 0.007  | 0.124               | -0.011 | 0.140     | 0.126                             | 1.000           |                 |                                   |                |                         |
| Env<br>optimism                   | -0.058 | -0.076              | -0.034 | -0.054    | -0.045                            | -0.052          | 1.000           |                                   |                |                         |
| Techno-<br>scientific<br>optimism | 0.101  | -0.025              | -0.042 | -0.118    | -0.057                            | 0.024           | 0.097           | 1.000                             |                |                         |
| Env<br>concern                    | 0.025  | 0.073               | 0.006  | -0.028    | 0.002                             | 0.043           | -0.048          | 0.014                             | 1.000          |                         |
| Economy-<br>orientation           | 0.012  | -0.010              | -0.031 | -0.030    | -0.041                            | 0.003           | 0.068           | 0.078                             | -0.087         | 1.000                   |

## APPENDIX B: HAUSMAN TESTS FOR IIA ASSUMPTION

| <u>Omitted</u> | <u>Chi-Square</u> | <u>Df</u> | <u>p-value</u> | <u>Evidence</u> |
|----------------|-------------------|-----------|----------------|-----------------|
| Coal           | -0.474            | 56        | 1.000          | for Ho          |
| Natural gas    | 1.153             | 56        | 1.000          | for Ho          |
| Dams           | 1.527             | 57        | 1.000          | for Ho          |
| Renewables     | 33.311            | 56        | 0.993          | for Ho          |
| Nuclear        | -0.533            | 54        | 1.000          | for Ho          |

H<sub>0</sub>: Energy investment alternatives are independent of each other.

## APPENDIX C: SURVEY

İyi günler; Boğaziçi Üniversitesi olarak enerji konularına ilişkin Türkiye’de bilimsel bir çalışma yapmaktayız. Bu çalışma Türkiye genelinde toplamda 2400 kişi ile yapılmaktadır. Bu 2400 kişi tesadüfi olarak seçilmektedir. Vereceğiniz bütün bilgiler YALNIZCA akademik olarak değerlendirilecek ve kişisel bilgileriniz tamamen gizli tutulacaktır. Bu çalışma için sizin de yaklaşık yarım saatinizi alabilir miyiz? Bize ayracağınız vakit için teşekkür ederiz.

|   |   |   |   |                    |   |   |   |                    |   |                     |   |    |
|---|---|---|---|--------------------|---|---|---|--------------------|---|---------------------|---|----|
| pr  | Proje rotasyon (anketör dikkat! BÖLÜM1’DE sorulan kart setini işaretle!)<br>1> Türkiye  |   |   |                    |   |   |   |                    |   |                     |   |    |
| fr  | Fiyat rotasyon (Anketör dikkat! BÖLÜM1’DE sorulan fiyat setini işaretle!)<br>4> Başlangıç 240 YTL   |   |   |                    |   |   |   |                    |   |                     |   |    |
| 1   | <p>Hayatınızdan ne derece memnunsunuz? “0” hiç memnun değilim, “5” ne memnunum ne memnun değilim, “10” ise çok memnunum anlamına gelmektedir. Memnuniyet dereceniz arttıkça sıfırdan ona doğru yükselen puanlar verebilirsiniz. (KART GÖSTER).</p> <p style="text-align: center;">Hiç <span style="float: right;">Çok</span><br/>Memnun değilim <span style="float: right;">memnunum</span></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px 5px;">0</td> <td style="border: 1px solid black; padding: 2px 5px;">1</td> <td style="border: 1px solid black; padding: 2px 5px;">2</td> <td style="border: 1px solid black; padding: 2px 5px;">3</td> <td style="border: 1px solid black; padding: 2px 5px;">4</td> <td style="border: 1px solid black; padding: 2px 5px;">5</td> <td style="border: 1px solid black; padding: 2px 5px;">6</td> <td style="border: 1px solid black; padding: 2px 5px;">7</td> <td style="border: 1px solid black; padding: 2px 5px;">8</td> <td style="border: 1px solid black; padding: 2px 5px;">9</td> <td style="border: 1px solid black; padding: 2px 5px;">10</td> </tr> </table> <p>(ANKETÖR DİKKAT! BU SORU VE DEVAMINDAKİ ÖLÇEK SORULARINDA, KARTI GÖRÜŞÜLEN KİŞİNİN ÖNÜNE KOYDUKTAN SONRA, KİŞİNİN VEREBİLECEĞİ 0 İLE 10 ARASINDA 11 FARKLI CEVAP OLDUĞUNU, SIFIRDAN ONA DOĞRU OLUMLU YÖNÜN ARTTIĞINI, ONDAN SIFIRA DOĞRU AZALDIĞINI HATIRLATINIZ. ÖRNEĞİN GÖRÜŞÜLEN KİŞİ SADECE “MEMNUNUM” DİYE BİR CEVAP VERMİŞSE “NE DERECE MEMNUNSUNUZ? 5 Mİ, 6 MI, 7 Mİ, 8 Mİ, 9 MU, 10 MU?” DİYE AYRINTILI BİR ŞEKİLDE SORUN ! BU SORGULAMAYI ÖLÇEKLİ HER SORUDA YAPIN.)</p> | 0   | 1 | 2                  | 3 | 4   | 5 | 6                  | 7 | 8                   | 9 | 10 |
| 0   | 1   | 2   | 3 | 4                  | 5 | 6   | 7 | 8                  | 9 | 10                  |   |    |
| 2   | <p>Aşağıda sayacaklarımdan sizce şu an Türkiye’nin en önemli sorunu nedir?<br/>Peki ikinci önemli sorun nedir?</p> <p style="margin-left: 20px;">1&gt; Rüşvet ve yolsuzluk<br/>2&gt; Yoksulluk<br/>3&gt; Düşünce özgürlüğünün kısıtlanması<br/>4&gt; İşsizlik<br/>5&gt; Doğadaki tahribat ve çevre kirliliği<br/>6&gt; Güneydoğu sorunu<br/>Diğer (Yazınız) .....</p>   |   |   |                    |   |   |   |                    |   |                     |   |    |
| 3   | <p>Devlet kaynaklarının kısıtlı olduğunu biliyoruz. 100 liralık bir harcama bütçeniz olsa ve devlet adına karar verecek olsanız, siz 100 lirayı burada gördüğünüz alanlara ne şekilde dağıtırınız? Farklı alanlarda farklı harcamalar yapabilirsiniz. Toplam harcamanız 100 lirayı geçemez. (KART GÖSTER)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; padding-right: 10px;">Doğadaki tahribatın ve çevre kirliliğinin önlenmesi için gerekli harcamalar</td> <td style="border-bottom: 1px solid black; width: 100px;"></td> </tr> <tr> <td style="text-align: right; padding-right: 10px;">Sağlık harcamaları</td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td style="text-align: right; padding-right: 10px;">Şehirlerarası yolların yapımı için harcamalar</td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td style="text-align: right; padding-right: 10px;">Eğitim harcamaları</td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td style="text-align: right; padding-right: 10px;">Savunma harcamaları</td> <td style="border-bottom: 1px solid black;"></td> </tr> </table>  | Doğadaki tahribatın ve çevre kirliliğinin önlenmesi için gerekli harcamalar |   | Sağlık harcamaları |   | Şehirlerarası yolların yapımı için harcamalar |   | Eğitim harcamaları |   | Savunma harcamaları |   |    |
| Doğadaki tahribatın ve çevre kirliliğinin önlenmesi için gerekli harcamalar |   |   |   |                    |   |   |   |                    |   |                     |   |    |
| Sağlık harcamaları  |   |   |   |                    |   |   |   |                    |   |                     |   |    |
| Şehirlerarası yolların yapımı için harcamalar                               |   |   |   |                    |   |   |   |                    |   |                     |   |    |
| Eğitim harcamaları  |   |   |   |                    |   |   |   |                    |   |                     |   |    |
| Savunma harcamaları   |   |   |   |                    |   |   |   |                    |   |                     |   |    |
| 4   | <p>Küresel ısınmayı ya da kimilerinin adlandırdığı gibi iklim değişikliğini hiç duydunuz mu?</p> <p style="margin-left: 20px;">1&gt; Evet<br/>2&gt; Hayır (BOLUM l’e geçiniz)</p>   |   |   |                    |   |   |   |                    |   |                     |   |    |
| 4A  | <p>EVET ise<br/>Küresel ısınma konusunda ne derece bilgi sahibi olduğunuzu düşünüyorsunuz? “0” hiç bilgi sahibi olmadığınız, “10” ise son derece bilgili olduğunuz anlamına gelmektedir. Bilgi dereceniz arttıkça sıfırdan ona doğru yükselen puanlar verebilirsiniz.</p> <p style="text-align: center;">Hiç <span style="float: right;">Son derece</span><br/>Bilmiyorum <span style="float: right;">bilgiliyim</span></p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px 5px;">0</td> <td style="border: 1px solid black; padding: 2px 5px;">1</td> <td style="border: 1px solid black; padding: 2px 5px;">2</td> <td style="border: 1px solid black; padding: 2px 5px;">3</td> <td style="border: 1px solid black; padding: 2px 5px;">4</td> <td style="border: 1px solid black; padding: 2px 5px;">5</td> <td style="border: 1px solid black; padding: 2px 5px;">6</td> <td style="border: 1px solid black; padding: 2px 5px;">7</td> <td style="border: 1px solid black; padding: 2px 5px;">8</td> <td style="border: 1px solid black; padding: 2px 5px;">9</td> <td style="border: 1px solid black; padding: 2px 5px;">10</td> </tr> </table>  | 0   | 1 | 2                  | 3 | 4   | 5 | 6                  | 7 | 8                   | 9 | 10 |
| 0   | 1   | 2   | 3 | 4                  | 5 | 6   | 7 | 8                  | 9 | 10                  |   |    |
| 4B  | <p>Küresel ısınma sorununa sebep olan en önemli gazı biliyor musunuz?</p> <p style="margin-left: 20px;">1&gt; Evet<br/>2&gt; Hayır (BOLUM l’e geçiniz)</p>  |   |   |                    |   |   |   |                    |   |                     |   |    |

