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NUCLEAR ENERGY LEGISLATION AND PROJECTS IN TURKEY

This article provides information regarding Turkish nuclear energy legislation, which has been published in the Official Gazette and became effective in Turkey as of today. It also addresses the current status of nuclear power plant construction and operation projects in the Akkuyu and Sinop provinces of Turkey. In particular, the International Treaty between Russia and Turkey regarding the development of a nuclear power plant in Akkuyu is examined.

I. GENERAL

Turkey possesses rich uranium reserves and the establishment of a nuclear power plant has been on the agenda of the Government since the early 1960s. However, attempts by the Government in 1960, 1968, 1974, 1998 and 2000 to build nuclear power plants in various provinces, such as Akkuyu and Sinop, failed. Despite lengthy research, detailed preparation efforts and tender processes, all of the projects failed for various reasons. Accordingly, Turkey does not presently have any nuclear power plants in operation or under construction.

Turkey's latest effort to construct and operate a nuclear power plant commenced in 2006. A draft law on nuclear energy was prepared by the Ministry of Energy and Natural Resources ("MENR") and submitted to Parliament on 31 October 2006. It was enacted by the Turkish Parliament on 9 November 2007 as "Law No. 5170 Concerning the Construction and Operation of Nuclear Power Plants and the Sale of the Energy Generated from Nuclear Power Plants"¹ (the "Nuclear Energy Law").

II. INCENTIVIZED REGIME UNDER THE NUCLEAR ENERGY LAW

A. Incentives

The Nuclear Energy Law and its Implementation Regulation² (the "Implementation Regulation") provide the following incentives for the construction and operation of a nuclear power plant in Turkey:

- (i) Each electricity retail sale and wholesale company shall be obligated to purchase a certain percentage of its electricity sales from the nuclear power plant. The price and purchase guarantees offered by the authorized company during the selection process

¹ Published in the Official Gazette No. 26707, dated 21 November 2007.

² Published in the Official Gazette No. 26821, dated 19 March 2008.

shall be applicable to such sales. In the event that the retail sale and wholesale companies do not comply with the above-stated purchase requirement, the Energy Market Regulatory Authority (“EMRA”) shall impose an administrative fine, which is, with figures applicable in 2010, TL 286,160 (approximately US\$ 184,620). In the event that the violation is repeated by the same entity, EMRA shall impose heavier sanctions up to and including the cancellation of the license of the violating company.

- (ii) Excess power generation, not covered by the bilateral contracts with the retail sale or wholesale companies, shall be purchased by TETAS, the public electricity wholesale company.
- (iii) The Council of Ministers is authorized to provide certain incentives for investments concerning technology development and production of nuclear fuel as well as the training of the personnel to be employed in the nuclear power plants.
- (iv) In the event a nuclear power plant is to be constructed on forest land and/or on land under the private ownership of the Treasury (*i.e.*, Treasury lands which are not allocated for the performance of a public service) or under the control or disposal of the State, such land shall be leased to, or a right-of-way given to, or usufruct rights thereof shall be granted to the relevant entities.

The Nuclear Energy Law provides that the process of selecting a private sector company to construct and operate the nuclear power plant will begin after the evaluation of the opinions of the relevant ministries and public entities are furnished by MENR.

Any local or foreign company who fulfills the criteria to be determined by the Turkish Atomic Energy Authority (“TAEK”) may qualify to participate in the selection process. The company who offers the lowest price and purchase guarantees shall be awarded the contract. In other words, the price guarantee offers (in Turkish currency) and the purchase guarantee offers (in kWh terms) of the bidders for the 15-year operation period will be multiplied and the company of which the result of such multiplication is the lowest will be selected as the company authorized to construct and operate the nuclear power plant.

The draft version of the Nuclear Energy Law stipulated that the amount of the price guarantee offered by the bidders should not exceed the average wholesale price of the Turkish public electricity wholesale company (“TETAS”). However, there is no such provision in the enacted version of the Nuclear Energy Law. Consequently, the offers of the bidders can exceed the average wholesale price of TETAS.

III. LICENSING REQUIREMENTS

According to Article 5(1) of the Nuclear Energy Law, the authorized company is required to obtain any and all licenses, permits and certificates in accordance with relevant legislation. The Nuclear Energy Law does not, however, expressly specify the time table or the legislation to be followed by TAEK during the licensing process.

