

Which is more dangerous: nuclear lies or radiation?

If I start an article about nuclear energy with a sentence including the words radiation, nuclear waste, Fukushima, Chernobyl or earthquake, rest assured that no one in the world would find it odd. However, when it comes to Turkey, the most appropriate word to define the nuclear energy policy of the state seems to me to be “heroism”. As far as nuclear energy is concerned, you can hear the best examples of “heroic literature” from the politicians in Turkey. Would you like to have an example of this form of “heroism literature” about nuclear energy? Let’s start with the most repeated line: “If Turkey does not build nuclear plants, it will remain without electricity.”

The main argument used to justify the decision towards building nuclear plants in Turkey is the rapid increase in energy/electricity demand. According to the data of the Ministry of Energy and Natural Resources, between 1990 and 2008, the annual average rate of increase in primary energy demand was realized as 4.3%.¹ Since the planned nuclear reactors can generate only electricity, it would be more appropriate to look at the increase in electricity consumption of Turkey. As a result of the global economic crisis, in 2009 the demand for electricity in Turkey decreased by 2 percent, however, it increased by 7.9 percent and 9 percent in 2010 and 2011, respectively. In accordance with the estimates for 2012, again, an increase by 7 to 8 percent is expected. In the view of these figures, it can be said that the electricity demand in Turkey shows a parallel tendency to the increase in Gross Domestic Product (GDP). If you do not question the demand growth, then you can claim that any energy investment to respond to this demand is appropriate. It seems that the investments made through the private sector to meet the demand would increase the installed capacity of Turkey to 55000 megawatt (MW) at the end of this year. As a reminder, 10 years ago this figure was 31845 MW.² In the same report, there are two important scenarios regarding electricity consumption. According to these two different scenarios aiming to estimate the increase in electricity demand, it is expected that the demand that reached 227 billion kilowatt-hour (kWh) at the end of 2011 will approach to 398 billion kWh based on the low scenario and to 433 billion kWh based on the high scenario.

Table 1: Demand Estimations (High Demand)

YEAR	PEAK DEMAND		ENERGY DEMAND	
	MW	INCREASE (%)	GWs	INCREASE (%)
2011	36000	7,8	227000	7,9
2012	38400	6,7	243430	7,2
2013	41000	6,8	262010	7,6
2014	43800	6,8	281850	7,6
2015	46800	6,8	303140	7,6
2016	50210	7,3	325920	7,5
2017	53965	7,5	350300	7,5
2018	57980	7,4	376350	7,4
2019	62265	7,4	404160	7,4
2020	66845	7,4	433900	7,4

Reference: TEİAŞ

I should emphasize that we are facing a government that will not even question such an inflated electricity demand, one that is “shockingly slow off the mark” in taking measures to decrease electricity losses originate from transmission and distribution and increase energy efficiency.

For a solution some of the energy intensive sectors should be downsized, while activities in high value-added, low-energy intensive areas are included in the middle and long termed planning. In the short term, it is possible for Turkey to rapidly decrease its energy consumption by using energy efficiently. The following statement is taken from the 9th Development Plan of the Ministry of Development: “According to the studies performed by the General Directorate of Electrical Power Resources Survey and Development Administration (EIE), via efficiency implementations on the sectors of industry, construction and transportation, it seems possible to decrease consumption of both general energy and electricity by 20-25 percent.”³ It is obvious that, in a country with an electricity consumption of 230 billion kWh, a 20 percent deduction would make the nuclear power plant (NPP), claiming to generate 35 billion kWh of electricity upon the completion of four reactors, unnecessary. To calculate the energy intensity of a country, the amount of energy which is used to generate GDP is taken into account. In the case of Turkey, this figure was 258 kilograms of oil equivalent (kgoe) per €1000 of GDP in 1990.



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In 2010, compared to 1990, it is only 6 kgoe lower (252). Whereas Ireland used 253 kgoe to generate €1000 of GDP in 1990, but, in 2010 it managed to use only 112 kgoe to generate same amount of GDP. In the same period of time, Greece dropped its energy intensity figures from 264 to 165 kgoe and Switzerland, in that category the top of Europe, from 102 to 86 kgoe. In other words, they have learned how to do the same job with less energy. Turkey has not even tried it yet.

Table 2: The comparison of energy intensity between countries (This ratio is measured in kgoe per EUR 1 000.)