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|   | <p>EVET ise hangisi?<br/>(Yazınız).....</p>  |
|   | <p><b>BÖLÜM I</b></p>  |
|   | <p>Aslında, küresel ısınma, son yıllarda dünyadaki önemli tartışma konularından biridir. Şimdi size küresel ısınmaya ilişkin bilgi verip; yine bu konuyla ilgili bazı sorular soracağım. Küresel ısınma, havanın ve denizlerin ortalama sıcaklığının artması anlamına gelmektedir. Bu da ani ve sert hava değişimlerini beraberinde getirir. Peki, küresel ısınma nasıl oluyor?</p>  |
|   | <p>KART 1; KART 2 ve KART 3'ü BİRER BİRER GÖRÜŞMECİNİN ÖNÜNE KOYUN ve RESİMLERİ GÖSTEREREK BİRLİKTE OKUYUN!</p>  |
| 5 | <p>KART 4'teki soruyu görüşmeciye yöneltin.</p> <p>Bu bilgiler ışığında, sizce Türkiye dünyadaki 214 ülke içerisinde atmosfere toplam karbondioksit salınımında kaçınıcı sırada?</p> <ol style="list-style-type: none"> <li>1) ilk 10'da</li> <li>2) 11 ile 25 arası</li> <li>3) 26 ile 50 arası</li> <li>4) 51-80 arası</li> <li>5) 81-150 arası</li> <li>6) 150'den aşağılarda bir yerde</li> </ol>                                  |
|   | <p>KART 5, KART 6, KART 7'i BİRER BİRER GÖRÜŞMECİNİN ÖNÜNE KOYUN ve RESİMLERİ GÖSTEREREK BİRLİKTE OKUYUN!</p>  |
| 6 | <p>Türkiye'ye ve dolayısıyla hepimize belli yükler getirecek bu projeye Türkiye'nin katılımı için Birleşmiş Milletler'den çağrı yapılırsa, siz Türkiye'nin bu çağrıya prensipte "evet" diyerek projeye dahil olmasını ister misiniz?</p> <ol style="list-style-type: none"> <li>1&gt; Evet (SORU 7'e geçiniz)</li> <li>2&gt; Hayır (6A'yı sorduktan sonra SORU7'yi sorunuz)</li> </ol> <p>6A. Hayır ise neden?<br/>(Yazınız) .....</p> |
| 7 | <p>Peki, sizce Türkiye'de 10 kişiden kaç bu çağrıya destek verip "evet" denmesini ister?</p> <p>(0-10 arası rakam yazınız) .....</p>   |

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|    | <p>ANKETÖRE NOT: HERKESE SORULACAK! Soru 6'a verdiği cevaba göre:</p> <p>BM'den çağrıya <u>HAYIR</u> demiş ise: Siz Türkiye'nin projeye dahil olmasını istemediniz; ancak farz edin ki hükümet böyle bir davet yapıldığında, davete olumlu yanıt verdi..</p> <p>BM'den çağrıya <u>EVET</u> demiş ise: Siz Türkiye'nin projeye dahil olmasını istediniz; hükümet de böyle bir davet yapıldığında, davete olumlu yanıt verdi.</p> <p>BU BİR "TÜRKİYE FONU" ANKETİ : KART 8A'YI GÖRÜŞMECİNİN ÖNÜNE KOYUN ve OKUYUN!</p> <ul style="list-style-type: none"> <li>Sizden toplanacak para, aile bütçenizi etkileyeceği için böyle bir kampanyanın yapılmasına evet ya da hayır demeniz gayet normaldir. Bu projeye destek verip vermemeniz, doğal olarak, bu kampanya çerçevesinde sizden ne kadar para isteneceğine bağlı olacaktır. Bu soruyu daha önce sorduğumuz insanlar kendilerinden istenen para miktarına göre evet ya da hayır dediler.</li> <li>Şu an yapılan tahminlere göre bu projenin gerçekleşmesi için Türkiye genelinde toplanan bu fon kapsamında, ailenizin bu kampanyaya <u>bir defaya mahsus olmak üzere, 240 YTL</u> ya da derseniz 12 ay boyunca ayda <u>24 YTL</u> katkıda bulunması istenecektir. Ödeme şekli sizin tercih edeceğiniz bir şekilde olabilir (havale, kredi kartı, ödeme emri, nakit vb.). <u>Sizden ve herkesten</u> toplanacak bu paraların sadece bu proje için kullanılacağını hatırlatalım.</li> </ul> <p>ANKETÖRE NOT:</p> <ol style="list-style-type: none"> <li>EVİN HANIMIYLA GÖRÜŞÜLÜRKEN, "PARA İŞLERİNE BEY KARAR VERİYOR" DERSE: "DİYELİM Kİ SİZ KARAR VERİYORSUNUZ. SİZ AİLE BÜTÇENİZDEN BÖYLE BİR PARA ÇIKMASINI İSTER MİSİNİZ?" ŞEKLİNDE CEVAP VERİN.</li> <li>HERKES Mİ KATKIDA BULUNACAK? "HERKES KENDİ UYGUN GÖRDÜĞÜ MİKTARDA KATKIDA BULUNACAKTIR" CEVABINI VERİN.</li> </ol> |
| 8  | <p>Böyle bir proje hayata geçirilecek olsa Türkiye genelinde toplanan bu fona, aile bütçenizi tekrar göz önünde bulundurarak bir defaya mahsus <b>240 YTL</b> veya 12 ay boyunca aylık <b>24 YTL</b> ödeme yapmayı kabul eder misiniz?</p> <ol style="list-style-type: none"> <li>Evet (SORU 8A'yı yöneltiniz)</li> <li>Hayır (SORU 8B'e geçiniz)</li> </ol>   |
| 8A | <p>EVET ise</p> <p>Peki, bunun yerine ailenizden istenecek katkı bir defaya mahsus <b>480 YTL</b> veya 12 ay boyunca <b>48 YTL</b> olsaydı, bu miktarı ödemeyi kabul eder misiniz?</p> <ol style="list-style-type: none"> <li>Evet</li> <li>Hayır (SORU 9'a geçiniz)</li> </ol> <p>EVET ise</p> <p>Vereceğiniz yıllık miktar en fazla ne kadar olurdu?</p> <p>Yazınız (.....YTL)<br/>(SORU 9'a geçiniz)</p>  |
| 8B | <p>HAYIR ise</p> <p>Peki, bunun yerine ailenizden istenecek katkı bir defaya mahsus <b>120 YTL</b> veya 12 ay boyunca <b>12 YTL</b> olsaydı, bu miktarı ödemeyi kabul eder misiniz?</p> <ol style="list-style-type: none"> <li>Evet (SORU 9'a geçiniz)</li> <li>Hayır</li> </ol> <p>HAYIR ise</p> <p>Peki, vereceğiniz yıllık miktar en fazla ne kadar olurdu?</p> <p>Yazınız (.....YTL)<br/>(SORU 9'a geçiniz)</p>  |
| 9  | <p>HERKESE SORULACAK (Hiç katkı yapamadığını söyleyenlere de Sıfır YTL olarak sorulacak)</p> <p>Yıllık .....YTL katkı yapmayı düşündünüz. Bu fonun düzgün bir şekilde kullanılacağına ne derece güvendiğinizi söyler misiniz? "0" hiç güvenmediğiniz, "10" ise son derece güvendiğiniz anlamına gelmektedir. Güven dereceniz arttıkça sıfırdan ona doğru yükselen puanlar verebilirsiniz.</p>  |