Considering the existing legislation governing the nuclear energy sector in Turkey, the following licenses will be required for the construction and operation of a nuclear power plant:

(i) Preliminary TAEK Approval

Pursuant to Article 50 of the Regulation Concerning the Radiation Security³ (“Radiation Security Regulation”), in order to engage in production, importation and exportation activities, sale and purchase, transportation, storage, maintenance, commissioning, dismantling, modification, reservation and utilization of each radiation resources, individuals and legal entities are required to apply to TAEK to obtain prior approval.

The license to be granted by TAEK under Article 50 of the Radiation Security Regulation is considered as a precondition for any other permits, certificates or licenses to be granted by other governmental authorities. TAEK is not permitted to initiate the license evaluations without issuance of an Environmental Impact Assessment Affirmative Opinion by the Ministry of Environment and Forestry.

(ii) TAEK Licenses

The Nuclear Security Department and the Advisory Board of Nuclear Safety of TAEK are authorized to conduct licensing activities as per Article 4 of the Nuclear Licensing By-Law.⁴ The license is the principal document issued by TAEK that governs the rights and obligations of the licensee. The licensing process is threefold: it includes obtaining a TAEK site license, a TAEK construction license, and a TAEK operation license.

a. TAEK Site License

Any company that wishes to construct a nuclear power plant in Turkey is required to obtain a Site License from TAEK. The information and documents required for submission to TAEK with such application include:

- the capacity of the power plant and the reactor type;
- a site map and any other maps indicating the geographical layout of the selected site where the facility will be constructed;
- information and survey results in relative to topographical, geological, hydrological, seismological and meteorological qualifications;
- different options for habitation considering the reactor type;
- evaluation reports of the site consisting of prospective consequences of earthquake, flood or storm; and the possible external affairs including but not limited to aircraft accidents, fire, explosion and collapse of dams; and
- documents evidencing the sufficiency of water resources.

3 Published in the Official Gazette No. 23999 dated 24 March 2000.

4 Published in the Official Gazette No. 18256 dated 19 December 1983.

b. TAEK Construction License

In order to obtain a TAEK Construction License, the applicant must hold a site license and submit a preliminary analysis report including, but not limited to, the safety principles for construction, operation and decommissioning, projects of the buildings, precautions for radioactive wastes, and security analysis for ordinary and extraordinary operation. A TAEK Construction License is issued in two stages as: (i) the limited working license, and (ii) the final construction license. Once the applicant is granted a limited working license, it must start construction within 12 months, which may be extended by TAEK based on justified reasons.

c. TAEK Operation License

Companies that obtain a site license and a construction license are eligible to make an application to TAEK for an operation license. The following documents shall be submitted to TAEK for review as part of the TAEK Operation License application:

- results of the preliminary testing;
- a description of the quality program;
- documents evidencing the qualifications of operation personnel;
- a program for fuel and testing program for fuel;
- documents in relation to operation conditions;
- internal instructions of the facility;
- a program for radiation protection; and
- plans for an emergency.

The operator shall not change the internal instructions and regulations without the prior approval of TAEK. Also, the Operation License cannot be transferred without prior approval of TAEK.

(iii) EMRA License: In addition to the aforesaid TAEK licenses, an electricity generation license issued by EMRA is required for the construction and operation of a nuclear power plant. According to Article 3 of the Nuclear Energy Law, the optimum bid shall be chosen by TETAS once the optimum bid is approved by the Council of Ministers. Following that, EMRA would present a generation license to the awarded company. Therefore, in order to construct and operate a nuclear power plant under the Nuclear Energy Law (i.e., by benefiting from the incentives available thereunder, such as the price and purchase guarantees), legal entities are required to participate and become the preferred bidder in the tender to be conducted by TETAS. However, any legal entity who wishes to construct and operate a nuclear power plant without benefiting from the incentives of the Nuclear Energy Law may apply to EMRA for a nuclear power plant license without participating in the above-stated TETAS tender.