	1990	2000	2002	2010
Turkey	258,66	264,62	259,06	252,51
Greece	264,39	204,92	198,78	165,46
Switzerland	102,46	97,58	98,38	86,54
Ireland	253,31	137,00	129,65	112,36

Reference: Eurostat

Turkey intends to construct two NPPs, one in Akkuyu area on the Mediterranean coast and then in Sinop on the Black Sea. The name of Akkuyu was brought to the agenda in Turkey through a nuclear power plant. In 1976, a site license for Akkuyu, which is located within the boundaries of the town of Büyükeceli in the province of Mersin, was obtained, but this first attempt ended unsuccessfully. This was followed by two separate attempts in 1980 and 1990. For several reasons, such as public backlash, economic conditions and bribery accusations, numerous attempts towards building a nuclear plant failed until 2004. In 2004, then Minister of Energy and Natural Resources Hilmi Güler surprised everyone by announcing, completely out of the blue, that they were working on projects for NPPs and would soon start construction. Although the dates given for the start of construction have changed consistently, significant developments have occurred since the 2004 statement through to today. “The Law on the Construction and Operation of Nuclear Power Plants and Energy Sale” was enacted by the Turkish Grand National Assembly (TGNA) on the 8th of May, 2007. This less than 5-paged law, with no regulation on the most critical matters for nuclear power plants such as security and waste issues, was vetoed by the 10th President of the Republic of Turkey, Ahmet Necdet Sezer. Law No. 5710 was re-debated by the Parliament and re-enacted with some amendments on the 9th of November, 2007. Abdullah Gül, a member of Justice and Development Party (AKP), who had just taken presidency and who had served as Prime Minister for a term, approved the amended law. Yet, the Chamber of Electrical Engineers criticized the law for being amended beyond the vetoed articles and, therefore, being totally reshaped.

Law No. 5710 was published in the Official Gazette dated 21 November 2007 and entered into force. The Turkish Electricity Trading and Contracting Company (TETAŞ) acted without delay and five days

later announced that a tender would be initiated for a nuclear power plant. Although they called it a “competition”, the sealed-bid-tender-like process did not meet the expectations of the government when only one firm submitted a bid. The owner of this bid was the consortium formed by the group of Atomstroyexport-Inter Rao-Park Teknik. Although the specification was obtained by 13 firms including, but not limited to, AECL, Itochu, RWE, Suez, Sabanci and Alarko, only six of them joined the tender. From five of the six sealed envelopes a thank you note appeared, all that was left was the consortium led by Atomstroyexport. It is rather curious that the top nuclear corporations did not even submit a bid for a nuclear power plant tender that had been pursued for years. Many firms hesitated because of Turkey started the tender process without preparing the legal and technical base for it. Sabanci Holding summed up the reason for not submitting a bid for the tender in a written statement given to the Istanbul Stock Exchange: “Sabanci Holding remains convinced that nuclear energy should be among the resources to be used in satisfying of increasing energy demand of Turkey. However, Sabancı Holding did not submit a bid today for the tender made by the TETAŞ affiliated with the Ministry of Energy and Natural Resources regarding the nuclear power plant planned to be built in Akkuyu, Mersin. This decision results from the inefficiency of the calendar given for such a nuclear plant tender process requiring highly delicate and detailed studies which need to be in line with Sabancı Holding’s high quality standards and carrying vital importance on security and risk in regard to our country.”⁴

Despite the submission of only one bid and, therefore a lack of two competing firms, the process was continued by the Ministry of Energy. After the Turkish Atomic Energy Authority (TAEK) approved the bid according to the required criteria, the price quote of the consortium was disclosed. The government granted a 15-year long power purchase agreement (PPA) to the planned nuclear plant. If a company opts to sell electricity at a lower price, the government would choose that firm to build the nuclear plant. Only one firm survived the bid, the sealed envelope of the Atomstroyexport-Inter Rao-Park Teknik group was opened and their bid of 21.16 US cents per kWh was seen. The government and nuclear power supporters had another shock. Not only politicians, but also some scientists introducing themselves as nuclear energy experts in Turkey were often stating without hesitation that the price of electricity generated by a nuclear power plant would be very low. Hence, many people dreaming of cheap nuclear power were surprised when they heard this price quote on January 2009. The decision of a stay of execution of the Plenary Session of Administrative Law Divisions of the Council of State for three articles of the regulation on the NPP tender brought about an end to the tender, which had already soured with the “high price”. On 20 November 2009, TETAŞ announced that the