|                |  | Son derece  |      |  |   |   |   |   |   |   |   |      |
|----------------|--|---|------|--|---|---|---|---|---|---|---|------|
|                |  | güveniyorum   |      |  |   |   |   |   |   |   |   |      |
|                |  | Hiç   |      |  |   |   |   |   |   |   |   |      |
|                |  | Güvenmiyorum  |      |  |   |   |   |   |   |   |   |      |
|                |  | 0   | 1    | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10   |
| 10             | <p><b>HERKESE SORULACAK:</b><br/>Bu proje için daha fazla miktar katkıda bulunmak istememenizin en önemli sebebi nedir? Peki, ikincisi? (KART GÖSTER)</p> <p>1&gt; Bütçem kısıtlı<br/>2&gt; Bu fon yeterince düzgün bir şekilde kullanılmayacaktır<br/>3&gt; Herkesin katkı yapacağına garanti yok<br/>4&gt; Karbondioksit tüketiminden bağımsız bir şekilde toplu para istenmesi doğru değil; fazla karbondioksit salınımına neden olan hanehalkları paranın çoğunu vermeli<br/>5&gt; Küresel ısınma sorunun ortaya çıkmasına gelişmiş ülkeler neden oldu; gerekli yatırımların masraflarını onlar karşılasın.<br/>6&gt; Bu proje teknik olarak küresel ısınma sorununu çözemez<br/>Diğer (.....)</p> |   |      |  |   |   |   |   |   |   |   |      |
| <b>BÖLÜM 2</b> |  |   |      |  |   |   |   |   |   |   |   |      |
| 11             | <p>(KART GÖSTER).</p> <p>Önümüzdeki dönemde Türkiye'nin büyümesiyle daha fazla enerjiye ihtiyacı olacağı biliniyor. Aşağıda sayacaklarım Türkiye'nin enerji üretmek için atabileceği adımlardır. Bunlar arasında Türkiye'nin yapmaması gerektiğini düşündüğünüz bir veya birkaç enerji yatırımı var mı?</p> <p>Söylenenler için<br/>1&gt;Yapılmamalı işaretle diğerlerini boş bırak.!</p>  | İSTENMEYEN HER BİR ENERJİ YATIRIMI İÇİN (1 cevabı için):<br>Bu enerji yatırımını istememenizin en önemli sebebi nedir? (Lütfen açık uçlu bir şekilde yazınız) |      | İSTENMEYEN HER BİR ENERJİ YATIRIMI İÇİN:<br>Peki, sizin tercih etmediğiniz bu enerji yatırımı gerçekleştiğinde, kullandığınız elektrik %25 daha ucuz olsa gene de bu yatırıma karşı çıkar mıydınız?<br><br>1> Evet<br>2> Hayır |   |   |   |   |   |   |   |      |
|                | Kömürle çalışan yeni termik santraller kurmak  | c1.....   | c1.a |  |   |   |   |   |   |   |   | c1.b |
|                | Doğal gazla çalışan yeni termik santraller kurmak  | c2.....   | c2.a |  |   |   |   |   |   |   |   | c2.b |
|                | Yeni barajlar inşa etmek   | c3.....   | c3.a |  |   |   |   |   |   |   |   | c3.b |
|                | Yenilenebilir enerji kaynaklarına (rüzgar, güneş vb.) yatırım yapmak   | c4.....   | c4.a |  |   |   |   |   |   |   |   | c4.b |
|                | Nükleer enerji santralleri kurmak  | c5.....   | c5.a |  |   |   |   |   |   |   |   | c5.b |
| 12             | <p>Peki, bu enerji yatırımlarından en öncelik verilmesi gereken sizce hangisidir? İkincisi?</p> <p>1&gt; Kömürle çalışan yeni termik santraller kurmak (12A'ya sorunuz)<br/>2&gt; Doğal gazla çalışan yeni termik santraller kurmak (12B'ye sorunuz)<br/>3&gt; Yeni barajlar inşa etmek (12C'ye sorunuz)<br/>4&gt; Yenilenebilir enerji kaynaklarına (rüzgar, güneş vb.) yatırım yapmak (12D'ye sorunuz)<br/>5&gt; Nükleer enerji santralleri kurmak (12E'ye sorunuz)</p> <p><b>ÖNCELİK VERİLMESİ GEREKTİĞİ SÖYLENEN HER BİR ENERJİ YATIRIMI İÇİN AŞAĞIDA İLGİLİ MODÜLÜ SEÇİP SORUNUZ! TOPLAM 2 MODUL SORULACAK (Birincisi ve ikincisi için)</b></p>   |   |      |  |   |   |   |   |   |   |   |      |
| 12A            | <p><b>KÖMÜR SANTRALİ İSTEMİŞ İSE:</b></p> <p>Kömür santraline yatırım yapılmasını istememenizin en önemli sebebi nedir? (Yazınız) .....</p> <p>Bilindiği üzere termik santraller kötü kömür kullanılırsa ve baca gazı arıtma sistemi olmazsa zehirli gazlar salar; hava kirliliğine neden olurlar. Çevre ve sağlık göz önüne alınarak Türkiye'nin yapacağı yatırımda kaliteli kömür ve en son teknoloji filtreleme kullanılırsa ve bu nedenle kullandığınız elektrik %25 daha pahalı olsa, bu yatırımı desteklemeye devam eder misiniz?<br/>1&gt; Evet<br/>2&gt; Hayır</p>   |   |      |  |   |   |   |   |   |   |   |      |

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| 12B            | <p><b>DOĞALGAZ İSTEMİŞ ise:</b></p> <p>Doğalgaz yatırımı yapılmasını istemenizin en önemli sebebi nedir?<br/>(Yazınız) .....</p> <p>Bilindiği üzere, Türkiye'nin doğal gaz kaynakları kısıtlıdır. Türkiye'nin doğalgaz yatırımlarıyla dışa enerji bağımlı olacağını bilerseniz, Türkiye'nin doğal gaz yatırımı desteklemeye devam eder misiniz?<br/>1&gt; Evet<br/>2&gt; Hayır</p>   |
| 12C            | <p><b>BARAJ İSTEMİŞ ise:</b></p> <p>Baraj yapılmasını istemenizin en önemli sebebi nedir?<br/>(Yazınız) .....</p> <p>Bilindiği üzere, baraj gölleri gerek yerleşim ve tarım alanlarının gerek doğal ve tarihi güzelliklerin sular altında kalmasına neden olmaktadır. Bu tür zararların karşılanabilmesi için bütçe ayrılrsa ve bu nedenle kullandığınız elektrik %25 daha pahalı olsa, bu yatırımı desteklemeye devam eder misiniz?<br/>1&gt; Evet<br/>2&gt; Hayır</p>  |
| 12D            | <p><b>YENİLENEBİLİR ENERJİSİ İSTEMİŞ ise:</b></p> <p>Yenilenebilir enerji yatırımı yapılmasını istemenizin en önemli sebebi nedir?<br/>(Yazınız) .....</p> <p>Sizin kullandığınız elektriğin sadece yenilenebilir enerji santrallerinden geldiğini bilerseniz ve elektrik faturanız %25 daha pahalı olsa, bu yatırımı desteklemeye devam eder misiniz?<br/>1&gt; Evet<br/>2&gt; Hayır</p>  |
| 12E            | <p><b>NÜKLEER SANTRAL İSTEMİŞ ise:</b></p> <p>Nükleer santrale yatırım yapılmasını istemenizin en önemli sebebi nedir?<br/>(Yazınız) .....</p> <p>Bilindiği üzere nükleer santraller enerji üretirken radyoaktif madde içeren atık açığa çıkarırlar. Bu atıklar yüzbinlerce yıl yok edilemezler; radyoaktif madde de yaydıklarından taşınmaları, depolanmaları ve muhafaza edilmeleri ciddi bir sorundur. Nükleer atıklar oturduğunuz yere yakın bir bölgeye gömülse, bu yatırımı desteklemeye devam eder misiniz?<br/>1&gt; Evet<br/>2&gt; Hayır</p>  |
| <b>BÖLÜM 3</b> |  |
| 13             | <p><b>Şimdi size sayacağım ifadelerin hangisine daha yakın hissettiğinizi söyler misiniz? (HER BİRİ TEK CEVAP)</b></p> <p>Genel olarak bir ülkenin geleceğine ilişkin düzenlemeler yapılırken hangi konulara daha öncelik verilmesi gerektiği konusunda pek çok tartışma vardır. Bir karşılaştırma yapacak olsak, sizce bir ülke için ekonomik konular/hedefler mi daha önemlidir? Yoksa çevreye ilişkin konular/hedefler mi daha önemlidir? Yoksa her ikisi de eşit öneme mi sahiptir?<br/>1&gt; Ekonomik hedefler daha fazla önemlidir<br/>2&gt; Çevre konuları hedefleri daha fazla önemlidir<br/>3&gt; Her ikisi de eşit öneme sahiptir</p> <p>Sizce:<br/>1&gt; Teknoloji ile tüm çevre sorunları çözülebilir mi?<br/>2&gt; Yoksa, teknoloji çevre sorunlarına tümüyle çözüm olamaz mı?</p> <p>Sizce:<br/>1&gt; Çevre standartları sanayileşmeyi engelleyecek kadar sıkı olmamalı mıdır?<br/>2&gt; Yoksa ne koşulda olursa olsun çevre standartları uygulanmalı mıdır?</p> |