(iv) Other Licenses and Permits: In addition to the above, there are certain environmental, and health and safety permits that must be obtained, including the following:

- pursuant to Article 12 of Regulation Concerning the Waste of Use of Radioactive Materials⁵, the license holder shall obtain the necessary permits before the disposal of waste into the sewage system by the licensee if the radioactive liquid to be disposed includes toxic or other chemical materials;
- pursuant to Article 28 of the Regulation Concerning the Management Organization on the Investigation Reactors, Personnel Qualifications and Licenses of the Operator Personnel⁶, management chiefs and operators who will work in research reactors shall obtain an operator's license from TAEK;
- an initial operation permit, pursuant to Article 23 of the Nuclear Licensing By-Law;
- initiation of fuel loading and test operations permit, pursuant to Article 26 of the Nuclear Licensing By-Law;
- a heavy water loading permit, pursuant to Article 28 of the Nuclear Licensing By-Law;
- a permit to work at full capacity, pursuant to Article 29 of the Nuclear Licensing By-Law;
- if applicable, a permit to work at limited capacity, pursuant to Article 33 of the Nuclear Licensing By-Law;
- if applicable, a permit to restart operations, pursuant to Article 54 of the Nuclear Licensing By-Law;
- a permit for the entry into and exit from the country for certain materials, pursuant to Article 15 of the By-Law Concerning the Radiation Security⁷;
- a transportation and transit passage permit, pursuant to Article 16 of the By-Law Concerning the Radiation Security;
- an export-import permit, pursuant to Article 61 of the Radiation Security Regulation;
- an export permit for radioactive substances, pursuant to Article 66 of the Radiation Security Regulation; and

⁵ Published in the Official Gazette No. 25571 dated 2 September 2004.

⁶ Published in the Official Gazette No. 25973 dated 21 October 2005.

⁷ Published in the Official Gazette No. 18861 dated 7 September 1985.

- with respect to surface rights, depending on the classification of the land, additional permits (such as forest, pasture, ministry land, agricultural land, protected area, etc.).

IV. OTHER OBLIGATIONS OF THE AUTHORIZED COMPANY

1. Fuel Supply

Pursuant to Article 21 of the Implementation Regulation, all responsibilities regarding the supply, reliability and cost of fuel required for the operation of the power plant shall lie with the Authorized Company.

2. Waste Management

The Nuclear Energy Law provides that a decommissioning fund and a national radiological waste fund shall be established. These funds shall be utilized to meet the costs associated with the construction, licensing and operation of temporary and permanent waste storage facilities, transport and processing of wastes, research and development studies related to the nuclear waste management, and the dismantling of the nuclear power plant.

The company which will operate the nuclear power plant is required to pay a certain amount to the decommissioning fund and the national radiological waste fund in an amount to be determined by TAEK.

3. Decommissioning and Dismantling of the Power Plant

Pursuant to Article 23 of the Implementation Regulation, all responsibilities regarding the decommissioning and dismantling of the power plant at the end of the authorization term shall lie with the Authorized Company.

V. CURRENT STATUS OF NUCLEAR POWER PROJECTS

1. Akkuyu Project

Construction of a nuclear power plant in Akkuyu has been on the agenda of the Government since 1974. However, all attempts for the Akkuyu nuclear power project in 1974, 1983, 1993 and 2000 failed. The latest attempt for the Akkuyu project started with the tender of TETAS dated 24 March 2003. Only one bidder, namely the Atomstroyexport-Inter Rao-Park Teknik Group, submitted a bid, and hence, became the successful bidder. According to news reports, the bid submitted by this consortium was US 21.16 cents per kWh.

Subsequent to the suspension of the execution of certain provisions of the Implementation Regulation by the Supreme Administrative Court, TETAS cancelled the Akkuyu project tender in November 2009. The Turkish and Russian Governments then began negotiations of an international treaty for a nuclear power plant construction and operation project in Akkuyu (the “Russia-Turkey Treaty”), which was signed on 12 May 2010 and became effective on 21 July 2010, upon publication of the Ratification Law No. 6007 in the Official Gazette No. 27648 dated 21 July 2010.

The main features of the Russia-Turkey Treaty are as follows:

- The State Atomic Energy Corporation of the Russian Federation (*Rosatom*) shall establish the Project Company within 3 months from the signing date of the Treaty, *i.e.*, by 28 September 2010.
- The Project Company shall be the owner of the power plant. The power plant shall consist of 4 units and the reactor type shall be AES-2006 model VVER-1200 nuclear reactors. The general contractor for the construction shall be Atomstroyexport.
- The ownership structure of the Project Company may change within time by mutual agreement of the parties, provided that the share of the Russian authorities shall never be less than 51%.
- Issues relating to the corporate governance of the Project Company, including but not limited to distribution of shares, form of shareholders investments, restrictions with respect to the transfer of shares and the funding mechanisms applicable to the Project Company and the Project shall be subject to the consent of the Turkish government with the purpose of protecting the national interests in issues of national security and economy.
- The Project Company, with the full support of the relevant Russian authorities, shall place into commercial operation the first unit of the power plant within 7 years from the issuance of all licenses and permits necessary to start the construction. The other 3 units shall be placed into operation in one-year intervals following the commercial operation date of the first unit.
- A Power Purchase Agreement (“PPA”) shall be signed between the Project Company and TETAS. The term of such PPA shall not be less than 15 years starting from the commercial operation date of each unit. Through the PPA, TETAS shall purchase 70% of the electricity generated by the first and second units and 30% of the third and fourth units for 15 years from the commercial operation date of each unit for a weighted average price of US 12.35 cents per kWh (not including value added tax). The remaining capacity shall be sold in the open market.
- The Parties agree that Turkish companies shall be widely employed by the contractor during the construction phase and Turkish citizens shall be employed for the operational needs of the power plant.
- The site of the power plant shall be allocated to the Project Company by the Turkish government free of charge. The Project Company shall obtain all necessary permits and licenses under the applicable Turkish legislation, including those explained in Section III above.
- With respect to the financing of the project, the Russian party shall provide Atomstroyexport with financing on preferential terms for purchasing goods, works and services of Russian origin.

2. Sinop Project

According to press statements in November 2009 by the Turkish Minister of Energy and Natural Resources, a tender was planned to be conducted within 2010 for the construction and operation of a nuclear power plant in the Sinop province of Turkey pursuant to the Nuclear Energy Law. However, no such tender has been announced yet. Instead, the Turkish and South Korean governments began negotiations of a bilateral treaty for the construction and operation of a power plant in Sinop.

Based on news reports, a Memorandum of Understanding (“MoU”) was signed in March 2010 between Turkish and South Korean Governments on Sinop Nuclear Power Plant Project with a validity period of 5 months. Based on the MoU, a Turkish Delegation in May 2010 visited South Korea to conduct technical studies of a nuclear power plant and fuel factory.

In mid-June 2010, the Minister of Energy and Natural Resources visited South Korea with President of the Republic, regarding the MoU, and discussed certain issues of the bilateral agreement such as finance, escalation, partnership structure, and sharing of risks. As a result of the visit, the deadline for completion of the feasibility study was extended until November 2010.

As of end the June 2010, the South Korean Technical Delegation has engaged surveys in the fields of Sinop. Based on news reports, the technical works are envisaged to be finalized towards the end of November 2010.

V. CONCLUDING REMARKS

All attempts made by the Government in 1960, 1968, 1974, 1998 and 2000 for the construction of a nuclear power plant, such as Akkuyu and Sinop, have failed. The latest attempt in 2007, which was unique in the regard that it was the first time such an attempt was formulated by means of a special law (namely, the Nuclear Energy Law), also failed with the cancellation of the Akkuyu project tender by TETAS in November 2009. Although the Nuclear Energy Law has been effective for more than 3 years now and a tender has already been issued thereunder, the current position of the Turkish government is to develop nuclear power projects under bilateral inter-governmental treaties, *i.e.*, subject to a special legal regime that consists of both references to the Nuclear Energy Law for certain issues and with specific treaty provisions differing from the Nuclear Energy Law on certain other points as explained above.

As a criticism of the current nuclear legislation, under both the Russia-Turkey Treaty and the Nuclear Energy Law, various authorities such as the Council of Ministers, MENR, TAEK and EMRA, are empowered with the supervision and regulation authorities in the nuclear energy sector. For example, the authority to determine the principles and procedures for the selection of the authorized company rests with the Council of Ministers, while the authority to prepare and conduct the selection process of the authorized company is granted to MENR under the Nuclear Energy Law. On the other hand, TAEK will be the regulatory authority in the nuclear energy sector. EMRA, which is the regulatory authority in the electricity, natural gas, petroleum, LNG and renewable energy sectors, will not have any regulation or supervision authority with regards to nuclear power plant operators. Moreover, the Nuclear

Energy Law envisages TAEK to be replaced by another public authority to be established in the future; the regulation and supervision authorities of TAEK are of a temporary nature. We believe that a better approach would be to authorize EMRA, which is the independent regulatory authority in the energy sectors, to act as the only competent authority implementing the Nuclear Energy Law, since the authorization of two public authorities (*i.e.*, TAEK and its future replacement, and EMRA) in the same field of activities is likely to create cross-authority problems which may lessen, in practice, the benefits envisaged by the Nuclear Energy Law and the Russia-Turkey Treaty. ⊕