nuclear plant tender was cancelled.⁵

Thereafter, the AKP government took a quite different path. Through price-oriented negotiations with the Russian company, the guarantee of purchase paid per kWh was decreased first to 15 cents and then to 12.35 cents. The following statement that Minister of Energy and Natural Resources Taner Yıldız uttered during the negotiations significantly showed that the government also believed in the cheap nuclear power myth, “If we are not content with the price, it means that there is an error. Where does this error come from; us, bidders or non-bidders? We should address that. The actual price is above the average price of electricity generated in Turkey. The 15-odd cent price is too high. We are not satisfied. A nuclear plant is a must, but it should be at a reasonable price. Nuclear energy has two components. One of them is technical and the other is financial. I think the financial cost has appeared to be more than expected.”⁶

The price did not fall to 2-3 cents as mentioned in the heroic speeches of politicians. The negotiations started with Rosatom after the cancellation of the tender were clarified and finalized in an international agreement signed between the Russian Federation and the Republic of Turkey on 12 May 2010. Needless to say, nothing was clarified on many matters, such as what would happen to nuclear wastes; who would be responsible in a case of accident and in what extent; the security of the proposed VVER-1200 technology; the earthquake resistancy of the Akkuyu region; how this plant would affect Turkey’s tourism haven in the Mediterranean region; and how on earth this decision was taken in spite of the public saying no to nuclear power. The only things clarified were the price of the guarantee of purchase and the role to be undertaken by the Russian company in this nuclear plant project. As stated in the fifth paragraph of Article 10 of the international agreement signed between Turkey and the Russian Federation, TETAŞ guaranteed to purchase from the project company “Akkuyu NPP” a fixed amount, 70 per cent for the first two units (reactors) and 30 per cent for the other two units, of the electricity planned to be generated by the plant for 15 years from the date of commercial operation of each power unit at a weighted average price of 12.35 US cents per kWh (not including Value Added Tax). The planned power plant to be built in Akkuyu is composed of four VVER-1200 type reactors. According to the Build-Operate-Own (BOO) model, the company must compensate the first investment value of Akkuyu NPP with electricity sales. It was a paradox that government officials executed this agreement while, during their marketing efforts regarding the NPP, they were complaining about energy dependency on Russia and stating that the planned nuclear plant would reduce this dependency. In the agreement, it was even stated that the Russian company could not sell more than 49 percent of the shares of the power plant to another company.

Dependency on Russia

Turkey imports 98.3 percent of the natural gas it consumes. In 2011, 25.4 billion cubic meters out of total 43.8 billion cubic meters was imported from Russia.⁷ Iran followed Russia with 8 billion cubic meters. The 47.89 percent of the natural gas imported in 2011 was used for power generation. From this point of view, it can seem wise to generate a portion of the necessary electricity through a nuclear plant to reduce the share of natural gas in electricity generation; however, if you grant the tender to a state company of the country you are already 58 percent dependent upon for natural gas, this would only mean change of fuel not the supplier. Even if the nuclear plant begins operations, since, due to the type of reactor, the fuel has to be produced in Russia and imported from Russia, the dependency of Turkey to that country in terms of energy would increase, not decrease. Additionally, merely building a NPP is not enough for reducing the dependency on natural gas. As long as electricity demand increases, it cannot be possible to close the existing natural gas plants. Even if

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their proportional share in increasing demand reduces, the amount would not decrease. And here is a fact that suffers from the heroism literature of the government: from the list of licensed projects of the Energy Market Regulatory Authority (EMRA), it can be seen that the construction of a new natural gas power station with 13000 MW installed capacity continues. More interestingly, the applications for natural gas fuelled thermal power stations made to the EMRA show the capacity to reach 53000 MW.⁸