|  |   |  |  |   |           |
|--|---|--|--|---|-----------|
| Sizce:<br>1> Bitki ve hayvanlar insanların çıkarları doğrultusunda sınırsızca kullanılabilirler mi?<br>2> Yoksa, bitki ve hayvanların kendi hakları gözetilmeli ve korunmalı mıdır?      |   |  |  |   |           |
| <b>BÖLÜM 4</b>   |   |  |  |   |           |
| 14 Şimdi size günlük alışkanlıklarımıza ilişkin bazı sorular soracağım.<br>Bu sorulara Hiç, Genellikle, Her zaman şıklarından birini seçerek cevap vermenizi rica ediyorum (KART GÖSTER) |   |  |  |   |           |
|  |   |  | Hiç  | Genellikle  | Her zaman |
|  | Kullanılmayan bir yerde açık kalmış ışık gördüğümde kapatmak için mutlaka çaba harcarım   |  | 1  | 2   | 3         |
|  | Elimdeki çöpü çok uzun süre tutmam gerekse bile, çöp kutusu buluncaya kadar taşımaya devam ederim   |  | 1  | 2   | 3         |
|  | Birkaç arkadaşımın şehirlerarası yolculuk yapmam gerektiğinde özel araç ve otobüs arasında seçme şansım varsa ve kendime düşen maliyetler aynıysa otobüsü tercih ederim   |  | 1  | 2   | 3         |
| 15   | Aşağıda sayacağım atıklardan/çöplerden hangilerini tekrar değerlendirilmesi için ayrıştırıyorsunuz?<br><br>HER BİRİ İÇİN AYRI SORUN VE İŞARETLEYİN!<br><br>1> Evet<br>2> Hayır  | HANGİ ÇÖP İÇİN HAYIR DEDİ ise<br>Çöpleri tekrar değerlendirilmesi için ayrıştırmamanızın en önemli nedenini öğrenebilir miyim?<br>(TEK CEVAP)<br>1> Bu konuyu önemli bulmuyorum<br>2> Zamanım yok.<br>3> Evde biriktirmek/saklamak için yerim yok.<br>4> Geri dönüşüm kutularının nerede olduğunu bilmiyorum.<br>5> Bu konuda yeterli bir düzenleme yok; olsaydı yapardım.<br>Diğer (YAZINIZ)..... | HANGİ ÇÖP İÇİN EVET DEDİ ise<br><br>Bunun karşılığında para alıyor musunuz?<br><br>1>Evet<br>2>Hayır | HANGİ ÇÖP İÇİN PARA ALIYOR ise<br><br>Para almasaydınız da bu zahmete katlanır mıydınız?<br><br>1>Evet<br>2>Hayır |           |
|  | Cam şişe ve kavanozları   | c6.  | c6.a   | c6.b  | c6.c      |
|  | Gazete ve kağıtları   | c7.  | c7.a   | c7.b  | c7.c      |
|  | Plastikleri   | c8.  | c8.a   | c8.b  | c8.c      |
|  | Pilleri   | c9.  | c9.a   | c9.b  | c9.c      |
| 16   | Son 5 yıl içinde doğayla ilgili olarak şimdi size sayacaklarımı yaptınız mı?  |  |  | Evet  | Hayır     |
|  | Çevrenin yeşillendirilmesi için ağaçlandırma kampanyasına gönüllü olarak katılmak   |  |  | 1   | 2         |
|  | Doğanın korunması için imza kampanyasına katılmak   |  |  | 1   | 2         |
|  | Doğa tahribatını engellemek için bireysel olarak dilekçe vermek   |  |  | 1   | 2         |
|  | Gerek genel gerek yerel seçimlerde oy verirken adayların/partilerin çevre politikalarını dikkatlice incelemek<br>(Anketöre not: Daha önce oy kullanmamış ise: Önümüzdeki seçimlerde oy kullanırken dikkate alacak mısınız?) |  |  | 1   | 2         |
| 17   | Son 5 yıl içinde herhangi bir çevre grubuna üye oldunuz mu?<br>1> Evet<br>2> Hayır (Soru 18'e geçiniz)  |  |  |   |           |
| 17A  | Evet ise hangisi? .....   |  |  |   |           |
| <b>BOLÜM 5</b>   |   |  |  |   |           |
| Şimdi belediyelerin tasarlamakta oldukları çevre sorunlarını ilgilendiren uygulamalara ilişkin sizin değerlendirmenizi almak istiyorum.  |   |  |  |   |           |