Thus far, I have tried to illustrate how the government mis-informed the public in an effort to justify Turkey’s nuclear adventure. Mainstream media facilitates this propaganda by not publishing any objective news on nuclear energy and reporting news in support of the government and the above-mentioned company. In the USA, one of the biggest hindrances in front of new nuclear plants is the waste problem, but this issue has hardly ever come up in Turkey. While the company avoids this question with short and un-detailed responses, such as wastes would be taken to Russia, it is in contradiction with Paragraph 9 of Article 10 of the international agreement it is signatory to. In that Article, it is stated that “The Project Company shall pay a separate amount of 0.15 US cents per kWh to the account for spent fuel, radioactive waste management and 0.15 US cents per kWh to the account for decommissioning for electricity

purchased by TETAŞ within the framework of the PPA. With regards to the electricity sold outside the framework of the PPA, the Project Company will make the necessary payments to relevant funds stipulated by the applicable Turkish laws and regulations.” If spent fuel would be sent to Russia, then why the project company still pays for spent fuel and radioactive waste management?

Uncertainty is not limited only with the text of the agreement and the responsibilities of the Russian company. The earthquake risk of the Akkuyu region is still a debated subject. It is still unknown who would control the construction said to be started in 2014. There is no authority other than TAEK. But TAEK does not have any experience in NPPs, let alone independency. The VVER-1200 type reactor does not conform to the condition to be tested, which was mentioned often during the tender period; there is no VVER-1200 reactor operating in the world. Again, Turkey has to rely on detail-less and imprecise statements from the Russian company on that matter. These statements do not go beyond phrases like “We are constructing the strongest building in the world in Akkuyu”. The reply given by Managing Director Sergey Petrov, who is operating the construction of the Vorenej-2 reactor, to the reporter who had wanted to climb to the top of the 136-meter pipe, and published in the news, hitting the headlines of *Hürriyet* newspaper on 8 July 2012 and looking almost like an advertisement of the Russian company reveals everything: “... Last May, a group of experts from the Turkish Ministry of Energy visited our construction site. At the beginning, there was a bombardment of questions. But when we took them to the top of the pipe, no more questions were left about our technology.”⁹

Despite all, it can be considered a miracle to get a “No to Nuclear” response from public opinion surveys.¹⁰ Due to governmental oppression, the local community or the silent majority saying “No to Nuclear” in Turkey are not hopeful about the cases brought against the nuclear plant. Lawyer Fevzi Özlüer from Ecology Collective says that the purpose of preferring to execute an international agreement was to prevent the process of the nuclear plant from being subjected to judicial review. Although an Environmental Impact Assessment (EIA) process has been started, as a result of its perfunctory nature, it does not seem able to meet expecta-

tions. Though the briefing meeting on 29 March 2012 in Akkuyu could not be held due to hours of protests, it was a total scandal that officials from the Ministry of Environment drew up minutes stating that “the meeting was conducted in line with its particular purpose.”

Since it affects the lives of millions of people and living beings, it is important that Turkey, possessing one of the best renewable energy potentials in Europe and having many ways in respect to energy efficiency, once again stop its nuclear power plant plans. It is confusing to see the Ministry of Energy insisting upon nuclear energy, although it accepts that 380 billion kWh electricity can be generated by solar pv or we can have 48000 MW wind installed capacity which will have no feasibility question (today the installed capacity for wind is around 2000 MW). The renewable energy resources such as wind, sun, geothermal and biomass are more feasible for technology transfer as well as providing more employment opportunities than a nuclear plant.. According to the figures of the European Wind Energy Association, with each 1 MW wind turbine built and installed, 15 new jobs are created.¹¹ Thus, 1000 MW of wind power creates employment for 15,000 people, while a nuclear plant with the same capacity only employs 400-700 people, according to data of the Nuclear Energy Institute. Yet, it is claimed by Rauf Kasumov, the Deputy General Manager of the company that wants to build a nuclear power plant at Akkuyu, that the plant would employ 20,000 people when completed.¹² Apparently, this heroism thing is infectious. The Akkuyu NPP deputy manager seems to be infected by our politicians.

When tons of tea was exposed to radioactive fallout in the Black Sea Region after the Chernobyl accident, the then Prime Minister Turgut Özal said that “Radioactive tea is much more delicious.” Now, after the Fukushima accident, Prime Minister Recep Tayyip Erdoğan said that “There is no investment involving zero risk. Then we should not have bottled gas or install a natural gas line at home or no crude oil pipeline should cross our country.”¹³ As has been shown, many things have changed in 40 years, but in Turkey, Prime Ministers and their ambition on nuclear power has not changed at all.

Footnote

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