| 18  | <p>Farz edin ki, belediyeniz çöplerin ayrıştırılması ve toplanmasına ilişkin yeni bir uygulama başlatıyor. Bu uygulama çerçevesinde, 3 tip çöp torbası kullanarak 3 değişik çöp atma yöntemi izlemek mümkün. Şöyle ki (ÇÖPLER KARTINI GÖSTER):</p> <p>1) Marketlerde bütçenizi zorlamayacak bir miktar para ödeyerek alabileceğiniz sarı renkli torbalar var. Sarı torbalara her tür çöpünüzü hiç ayırmadan koyabilirsiniz. Belediyeniz, toplanan torba paralarıyla sarı torbaları ayrı alacak ve çöplerinizin arasından kağıtları/cam şişeleri ve plastikleri tekrar değerlendirmek (geri kazanmak) için ayıracak. Siz bir anlamda para vererek çöplerinizin geri dönüşmesini sağlayacaksınız.</p> <p>2) Marketlerden bedava temin edebileceğiniz yeşil renkli torbalar var. Kağıtları, cam/şişeleri ve plastikleri evde ayırıp farklı yeşil torbalara koyuyorsunuz. Belediyeniz, bu yeşil torbaları ayrı toplayacak ve doğrudan geri kazanım sağlanacak. Geri kalan çöplerinizi de (yemek atıkları gibi) her zaman kullandığınız <u>normal</u> çöp torbaları ile atacaksınız ve belediyeniz toplayacak.</p> <p>3) Ya da evde her zaman kullandığınız normal çöp torbalarını kullanmaya devam edebilirsiniz. Belediyeniz, çöplerinizi toplayacak, ancak çöpleri ayrıştırma işlemine tabi tutmayacak. Çöpler düzgün bir şekilde yok edilecek.</p> <p>Siz bu yöntemlerden hangisini izlemeyi tercih edersiniz?</p> <p>1&gt; Para verip, sarı çöp torbası alırım. (Soru 20'ye geçin)</p> <p>2&gt; Evde biraz zaman harcayıp, düzen kurup, çöplerimi yeşil torbalara kendim ayırım. (Soru 20'ye geçin)</p> <p>3&gt; Normal çöp torbalarını kullanmaya devam ederim. (Soru 19'u sorun)</p> |   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
|---|--|---|------|-------|--|---|---|---|---|---|---|---|---|--|---|---|---|---|---|
| 19  | <p>EĞER 3 (normal çöp torbaları) ise;</p> <p>Peki, belediye her ayrıştırdığınız torba için size para verse, evde çöplerinizi ayırıp yeşil torbalara koyar mısınız?</p> <p>1&gt; Evet</p> <p>2&gt; Hayır</p>  |   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| <b>BÖLÜM 6</b>  |  |   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| 20  | <table border="1"> <thead> <tr> <th>Şimdi de size günlük yaşama ilişkin sorular soracağım</th> <th>Evet</th> <th>Hayır</th> </tr> </thead> <tbody> <tr> <td>Parkta, ormanlık alanda veya göl/deniz kenarında en az ayda bir kez yürüyüş yapar mısınız?</td> <td>1</td> <td>2</td> </tr> <tr> <td>Evinizde hiç hayvan beslediniz mi ya da beslemekte misiniz?</td> <td>1</td> <td>2</td> </tr> <tr> <td>Sokaktaki kedi, köpek, kuş gibi hayvanları beslemek için çaba gösterir misiniz?</td> <td>1</td> <td>2</td> </tr> <tr> <td>Tarla/bahçe işleriyle geçmişte uğraştınız mı ya da şu an uğraşmakta mısınız?</td> <td>1</td> <td>2</td> </tr> <tr> <td>Tatil/gezi/spor amaçlı çadırda, küçük kamp veya köy evinde ya da teknede birden fazla kere kaldınız mı?</td> <td>1</td> <td>2</td> </tr> </tbody> </table>   | Şimdi de size günlük yaşama ilişkin sorular soracağım | Evet | Hayır | Parkta, ormanlık alanda veya göl/deniz kenarında en az ayda bir kez yürüyüş yapar mısınız? | 1 | 2 | Evinizde hiç hayvan beslediniz mi ya da beslemekte misiniz? | 1 | 2 | Sokaktaki kedi, köpek, kuş gibi hayvanları beslemek için çaba gösterir misiniz? | 1 | 2 | Tarla/bahçe işleriyle geçmişte uğraştınız mı ya da şu an uğraşmakta mısınız? | 1 | 2 | Tatil/gezi/spor amaçlı çadırda, küçük kamp veya köy evinde ya da teknede birden fazla kere kaldınız mı? | 1 | 2 |
| Şimdi de size günlük yaşama ilişkin sorular soracağım   | Evet   | Hayır   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| Parkta, ormanlık alanda veya göl/deniz kenarında en az ayda bir kez yürüyüş yapar mısınız?              | 1  | 2   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| Evinizde hiç hayvan beslediniz mi ya da beslemekte misiniz?   | 1  | 2   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| Sokaktaki kedi, köpek, kuş gibi hayvanları beslemek için çaba gösterir misiniz?                         | 1  | 2   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| Tarla/bahçe işleriyle geçmişte uğraştınız mı ya da şu an uğraşmakta mısınız?                            | 1  | 2   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| Tatil/gezi/spor amaçlı çadırda, küçük kamp veya köy evinde ya da teknede birden fazla kere kaldınız mı? | 1  | 2   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| <b>BÖLÜM 7</b>  |  |   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| Şimdi Türkiye'nin mevcut durumuna yönelik değerlendirmenizi alacağım.                                   |  |   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| 21  | <p>Bildiğiniz gibi TÜRKİYE ekonomisi son 3-4 yılda büyümektedir. Sizce önümüzdeki 5 yıl içerisinde TÜRKİYE ekonomisi nasıl bir gelişme gösterecek?</p> <p>1&gt; Ekonomi büyümeye devam edecek</p> <p>2&gt; Büyüme hissedilir oranda yavaşlayacak</p> <p>3&gt; Yeni bir kriz çıkacak; büyüme duracak</p>  |   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| 22  | <p>Genel olarak TÜRKİYE'de doğanın durumu 10 yıl öncesi ile karşılaştırdığınızda nasıl?</p> <p>1&gt; Çok daha kötü 2&gt; Biraz daha kötü 3&gt; Hemen hemen aynı 4&gt; Biraz daha iyi 5&gt; Çok daha iyi</p>  |   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| 23  | <p>Sizce, TÜRKİYE'de doğanın durumu önümüzdeki 10 yıl içinde nasıl bir gelişme gösterecek?</p> <p>1&gt; Çok daha kötü olacak 2&gt; Biraz daha kötü olacak 3&gt; Aynı olacak</p> <p>4&gt; Biraz daha iyi olacak 5&gt; Çok daha iyi olacak</p>   |   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| 24  | <p>Türkiye'de genel olarak çevre politikaları konusunda aksaklıklar olduğunu düşünüyor musunuz?</p> <p>1&gt; Evet</p> <p>2&gt; Hayır (Soru 25'e geçiniz)</p>   |   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
| 24<br>A   | <p><b>EVET ise, size sayacağım aksaklıklar içinde sizce en önemlisi hangisidir? (KART GÖSTER)</b></p> <p>Peki ikincisi?</p>  |   |      |       |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |

|  | <p>1&gt; Çevre mevzuatına ilişkin sorunlar (eksiklikler, karmaşıklıklar gibi)</p> <p>2&gt; Denetime ilişkin sorunlar (yetersiz denetim, yanlış denetim gibi)</p> <p>3&gt; Arıtma tesisi benzeri yatırımlara yeterli kaynağın ayrılmaması</p> <p>4&gt; Çevre konusunda çalışan kamu görevlilerinin yeterli eğitimden geçmemiş olmaları</p> <p>Diğer: .....</p>  |            |      |       |                |   |   |                     |   |   |  |   |   |
|--|--|------------|------|-------|----------------|---|---|---------------------|---|---|--|---|---|
| 25   | <p>Bildiğiniz gibi Türkiye'nin yüklü miktarda yurtiçi ve yurtdışı borcu vardır. Bu yüzden de devlet kaynak arayışı içindedir. Siz, kamu mülkiyetinde ve koruma altında olan bozulmamış ve değerli orman ve kıyı arazilerinin satışa sunulmasına ilişkin şu görüşlerden hangisine katılırsınız?</p> <p>1&gt; Devlet borcunu kapatacak kadar gelir elde edecek ise bu araziler yerli ya da yabancı tüm yatırımcılara satılabilir.</p> <p>2&gt; Devlet borcunu kapatacak kadar gelir elde edecek ise bu araziler sadece yerli yatırımcılara satılabilir.</p> <p>3&gt; Ne koşulda olursa olsun bu araziler satılmamalıdır.</p> |            |      |       |                |   |   |                     |   |   |  |   |   |
| 26   | <p>Bugün Türkiye'nin Avrupa Birliği'ne tam üyeliği hakkında bir halk oylaması yapılacak olsa siz Türkiye'nin Avrupa Birliği üyeliği için mi, yoksa bunun karşısında mı oy kullanırdınız?</p> <p>1&gt;Türkiye'nin Avrupa Birliği'ne üyeliğini destekler yönde oy kullanırdım</p> <p>2&gt;Türkiye'nin Avrupa Birliği'ne üyeliğine karşı oy kullanırdım</p> <p>99&gt;Fikri Yok/Cevap Yok</p>  |            |      |       |                |   |   |                     |   |   |  |   |   |
| <b>BÖLÜM 8</b>   |  |            |      |       |                |   |   |                     |   |   |  |   |   |
| 27   | <p>Evinizde ısınma merkezi mi, münferit/bağımsız mı?</p> <p>1&gt; Merkezi</p> <p>2&gt; Münferit/Bağımsız (MUNFERİT İSE BOLUMUNE GİDİNİZ)</p>   |            |      |       |                |   |   |                     |   |   |  |   |   |
| <b>MERKEZİ İSE:</b>  |  |            |      |       |                |   |   |                     |   |   |  |   |   |
| 28   | <p>Apartmanınız neyle ısınıyor?</p> <p>1&gt; Kömür</p> <p>2&gt; Doğalgaz</p> <p>3&gt; Fuel-oil</p> <p>4&gt; Mazot</p>  |            |      |       |                |   |   |                     |   |   |  |   |   |
| 28<br>A  | Apartmanınızda kaç daire var?.....   |            |      |       |                |   |   |                     |   |   |  |   |   |
| 2<br>9   | <p>Son bir yıl içinde <u>ısınmak için</u> ne kadar yakıt aidatı ödediğinizi biliyor musunuz?</p> <p>1&gt; Evet</p> <p>2&gt; Hayır (Soru 30'u sorunuz)</p>  |            |      |       |                |   |   |                     |   |   |  |   |   |
|  | <p>Evet ise, yıllık ısınma aidatınız ne kadar? ..... YTL</p> <p>(Soru 31'e geçiniz)</p>  |            |      |       |                |   |   |                     |   |   |  |   |   |
| 3<br>0   | <p>Hayır ise, toplam yıllık ödediğiniz aidat nedir? ..... YTL</p> <p>(Anketör: yıllık meblanın hesaplanmasına yardımcı ol [4 ay 200, 8 ay 150 diyorsa, örneğin, 2000 toplam yapar deyin])</p>  |            |      |       |                |   |   |                     |   |   |  |   |   |
|  | <table border="1"> <thead> <tr> <th>Binanızda:</th> <th>Evet</th> <th>Hayır</th> </tr> </thead> <tbody> <tr> <td>Kapıcı var mı?</td> <td>1</td> <td>2</td> </tr> <tr> <td>Site gideri var mı?</td> <td>1</td> <td>2</td> </tr> <tr> <td>Su parası dairelere değil de apartmana gelip oradan dağıtılıyorsa aidatın içinde mi?</td> <td>1</td> <td>2</td> </tr> </tbody> </table>  | Binanızda: | Evet | Hayır | Kapıcı var mı? | 1 | 2 | Site gideri var mı? | 1 | 2 | Su parası dairelere değil de apartmana gelip oradan dağıtılıyorsa aidatın içinde mi? | 1 | 2 |
| Binanızda:   | Evet   | Hayır      |      |       |                |   |   |                     |   |   |  |   |   |
| Kapıcı var mı?   | 1  | 2          |      |       |                |   |   |                     |   |   |  |   |   |
| Site gideri var mı?  | 1  | 2          |      |       |                |   |   |                     |   |   |  |   |   |
| Su parası dairelere değil de apartmana gelip oradan dağıtılıyorsa aidatın içinde mi? | 1  | 2          |      |       |                |   |   |                     |   |   |  |   |   |
| 31   | <p>Yemek pişirirken ne kullanıyorsunuz?</p> <p>1&gt; Elektrik</p> <p>2&gt; Doğalgaz</p> <p>3&gt; Tüp</p>   |            |      |       |                |   |   |                     |   |   |  |   |   |
| 32   | <p>Yıkamak, çamaşır, bulaşık vs için sıcak suyu nasıl temin ediyorsunuz? (İki cevap olabilir)</p> <p>1&gt; Apartmandan toplu olarak</p> <p>2&gt; Elektrikli şofben/termosifon</p> <p>3&gt; Odunlu/Kömürlü termosifon</p> <p>4&gt; Tüp gazlı şofben/termosifon</p> <p>5&gt; Doğalgazlı termosifon/şofben</p> <p>6&gt; Güneş enerjisi</p> <p>Diğer:.....</p>   |            |      |       |                |   |   |                     |   |   |  |   |   |

|         |  |
|---------|--|
| 33      | Soru 32 de kömür kullanmışsa, son bir yıl içinde kaç ton kömür kullandınız? .....<br>(1 ton = 1000 kg'dır. KG cinsinden verilen cevapları ton cinsinden ondalıklı yazınız)   |
|         | Soru 32 de odun kullanmışsa, son bir yıl içinde kaç ton odun kullandınız? .....<br>(1 ton = 1000 kg'dır. KG cinsinden verilen cevapları ondalıklı yazınız)   |
| 34      | Soru 31 veya32de tüp kullanmışsa, son bir yıl içinde kaç tüp kullandınız?<br>Büyük (12 kg'lık): .....<br>Küçük piknik(2 kg'lık) : .....<br>(Anketör tüpün büyük mü küçük mü olduğunu öğren; yıllık tüp miktarını hesapla; eğer iki tüp kullanılıyorsa –biri mutfakta biri banyoda—bunları da hesaba kat) |
| 35<br>a | Soru 31 veya32de doğalgaz kullanmışsa, son bir yıl içinde toplam ne kadar doğalgaz faturası ödediniz?<br>(Yazınız).....  |
| 36      | Son bir yıl içinde toplam ne kadar elektrik faturası ödediniz?<br>(Yazınız).....<br><br>(ANKETÖRE NOT: Kış ve yaz ayları içinde ödenen aylık faturalardan hareketle, yıllık hesaplamayı yapmasına yardımcı ol!<br>Bilmiyorsa faturaları bakılacak; öğrenilecek)  |
|         | <b>MUNFERİT İSE:</b>   |
| 37      | Daireniz/eviniz neyle ısıtılıyor? (Birden fazla cevap mümkün)<br>1> Kömür/odun sobası<br>2> Elektrikli soba/klima<br>3> Tüplü soba<br>4> Doğalgaz<br>5> Fuel-oil<br>Diğer:.....  |
| 38      | Yemek için ne kullanıyorsunuz?<br>1> Elektrik<br>2> Doğalgaz<br>3> Tüp   |
| 39      | Yıkamak, çamaşır, bulaşık vs için sıcak suyu nasıl temin ediyorsunuz?<br>1> Elektrikli şofben/termosifon<br>2> Kömürlü/Odunlu termosifon<br>3> Tüp gazlı şofben/termosifon<br>4> Doğalgazlı termosifon/şofben/kombi<br>5> Güneş enerjisi Diğer:.....   |
| 40      | Soru 37 veya 39'da kömür kullanmışsa, son bir yılda kaç ton kömür kullandınız? .....<br>(1 ton = 1000 kg'dır. KG cinsinden verilen cevapları ton cinsinden ondalıklı yazınız)  |
|         | Soru 37 veya 39'da odun kullanmışsa, son bir yılda kaç ton odun kullandınız? .....<br>(1 ton = 1000 kg'dır. KG cinsinden verilen cevapları ton cinsinden ondalıklı yazınız)  |
|         | Soru 37' de fuel oil kullanmışsa, son bir yılda kaç ton fuel oil kullandınız? .....  |
| 41      | Soru 37, 38 veya 39'da tüp kullanmışsa, son bir yılda kaç tüp kullandınız?<br>Büyük (12 kglık): .....<br>Küçük piknik(2 kglık) : .....<br>(Anketör tüpün büyük mü küçük mü olduğunu öğren; yıllık tüp miktarını hesapla; eğer iki tüp kullanılıyorsa –biri mutfakta biri banyoda—bunları da hesaba kat)  |
| 42      | Soru 37, 38 veya39da doğalgaz kullanmışsa son bir yılda toplam ne kadar doğalgaz faturası ödediniz? .<br>(Yazınız).....<br>(ANKETÖRE NOT: Kış ve yaz ayları içinde ödenen aylık faturalardan hareketle, yıllık hesaplamayı yapmasına yardımcı ol!<br>Bilmiyorsa faturaları bakılacak; öğrenilecek)       |
| 43      | Son bir yılda toplam ne kadar elektrik faturası ödediniz?<br>(Yazınız).....<br>(ANKETÖRE NOT: Kış ve yaz ayları içinde ödenen aylık faturalardan hareketle, yıllık hesaplamayı yapmasına yardımcı ol!<br>Bilmiyorsa faturalara bakılacak; MUTLAKA öğren!)  |
|         | <b>ULAŞIM</b>  |
| 44      | Sizin kullandığınız bir araç var mı? (mülkiyeti size ait olmayabilir)<br>1> Evet<br>2> Hayır (soru 45'e geçiniz)   |

|         |   |  |   |
|---------|---|--|---|
|         | <p><i>Evet ise:</i></p> <ul style="list-style-type: none"> <li>▪ <i>Marka:</i> .....</li> <li>▪ <i>Model:</i> .....</li> <li>▪ <i>Yıl:</i> .....</li> <li>▪ <i>Motor hacmi:</i>..... (1200, 1600, 2000 gibi)</li> <li>▪ <i>Siz son bir yılda kaç km yol yaptınız?</i> .....</li> </ul> <p>(Bilmiyor ise kendi kullanımı çerçevesinde toplamda kaç km yaptığını öğreniniz; arabayı kullandığı toplam yıla bölünüz).</p>  |  |   |
| 45      | <p>Düzenli olarak (sürekli işe/okula/kursa/alışverişe vs gitmek için) en sık kullandığınız ulaşım aracını söyler misiniz? (TEK CEVAP)</p> <p>1&gt; Özel Araç/Taksi (soru 45a'yı sorduktan sonra soru 46'ya geçiniz)</p> <p>2&gt; Motorsiklet (soru 45a'yı sorduktan sonra soru 46'ya geçiniz)</p> <p>3&gt; Toplu taşıma (soru 45a'yı sorduktan sonra soru 45b'yi sorunuz ve soru 46'ya geçiniz)</p> <p>4&gt; Servis (soru 45a'yı sorduktan sonra soru 46'ya geçiniz)</p> <p>5&gt; Bisiklet (soru 45a'yı sorduktan sonra soru 46'ya geçiniz)</p> <p>6&gt; Yaya (soru 46'ya geçiniz)</p> <p>98&gt; Düzenli olarak yolculuk yapmıyorum/gittiğim bir yer yok (soru 46'ya geçiniz)</p> |  |   |
| 45<br>a | <p>Trafik sıkışıklığı olmayan bir günde gidiş-geliş olarak düşündüğünüzde araç içerisinde yaklaşık toplam kaç dakika geçiriyorsunuz?</p> <p>1&gt; 20 dakikadan az</p> <p>2&gt; 21-40 dakika</p> <p>3&gt; 41-59 dakika</p> <p>4&gt; 1- 1,5 saat arası</p> <p>5&gt; 1,5 saatten fazla</p>   |  |   |
| 45<br>b | <p>Toplu taşıma ise düzenli olarak kullandığınız toplu taşıt hangisi? (birden fazla cevap verilirse en sık kullandığını irdelleyin)</p> <p>1&gt; Tramway/Metro/Tren</p> <p>2&gt; Otobüs</p> <p>3&gt; Minibüs/Dolmuş (Servis aracı da olabilir)</p> <p>4&gt; Vapur</p> <p>5&gt; Feribot</p>  |  |   |
| 46      | <p>Son bir yılda tatile gittiniz mi?</p> <p>1&gt; Evet</p> <p>2&gt; Hayır (SORU 47'YE GEÇİNİZ)</p>  |  |   |
|         | <p><i>Evet ise:</i></p> <p>Nereye gittiniz?<br/>(Ülke ya da il olarak belirtiniz)</p> <p>..... c10.</p>   | <p>Burada kaç gün kaldınız?</p> <p>c10.a .....</p> | <p>Buraya gitmek için hangi ulaşım aracını kullandınız?</p> <p>1&gt; Özel Araçla</p> <p>2&gt; Uçakla</p> <p>3&gt; Tren</p> <p>4&gt; Otobüs</p> <p>Diğer (yazınız).....</p> <p>c10.b .....</p> |
|         | ..... c11.  | c11.a .....  | c11.b .....   |
|         | ..... c12.  | c12.a .....  | c12.b .....   |
|         | ..... c13.  | c13.a .....  | c13.b .....   |
| 47      | <p>Son bir yılda hiç uçağa bindiniz mi?</p> <p>1&gt; Evet</p> <p>2&gt; Hayır (SORU 48'E GEÇİNİZ)</p>  |  |   |
|         | <p><i>Evet ise: (Gidiş bir, dönüş bir yolculuk sayılacaktır)</i></p> <ul style="list-style-type: none"> <li>▪ <i>1-2 saatlik uçuşlar kaç kez?</i> .....</li> <li>▪ <i>2-4 saati aşmayan (Avrupa, Orta Doğu, Kafkaslar gibi) kaç kez?</i> .....</li> <li>▪ <i>4 saati aşan (ABD gibi) kaç kez?</i> .....</li> </ul>  |  |   |
| 48      | GENEL DAVRANIŞ  |  |   |
|         | Evinizde çift cam var mı?   | Evet   | Hayır   |
|         | Evinizdeki ampuller az enerji kullanan tür ampuller mi?   | 1  | 2   |
|         |   | 1  | 2   |

|         |  |   |   |
|---------|--|---|---|
|         | Binanızın cephe yalıtımı var mı?   | 1 | 2 |
|         | Evinizde sıcak su için güneş enerjisinden yararlanıyor musunuz?  | 1 | 2 |
|         | Evinizi soğutmak için yazın klima kullanıyor musunuz?  | 1 | 2 |
| 49      | Binanızın çatısı:<br>1> Kiremit mi?<br>2> Beton mu?<br>3> Diğer<br>4> FY/CY  |   |   |
| 50      | Çatınızda ısı yalıtımı var mı?<br>1> Evet<br>2> Hayır<br>3> FY/CY  |   |   |
| 51      | Kışın ev içinde nasıl dolaşırsınız?<br>1> Kısa kollu<br>2> Uzun kollu<br>3> Kazakla  |   |   |
| 52      | Yazın banyo yapma sıklığınız nedir?<br>1> Her gün<br>2> İki günde bir<br>3> Haftada iki<br>4> Haftada bir  |   |   |
| 52<br>a | Kışın banyo yapma sıklığınız nedir?<br>1> Her gün<br>2> İki günde bir<br>3> Haftada iki<br>4> Haftada bir  |   |   |
| 53      | Elektronik eşyalarınızı (TV gibi) uzaktan kumanda ile kapatıp açılmaya hazır halde mi (standby'da mı) tutuyorsunuz? Yoksa üzerindeki düğmesinden kalkıp tamamen kapatıyor musunuz?<br>1> Standby'da tutuyorum (kumandadan kapatıyorum)<br>2> Üzerindeki düğmeden tamamen kapatıyorum |   |   |
| 54      | Bu işaretin ne anlama geldiğini biliyor musunuz? (İŞARETİ GÖSTER)<br>1> Evet<br>2> Hayır (Soru 55'ye geçiniz)  |   |   |
| 54<br>a | Evet ise, nedir?<br>.....<br>(ANKETÖRE NOT: Sadece çevre diyenlerden açıklamalarını iste)  |   |   |
| 55      | Peki, Kyoto Protokolü'nü hiç duydunuz mu?<br>1> Evet<br>2> Hayır (Bolum 9'a geçiniz)   |   |   |
| 55<br>a | Evet ise, hangi konuyla ilgili olduğunu söyler misiniz?<br>.....<br>(ANKETÖRE NOT: Sadece çevre diyenlerden açıklamalarını iste)   |   |   |
|         | <b>BOLUM 9</b>   |   |   |
| D0      | Cinsiyet?<br>1> Erkek<br>2> Kadın  |   |   |
| D1      | Doğum tarihinizi öğrenebilir miyim?.....   |   |   |
| D2      | Hayatınızın herhangi bir döneminde köyde yaşadınız mı?<br>1> Evet<br>2> Hayır (D3'E GEÇİNİZ)   |   |   |
| D2<br>A | Evet ise, toplam kaç yıl köyde yaşadınız?.....   |   |   |

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| D3      | Daha önce hiç yurt dışına seyahate gittiniz mi?<br>1> Evet<br>2> Hayır (D4'E GEÇİNİZ)  |
| D3<br>A | EVET ise, şu ülke gruplarından herhangi birinde toplamda 15 günden fazla kaldınız mı?<br>1> Batı Avrupa ülkeleri (Almanya, Fransa, İtalya, Yunanistan vb.), Kanada, ABD<br>2> Doğu Avrupa ülkeleri (Polonya, Romanya, Bulgaristan vb.)<br>3> Ortadoğu ülkeleri (İran, Irak, Suriye, Mısır vb.)<br>4> Afrika kıtasındaki ülkeler (Tunus, Fas vb.)<br>Diğer.....   |
| D4      | Medeni halinizi öğrenebilir miyim?<br>1> Bekar                      2> Evli                                      3> Dul/Boşanmış   |
| D5      | Okuma yazma biliyor musunuz?<br>1> Okur yazar değil<br>2> Okur yazar<br>Okur Yazar ise, en son bitirdiğiniz okulu öğrenebilir miyim?<br>1> Diploması yok<br>2> İlkokul<br>3> Ortaokul/ilköğretim<br>4> Lise<br>5> Üniversite ve üstü   |
| D6      | Şimdi sayacaklarımdan hangisi esas yaptığınız işi en iyi tanımlıyor?<br>1>Ücretli/Maaşlı ve tam zamanlı (yani haftada 30 saatten fazla) çalışıyor<br>2>Ücretli/Maaşlı ve yarı zamanlı (yani haftada 30 saatten az) çalışıyor<br>3>Kendi işinin sahibi<br>4>Ücretsiz aile işçisi<br>5>Çalışmıyor—>SORU D9'a GEÇİNİZ   |
| D7      | (ÇALIŞTIĞINI SÖYLÜYORSA) Şimdi sayacaklarımdan hangisi yaptığınız işi en iyi tanımlıyor?<br>1> Özel sektörde memur<br>2> Kamu sektöründe memur<br>3> Özel sektörde işçi<br>4> Kamu sektöründe işçi<br>5> Kendi hesabına çalışan-Uzmanlık gerektiren meslekler (Konusunda yüksek okul mezunu doktor, mühendis, avukat vb.)<br>6> Maaş karşılığı çalışan-Uzmanlık gerektiren meslekler (Konusunda yüksek okul mezunu doktor, mühendis, avukat vb.)<br>7> Kendi hesabına çalışan-Uzmanlık gerektirmeyen meslekler: Küçük/orta ticaret serbest meslek (Alım-satım, bakkal, esnaf)<br>8> Kendi hesabına çalışan: Büyük ölçekli ticaret (İthalat-ihracat, fabrika sahipleri, vs.)<br>9> Özel sektörde Üst düzey yönetici<br>10>Kamu sektöründe Üst düzey yönetici<br>11>Özel sektörde Orta düzey yönetici<br>12>Kamu sektöründe Orta düzey yönetici<br>13>Sporcu, sanatçı vb.<br>14>Tarımla/Hayvancılıkla uğraşanlar<br>Diğer: ..... |
| D7a     | Mesleğinizi tam olarak söyleyebilir misiniz?<br>Yazınız:.....  |
| D8      | ÇALIŞANLARA SORULACAK:<br>İş amaçlı seyahatlarınız oluyor mu?<br>1> Evet<br>2> Hayır (D9a'ya geçiniz)<br>Evet ise, yurtiçi seyahatlarınız ne sıklıkta oluyor?<br>Peki yurtdışı seyahatlarınız ne sıklıkta?<br>1> Haftada bir ya da daha sık<br>2> Ayda üç ya da daha az<br>3> İki üç ayda bir<br>4> Yılda bir iki<br>5> Hiç  |

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|----------|---|---|
|          | Yurtiçi seyahatlerinizde en sık hangi aracı kullanıyorsunuz?<br>1> Uçak<br>2> Özel araç<br>3> Otobüs<br>4> Tren   |   |
| D9       | (ÇALIŞMIYORSA) Şimdi sayacaklarımdan hangisi size en uygun olanı?   | 1>Emekli<br>2>Ev kadını<br>3>Öğrenci<br>4>İş arıyor, bulsa çalışmak istiyor<br>5>Bir işte çalışmıyor, kira-faiz benzeri gelirle geçiniyor |
| D9<br>A  | HERKESE SORULACAK:<br>Siz herhangi bir sağlık sigortası kapsamı altında mısınız? Evet ise hangisi?  | 1> SSK<br>2> Emekli Sandığı<br>3> Bağkur<br>4> Yeşilkart<br>5> Özel sağlık-emeklilik sigortası<br>6> Hiçbiri                              |
| D10      | EVLİ İSE eşinin yaptığı işi açık olarak yazınız? .....  |   |
| D1<br>1  | BEKAR DEĞİL İSE Kaç çocuğunuz var? .....  |   |
| D1<br>2A | Siz dahil hanenizde kaç kişi yaşıyor? (Yazınız!):.....  |   |
| D1<br>2B | Hanenizde 14 yaş ve altında kaç kişi yaşıyor? Yazınız!):.....   |   |
| D1<br>2C | Siz dahil hanenizde çalışan kişi sayısını söyleyebilir misiniz? (Yazınız!):.....  |   |
| D1<br>3  | Yakın ailenizde işsiz olup iş arayan var mı? Var ise kaç kişi? .....  |   |
| D1<br>4  | Herhangi bir gönüllü dernek veya kuruluşa (köy/belde kalkındırma derneği, cami yaptırma derneği, çevre koruma ve güzelleştirme derneği, yaşlılara yardım derneği, spor kulübü v.b.), vakfa (çevreyi koruma vakfı, sokak çocuklarına yardım vakfı, eğitim vakfı v.b), kooperatife veya sendikaya üye misiniz??<br>1> Evet üyeyim 2> Hayır, üye değilim |   |
| D1<br>4a | Oturduğunuz ev kendi mülkünüz mü, ev başka birisine ait ancak kira ödemiyor musunuz, yoksa lojman mı, yoksa kira mı?<br>1> Kendi mülkü 2> Ev başka birisine ait ancak kira ödemiyor 3> Lojman 4> Kira   |   |
| D15      | Şimdi size bazı şeyler sayacağım. Her biri için "sahibiz", "sahip değiliz" seçeneklerinden birini söyleyiniz.<br>1> Sahibiz 2> Sahip değiliz  |   |
|          |   | Kredi Kartı   |
|          |   | Bilgisayar/PC/ Laptop   |
|          |   | İnternet  |
|          |   | Cep telefonu  |
|          |   | Buzdolabı   |
|          |   | Otomatik çamaşır makinesi   |
|          |   | Otomatik bulaşık makinesi   |
|          |   | LCD/Plazma TV   |
|          |   | Araba   |
|          |   | Yurtdışında tatil imkanı  |
|          |   | Yazlık ev   |
| D1<br>6  | Evinize giren toplam aile gelirinin kaynakları nelerdir? Size sayacağım gelirlerin hane gelirinize katkısı oluyor mu?<br>1> Hanemize bu gelir giriyor 2> Hanemize bu gelir girmiyor   |   |
|          |   | Üretim ve- veya ticari kazanç   |
|          |   | Ücret, maaş, emekli maaşı   |

|         |  |  |
|---------|--|--|
|         |  | Kira   |
|         |  | Diğer sermaye geliri (faiz, repo, hisse senedi gibi) |
|         |  | Diğer (açıklayınız):.....                            |
| D1<br>7 | Hanenizdeki her bireyin bir aylık gıda, eğitim, sağlık, kira, elektrik, ulaşım, iletişim gibi masrafları düşünerek, hanenizin ortalamada aylık toplam giderinin (harcamalarının) ne kadar olduğunu söyler misiniz?<br>Anketör dikkat! Hanehalkı giderini YTL olarak yazınız. ....YTL |  |

|  |   |  |
|--|---|--|
| Adı Soyadı   | : | .....  |
| Mahalle-Köy  | : | .....  |
| Sokak/cadde  | : | .....  |
| Diğer (bina no, daire no)  | : | .....  |
| Semt/ilçe  | : | .....  |
| Telefon no   | : | .....  |
| Anketin yapıldığı il ismi  | : | .....  |
| Anket Tarihi   | : | .....  |
| Anketör Adı  | : | .....  |
| Görüşülen kişinin oturduğu bina:   |   | 1> Gecekondu 2> Normal İmarlı 3> Lüks imarlı                                       |
| Bu mahalle ya da köyde binalar veya konutlar fiziksel görünüm olarak ne durumda? |   | 1> Çok kötü 2> Kötü 3> Orta 4> İyi 5> Çok iyi                                      |
| Bu mahalle ya da köyde ne kadar döküntü, çöp ya da moloz vs var?                 |   | 1> Çok kötü 2> Kötü 3> Orta 4> İyi 5> Çok iyi                                      |
| Anketin yapıldığı yer  |   | 1< Büyükşehir<br>2> Küçük il merkezi<br>3> Büyükşehirle bağlı olmayan ilçe merkezi |
| Görüşülen kişi anket sırasında yalnız mıydı?                                     |   | 1> Evet 2> Hayır   |
| Sizce görüştüğünüz kişi soruları cevaplarken samimi miydi?                       |   | 1> Evet 2> Hayır   |

ANKETİMİZE KATILDIĞINIZ İÇİN TEŞEKKÜR EDERİZ

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